MINNESOTA STATE COLLEGE
SOUTHEAST

2024
College Catalog

This catalog presents the information in effect at the time of publication.
Contents of this catalog are subject to change without notice.

Our Mission

Minnesota State College Southeast prepares students for a lifetime of learning by providing education for employment, skill enhancement, retraining, and transfer, to meet the needs of students and the community.

Our Vision

To enrich lives and communities by being the best.

Our Values

Integrity
Diversity
Excellence
Access
Learning
Stewardship

Welcoming Statement

Minnesota State College Southeast is proud to welcome individuals of all backgrounds and identities to our college, and we affirm our belief that our broad diversity serves to strengthen our communities.

We make this statement with a commitment to work towards continual improvement by:

- Practicing daily, active inclusion
- Ongoing education for our students, faculty and staff about issues of equity, inclusion, and access
- Improving and sustaining representation across a wide spectrum of identities
- Building and maintaining a safe and respectful environment for all
- Ongoing assessment and action to further enhance these efforts

Commitment to Equity and Inclusion

Minnesota State College Southeast welcomes and affirms students, college employees, and community members from all backgrounds. We provide learning opportunities to expand expertise and awareness on issues of diversity, equity, and inclusion. We strive to attract, support, and retain students and employees from diverse, historically underserved, and marginalized populations. We commit to graduating and transferring students from these backgrounds. We are dedicated to engaging, serving, and diversifying our partnerships with local communities and the individuals within them.

Programs of Study

listed alphabetically by major

Programs

Liberal Arts and Sciences/MnTransfer Information

Minnesota Transfer Curriculum FAQs
Below are the frequently asked questions regarding Minnesota Transfer Curriculum at Minnesota State College Southeast (MSC Southeast). If you are a student transferring to MSC Southeast, be sure to review our Transfer Policies and Procedures. If, however, you are transferring from MSC Southeast, be sure to review the Articulated Transfer Agreements.

What is the Minnesota Transfer Curriculum (MnTC)?
The Minnesota Transfer Curriculum enables you to complete an approved MnTC course at one of the 32 Minnesota State Colleges and Universities (Minnesota State) and at the University of Minnesota. You can then easily transfer the course credit to any other Minnesota State institution. MSC Southeast is a Minnesota State institution.

What is Minnesota State Colleges and Universities?
Minnesota State Colleges and Universities play an essential role in growing Minnesota's economy and opening the doors of educational opportunity to all Minnesotans. Minnesota State is a system of all two and four-year public colleges and universities in Minnesota. It includes state technical colleges, community colleges and state universities.

How can I benefit from MnTC?
MnTC allows you to take approved Liberal Arts and Sciences requirements and ensures that you will not have to retake them upon transferring to other Minnesota State institutions or the University of Minnesota. This will maximize other opportunities for you and help you graduate on time.

What if I have already completed a MnTC course at another Minnesota State institution?
That puts you one step closer to completing your Liberal Arts and Sciences at MSC Southeast. These courses will easily transfer and satisfy part or all of your gen ed requirements. You can visit the Transfer Student Web page for more information.

How do I know what courses at MSC Southeast qualify as MnTC?
For the most updated list of courses, please visit the Minnesota Transfer Curriculum Web pages.

Do I have to attend full-time in order to qualify for MnTC?
Visit www.mntransfer.org or www.southeastmn.edu or call and speak with a transfer specialist at 1-877-853-8324.
We will be more than happy to discuss the Minnesota Transfer Curriculum with you and ways it can help you in your education.

How do I find out about the Minnesota Transfer Curriculum Package?
You can visit our Minnesota Transfer Curriculum Package Web page to get more information about the package.

How do I find out more about Transfer?
You can visit the Minnesota Transfer website to get more information about transfer.

Minnesota Transfer Goals

Ten areas of emphasis in the Minnesota Transfer Curriculum:

Goal 1: WRITTEN and ORAL COMMUNICATION -
To develop writers and speakers who use the English language effectively and who read, write, speak and listen critically.

Goal 2: CRITICAL THINKING -
To develop thinkers who are able to unify factual, creative, rational and value-sensitive modes of thought.

Goal 3: NATURAL SCIENCES -
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.

Goal 4: MATHEMATICAL/LOGICAL REASONING -
To increase students' knowledge about mathematical and logical modes of thinking.

Goal 5: HISTORY and THE SOCIAL and BEHAVIORAL SCIENCES -
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.

Goal 6: THE HUMANITIES - THE ARTS, LITERATURE, AND PHILOSOPHY -
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.

Goal 7: HUMAN DIVERSITY -
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.

Goal 8: GLOBAL PERSPECTIVE -
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.

Goal 9: ETHICAL AND CIVIC RESPONSIBILITY -
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.

Goal 10: PEOPLE and THE ENVIRONMENT -
To improve students' understanding of today's complex environmental changes.

Minnesota Transfer Curriculum Package

The Minnesota Transfer Curriculum is the means by which a student transfers a complete package of lower division general education from one Minnesota State institution to another. At Minnesota State College Southeast this is accomplished by a minimum of 40 credits as designated in this flyer. If a course is eligible for multiple goals, the additional goal(s) is listed in parenthesis; however, credits for any course may count only once towards the minimum 40 credits.

Note: Students must maintain a minimum cumulative G.P.A. of 2.0 in these courses to transfer this package. The MnTC grade point average will be calculated using grades of A – D (passing grades earned) in all MnTC courses, including both Minnesota State College Southeast and transfer grades.

Course No. Course Title

Goal 1: Written and Oral Communications

You need a minimum of 9 credits to meet Goal 1.

College Speech (COMM1218) **OR**
Interpersonal Communications (COMM1228)
College Writing I (ENGL1215)
College Writing II (ENGL2525)

COMM1218	College Speech
COMM1228	Interpersonal Communications (Goal 7)
COMM1420	Social Media Communications (Goal 9)
ENGL1215	College Writing I
ENGL1410	Technical Writing
ENGL1445	Introduction to Creative Writing (Goal 6)
ENGL2440	Creative Writing: Fiction (Goal 6)
ENGL2450	Creative Writing: Nonfiction (Goal 6)
ENGL2460	Creative Writing: Poetry (Goal 6)
ENGL2525	College Writing II (Goal 2)
ENGL2595	Special Topics in Writing

Goal 2: Critical Thinking

Goal 2 is met once the other 9 MnTC Goals are completed and you have taken 40 MnTC credits.

ARTS1222	Introduction to Graphic Design (Goal 6)
BIOL1226	Nutrition (Goal 3)
BIOL2515	Anatomy & Physiology I (Goal 3)
BIOL2516	Anatomy & Physiology II (Goal 3)
BIOL2540	Pathophysiology (Goal 3)
CHEM1430	Principles of Chemistry I (Goal 3)
CHEM1431	Principles of Chemistry II (Goal 3)
CHEM2518	General, Organic & Biochemistry I (Goal 3)
CHEM2520	General, Organic & Biochemistry II (Goal 3)
CRTK1295	Critical Thinking through Chess
ENGL2525	College Writing II (Goal 1)
ENGL2580	Independent Reading: The Great Books (Goal 6)
HUMA1105	Oral Interpretation (Goal 6)
PSYC2520	Psychology of Human Sexuality (Goal 5)

Goal 3: Natural Science

You need 6-8 credits to meet Goal 3. You must select two science courses from at least two different subject areas. One course must have a traditional lab and the other must have a traditional lab or lab-like experience.

AGRI1202	Animal Science (3 credits)
BIOL1120	Environmental Science (Goal 10)
BIOL1200	*Human Biology (4 credits)
BIOL1201	*Introduction to Biology (Goal 10)
BIOL1226	*Nutrition (Goal 2)
BIOL1240	Introduction to Agroecology (Goal 10)
BIOL2240	Soil Science
BIOL2515	*Anatomy & Physiology I (Goal 2)
BIOL2516	Anatomy & Physiology II (Goal 2)
BIOL2531	Microbiology

Course No. Course Title

Goal 3: cont.

BIOL2540	Pathophysiology Goal 2)
CHEM1110	Survey of Chemistry
CHEM1122	Environmental Chemistry (Goal 10)
CHEM1225	Introduction to Forensic Science (Goal 9)
CHEM1430	Principles of Chemistry I (Goal 2)
CHEM1431	Principles of Chemistry II (Goal 2)
CHEM2518	*General, Organic & Biochemistry I (Goal 2)
CHEM2520	General, Organic & Biochemistry II (Goal 2)
PHYS1215	*College Physics I

Goal 4: Mathematical/Logical Reasoning (3 credits)

You need at least one 3-credit course to meet Goal 4.

MATH1090	STATWAY Statistics 2
MATH1218	Liberal Arts Mathematics
MATH1220	College Algebra
MATH1225	Pre-Calculus
MATH1230	Introduction to Statistics
MATH1420	College Trigonometry (
MATH1440	Applied Calculus
MATH2440	Calculus I

Goal 5: History and the Social and Behavioral Sciences

You need a minimum of 9 credits to meet Goal 5. You must take three courses from at least two different subject areas.

EANTH1210	Introduction to Cultural Anthropology (Goal 8)
ECON1210	Survey of Economics (Goal 8)
ECON1405	Personal Finance (Goal 9)
ECON2520	Microeconomics
ECON2530	Macroeconomics (Goal 8)
GEOG1115	World Regional Geography (Goal 8)
GEOG1210	Physical Geography (Goal 10)
HIST1105	Western Civilization to 1500 (Goal 8)
HIST1108	U.S. History to 1865 (Goal 7)
HIST1110	U.S. History: 1865 to Present (Goal 7)
HIST1228	World Civilization to 1500 (Goal 8)
HIST1230	*World Civilization: 1500 CE - Present (Goal 8)
HIST2515	American Music History (Goal 7)
HIST2525	*Minnesota History (Goal 10)
HIST2535	*History of the American Indian (Goal 10)
MCOM1100	*Introduction to Mass Communications (Goal 9)
POLS1101	*Introduction to Political Science (Goal 9)
POLS1120	*American Government (Goal 9)
POLS1130	World Politics (Goal 8)
POLS1140	Environment and Society (Goal 10)
PSYC1110	*Introduction to Psychology (Goal 7)
PSYC1115	*Lifespan Psychology (Goal 7)
PSYC1223	Psychology of Death and Dying (Goal 9)
PSYC2520	Psychology of Human Sexuality (Goal 2)
PSYC2522	Positive Psychology (Goal 9)
PSYC2526	Abnormal Psychology (Goal 7)
PSYC2531	Social Psychology (Goal 7)
PSYC2533	Statistics for the Behavioral Sciences

Course No.	Course Title
Goal 5: cont.	
SOCS1110	*Introduction to Sociology (Goal 7)
SOCS1205	*Sociology of the Family (Goal 7)
SOCS1214	Work in America
SOCS2525	Social Deviance (Goal 7)
SOCS2545	*Diversity and Social Change (Goal 7)
SOCS2550	Sociology of Popular Culture (Goal 9)

Goal 6: The Humanities and Fine Arts

You need a minimum of 9 credits to meet Goal 6. You must take three courses from at least two different subject areas.

ARTS1101	Introduction to the Arts
ARTS1222	Introduction to Graphic Design (Goal 2)
ARTS1223	Introduction to the Digital Arts and Creative Multimedia
ARTS1425	Digital Photography
CHIN1230	Chinese Culture (Goal 8)
ENGL1165	Introduction to Literature (Goal 7)
ENGL1265	Multicultural Literature (Goal 7)
ENGL1365	Survey of British Literature (Goal 8)
ENGL1445	Introduction to Creative Writing (Goal 1)
ENGL2440	Creative Writing: Fiction (Goal 1)
ENGL2450	Creative Writing: Nonfiction (Goal 1)
ENGL2460	Creative Writing: Poetry (Goal 1)
ENGL2570	Poetry of the English Language
ENGL2580	Independent Reading: The Great Books (Goal 2)
ENGL2590	Special Topics in Literature
FREN1230	French Culture Goal 8
HUMA1105	Oral Interpretation (Goal 2)
HUMA1125	Moral Problems (Goal 9)
HUMA1210	Introduction to Dance (Goal 8)
HUMA1220	Film Studies (Goal 7)
HUMA1430	Exploring World Cultures (Goal 8)
HUMA1435	Multicultural America (Goal 7)
HUMA1445	Introduction to Women's Studies (Goal 8)
HUMA1450	World Religions (Goal 9)
MUSC1103	Introduction to Music
MUSC1203	Introduction to Music Theory
MUSC1211	Popular Music in American Society Goal 7)
MUSC1213	World Music (Goal 8)
PHIL1410	*Technology Ethics (Goal 9)
SPAN1230	*Introduction to Hispanic Cultures (Goal 8)

Goal 7: Human Diversity – (3 credits)

You need at least one 3-credit course to meet Goal 7.

COMM1228	*Interpersonal Communications (Goal 1)
ENGL1165	*Introduction to Literature (Goal 6)
ENGL1265	*Multicultural Literature (Goal 6)
HIST1108	*U.S. History to 1865 (Goal 5)
HIST1110	*U.S. History: 1865 to Present (Goal 5)
HIST2515	American Music History (Goal 5)
HUMA1220	*Film Studies (Goal 6)
HUMA1435	*Multicultural America (Goal 6)
MUSC1211	Popular Music in American Society (Goal 6)
PSYC1110	Introduction to Psychology (Goal 5)
PSYC1115	Lifespan Psychology (Goal 5)
PSYC2526	Abnormal Psychology (Goal 5)
PSYC2531	Social Psychology (Goal 5)
SOCS1110	Introduction to Sociology (Goal 5)
SOCS1205	Sociology of the Family (Goal 5)
SOCS2525	Social Deviance (Goal 5)
SOCS2545	Diversity and Social Change (Goal 5)

Course No.	Course Title
Goal 8: Global Perspective – (3 credits)	
You need at least one 3-credit course to meet Goal 8.	
ANTH1210	Introduction to Cultural Anthropology (Goal 5)
CHIN1230	Chinese Culture (Goal 6)
CHIN1240	Beginning Chinese I
CHIN1342	Beginning Chinese II
ECON1210	Survey of Economics (Goal 5)
ECON2530	Macroeconomics (Goal 5)
ENGL1365	Survey of British Literature (Goal 6)
FREN1230	French Culture (Goal 6)
GEOG1115	World Regional Geography (Goal 5)
HIST1105	Western Civilization to 1500 (Goal 5)
HIST1228	World Civilization to 1500 (Goal 5)
HIST1230	World Civilization: 1500 CE - Present (Goal 5)
HUMA1210	Introduction to Dance (Goal 6)
HUMA1430	Exploring World Cultures (Goal 6)
HUMA1445	Introduction to Women's Studies (Goal 6)
MUSC1213	World Music (Goal 6)
POLS1130	World Politics (Goal 5)
SPAN1230	Introduction to Hispanic Cultures (Goal 6)
SPAN1240	Beginning Spanish I
SPAN1342	Beginning Spanish II

Goal 9: Ethical and Civic Responsibility (3 credits)

You need at least one 3-credit course to meet Goal 9.

CHEM1225	Introduction to Forensic Science (Goal 3)
COMM1420	Social Media Communications (Goal 1)
ECON1405	Personal Finance (Goal 5)
HUMA1125	Moral Problems (Goal 6)
HUMA1450	World Religions (Goal 6)
MCOM1100	Introduction to Mass Communications (Goal 5)
PHIL1410	Technology Ethics (Goal 6)
POLS1101	Introduction to Political Science (Goal 5)
POLS1120	American Government (Goal 5)
PSYC1223	Psychology of Death and Dying (Goal 5)
PSYC2522	Positive Psychology (Goal 5)
SOCS2550	Sociology of Popular Culture (Goal 5)

Goal 10: People and the Environment

You need at least one 3-credit course to meet Goal 10.

BIOL1120	Environmental Science (Goal 3)
BIOL1201	Introduction to Biology (Goal 3)
BIOL1240	Introduction to Agroecology (Goal 3)
CHEM1122	Environmental Chemistry (Goal 3)
GEOG1210	Physical Geography (Goal 5)
HIST2525	Minnesota History (Goal 5)
HIST2535	History of the American Indian (Goal 5)
POLS1140	Environment and Society (Goal 5)

Accounting

Winona Campus and 100% Online

OVERVIEW

A degree in accounting can lead to a highly valued and rewarding career in one of the nation's fastest growing professions. If you have the desire to own your own business, be a leader, motivate people, and solve problems, consider enrolling in the accounting program at Minnesota State College Southeast.

More and more employers are demanding an accounting degree from potential job candidates to fill their accounting positions. MSC Southeast's educational approach is a blend of theory and practice, providing a solid foundation for your career. MSC Southeast offers a practical, personal approach to learning the principles of accounting and making the best use of a variety of popular accounting software packages.

Once you have your degree in hand, you'll find that the opportunities for meaningful and challenging employment are plentiful in companies of all sizes.

Get your 2 year A.A.S. accounting degree online

With a focus on providing our students the most flexible course delivery options possible, MSC Southeast offers a 2-year A.A.S. accounting degree that can be completed entirely online. Other accounting degrees and certificates offer online courses in tandem with daytime or evening courses on the Winona campus. You can enroll in the accounting program in either the fall or spring semester and attend classes on a full-time or part-time basis.

MAJORS WITHIN

Major	Degree	Credits
Accounting	AAS	60 credits
Accounting	Diploma	60 credits
Accounting & Networking Specialist	AAS	60 credits
Accounting Assistant	Diploma	31 credits
Bookkeeper	Certificate	21 credits
Business Systems	Certificate	16 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Apply the principles of financial accounting, managerial accounting, cost accounting, tax accounting and not-for-profit accounting.
2. Apply mathematical, analytical and business knowledge skills to formulate and solve problems and to make decisions relevant to the needs of business.
3. Demonstrate proficiency in personal computer operations and applications.
4. Demonstrate an understanding of human society and culture in order to function as an effective employee and citizen.

PROGRAM HIGHLIGHTS

2 year accounting degree online – 100% online option available

Excellent reputation with employers and students

Hands-on learning

Instructors have professional experience in all areas of accounting

Latest computer software used in the following courses: Excel, QuickBooks, Access, Turbo Tax, Word, Peachtree and Power-Point

Vast job opportunities with high growth potential

Interactive learning combines technology with accounting theory

Business Professionals of America and Student Senate are student organizations that provide leadership and professional growth opportunities

CAREER OPPORTUNITIES

Staff Accountants
Banking
Managerial Accounting
Financial Accounting
Cost Accounting
Income Tax
Financial Services
Payroll Accounting
Government/Non-Profit
Budget Analysis
Audit

Accounting - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
BUSN 2210	Legal Environment of Business	3
GOAL 1	MnTC Elective Goal 1	3
GOAL 4	MnTC Elective Goal 4	3
Semester total		**16**
Second Semester (Spring)		
ACCT 1210	Payroll Accounting	2
ACCT 1212	Computerized Accounting Applications	3
ACCT 2202	Managerial Accounting	4
BUSN 2215	Business Ethics	3
GOAL 6	MnTC Elective Goal 6	3
Semester total		**15**
Third Semester (Fall)		
ACCT 2223	Intermediate Accounting 1	3
ACCT 2235	Income Tax	4
ECON 2530	Macroeconomics	3
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	4
Semester total		**14**
Fourth Semester (Spring)		
ACCT 2225	Intermediate Accounting 2	3
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	3
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	3
GOAL 5	MnTC Elective Goal 5	3
GEN ED	Course from MnTC Goal 1-10 (see advisor for courses)	3
Semester total		**15**
	Total Required Credits - 60	

Accounting - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
ACCT 1231	Database Concepts and Applications	3
BUSN 2210	Legal Environment of Business	3
ENGL/COMM	English or Communications Elective	2
Semester total		**15**
Second Semester (Spring)		
ACCT 1210	Payroll Accounting	2
ACCT 1212	Computerized Accounting Applications	3
ACCT 2202	Managerial Accounting	4
ECON 1405	Personal Finance	3
MATH	Math 1020 or higher	2
Semester total		**14**
Third Semester (Fall)		
ACCT 2223	Intermediate Accounting 1	3
ACCT 2235	Income Tax	4
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	4
ECON 2530	Macroeconomics	3
GEN ED	Course from MnTC Goal 1-10 (see advisor for courses)	3
Semester total		**17**
Fourth Semester (Spring)		
ACCT 2225	Intermediate Accounting 2	3
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	8
BUSN 2215	Business Ethics	3
Semester total		**14**
	Total Required Credits - 60	

Accounting and Networking - AAS

First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
ACCT 1231	Database Concepts and Applications	3
GOAL 1	MnTC Elective Goal 1	3
GOAL 4	MnTC Elective Goal 4	3
Semester Total		**16**
Second Semester (Spring)		
ACCT 1210	Payroll Accounting	2
ACCT 1212	Computerized Accounting Applications	3
ACCT 2202	Managerial Accounting	4
ACCT 2215	Fund/Non-Profit Accounting	3
GOAL 6	MnTC Elective Goal 6	3
Semester Total		**15**
Third Semester (Fall)		
ACCT 2223	Intermediate Accounting 1	3
ACCT 2235	Income Tax	4
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	4
GOAL 5	MnTC Elective Goal 5	3
Semester Total		**14**
Fourth Semester (Spring)		
ACCT 2225	Intermediate Accounting 2	3
NWAT	Networking Electives & Tech Electives	9
GEN ED	Course from MnTC Goal 1-10 (see advisor for courses)	3
Semester Total		**15**
	Total Required Credits - 60	

Accounting Assistant - Diploma

First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
ACCT 1231	Database Concepts and Applications	3
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	4
MATH	Math 1020 or higher	2
ENGL/COMM	English or Communications Elective	2
Semester Total		**16**
Second Semester (Spring)		
ACCT 1210	Payroll Accounting	2
ACCT 1212	Computerized Accounting Applications	3
ACCT 2202	Managerial Accounting	4
ELECTIVE	ACCT, BUSN, or ECON Technical Elective	3
GEN ED	General Education Elective	3
Semester Total		**15**
	Total Required Credits - 31	

Bookkeeper - Certificate

First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
BUSN 1245	Business Computers	3
ADMS 1417	Word Processing	2
Semester Total		**12**
Second Semester (Spring)		
ACCT 1210	Payroll Accounting	2
ACCT 1212	Computerized Accounting Applications	3
MATH	Math	2
ENGL/COMM	English or Communications Elective	2
Semester Total		**9**
	Total Required Credits - 21	

Business Systems - Certificate

First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
Semester Total		**7**
Second Semester (Spring)		
BUSN 2000	Small Business Development	3
ECON 1405	Personal Finance	3
BUSN 2215	Business Ethics	3
Semester Total		**9**
	Total Required Credits - 16	

Accounting Transfer Pathway

Winona Campus and Online

OVERVIEW

A degree in accounting can lead to a rewarding career in one of the nation's fastest growing professions.

If you're planning to advance to a high level position in the field, the Transfer Pathway Asscociate of Science degree is a great first step. This 2-year degree is specifically designed for students who want to begin college at MSC Southeast, then transfer to a Minnesota State university to complete a bachelor's degree.

Minnesota State College Southeast's educational approach is a blend of theory and practice, providing a solid foundation for your career. MSC Southeast offers a practical, personal approach to learning the principles of accounting and making the best use of a variety of popular accounting software packages.

Custom tailored for you

- You can complete the program 100% online or take all or part of your classes on campus in Winona.
- You can start in either the fall or spring semester.
- You can attend classes on a full-time or part-time basis.

Transfer University

Bemidji State University
Metropolitan State University
Minnesota State University, Moorhead
Minnesota State University, Mankato
Southwest Minnesota State University
St. Cloud State University
Winona State University

PROGRAM HIGHLIGHTS

Guaranteed transfer into designated bachelor's programs

2 year accounting degree online - 100% online option available

Interactive learning combines technology with accounting theory

Instructors have professional experience in all areas of accounting

CAREER OPPORTUNITIES

The purpose of the Accounting Transfer Pathway (AS) is to prepare students for transfer into a designated bachelor's degree program at a Minnesota State University .

MAJORS WITHIN

Accounting Transfer Pathway AS Degree 60 Credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Apply the principles of financial accounting, managerial accounting, and computerized accounting software to develop core accounting skill set.
2. Apply mathematical, analytical, and business knowledge to formulate and solve programs and to make relevant business decisions.
3. Develop both written and verbal communication skills to be able to communicate effectively in the business environment.
4. Demonstrate an understanding of human society and culture in order to function as an effective employee and citizen.

Accounting Transfer Pathway - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts	3
BUSN 1245	Business Computers	3
BUSN 2210	Legal Environment of Business	3
ENGL 1215	College Writing 1	3
Semester total		**16**
Second Semester		
ACCT 1212	Computerized Accounting Applications	3
ACCT 2202	Managerial Accounting	4
ENGL 2525	College Writing 2	3
COMM 1218	College Speech	3
MATH 1230	Introduction to Statistics	3
Semester total		**16**
Third Semester		
BUSN 2225	Principles of Marketing	3
ECON 2530	Macroeconomics	3
MATH 1220	College Algebra	3
ACCT or BUSN	Technical Elective	4
GOAL 3	Environmental Science (BIOL 1120) or Environmental Chemistry (CHEM 1122)	3
Semester total		**16**
Fourth Semester		
BUSN 2220	Principles of Management	3
ECON 2520	Microeconomics	3
HUMA 1125	Moral Problems	3
GOAL 7	MnTC Elective Goal 7	3
Semester total		**12**
Required Credits		**60**

Associate of Science in Nursing - ASN

Red Wing and Winona Campus

OVERVIEW

Download nursing program information packets and application forms from our website: www.southeastmn.edu/nursing

Minnesota State College Southeast's new 5-semester nursing program is designed to prepare graduates to earn an Associate of Science in Nursing (ASN) degree, take the NCLEX-RN® exam, and become registered nurses.

The college utilizes curriculum resources from a nationally renowned provider to offer a modern learning experience, complete with high fidelity virtual skills labs and simulations, online student learning materials, faculty support, and national benchmarking of student progress.

The college will apply for initial candidacy for the ASN program from the Accreditation Commission for Education in Nursing (ACEN) with a goal of achieving initial accreditation prior to graduation of the first cohort of students.

In the Associate of Science in Nursing program plan, students will take two semesters of required prerequisite college-level general education courses prior to beginning nursing courses as well as additional general education courses during the nursing program.

To prepare for acceptance to the Associate of Science in Nursing program, students should enroll in the Pre Nursing major and begin with required program prerequisites. Upon completion of the prerequisites, students are eligible to apply for entry into the ASN program.

Traditional vs. Mobility Track: Two pathways are available for ASN students. The traditional track is for students who are beginning their nursing education. The mobility track is for current LPNs seeking to transition to RN status.

PROGRAM HIGHLIGHTS

Earning an Associate of Science in Nursing degree offers more opportunities for advancement and higher level of professional challenge.

Meets the needs of students by offering small class sizes and close, personal attention from college faculty and staff.

Program is focused on preparation for passing the NCLEX-RN® exam and successfully beginning a nursing career.

An ASN degree is a solid pathway to a sustaining career.

CAREER OPPORTUNITIES

Hospitals
Acute Care
Clinics
Hospice Care
Home Health Care
Long Term Care

MAJORS WITHIN

Associate of Nursing, ASN 75 credits

PROGRAM OUTCOMES

1. Patient-centered care
Evaluate nursing care provided to patients, families, groups, populations, and communities from diverse backgrounds in a variety of settings to ensure that it is compassionate, age and culturally appropriate, and based on a patient's preferences, values, and needs.
2. Teamwork and collaboration
Collaborate with members of the interprofessional healthcare team, utilizing effective communication, to engage in shared decision-making when managing and coordinating patient care.
3. Evidence-based practice
Integrate use of current evidence, clinical expertise, and patient/family preferences and values when making clinical decisions.
4. Quality improvement
Utilize quality improvement strategies to effect change in the delivery of patient care.
5.Safety
Implement strategies that minimize risk and provide a safe environment for patients, self, and others.
6. Informatics
Integrate information technology into practice that supports the application of clinical judgment in the management of patient care.
7. Professionalism
Integrate accountable and responsible behaviors that uphold established regulatory, legal, and ethical principles.
8. Leadership
Utilize leadership, management, delegation, and priority-setting skills in the provision and management of safe, quality, patient-centered care.

Associate Degree in Nursing - ASN

Course No.	Course Name	Credits
First Semester		
MnTC General Education Electives		
(Goal 8 or 10 recommended)		10
BIOL2515	Anatomy/Physiology I	4
PSYC1110	Introduction to Psychology	3
Total Credits		**17**
Second Semester		
BIOL2516	Anatomy/Physiology II***	4
BIOL2531	Microbiology***	3
CHEM2518	General Organic & Biochemistry I*** 4	
PSYC1115	Lifespan Psychology 3	
Semester total		**14**
Third Semester (Traditional Track)		
NURS1400	Nursing Fundamentals and Community Health	4
NURS1410	Nursing Fundamentals Skills Lab	2
NURS1420	Pharmacology in Nursing	3
NURS1460	Health Assessment	1
ENGL1215	College Writing I***	3
BIOL2540	Pathophysiology***	3
Semester total		**16**
Third Semester (Mobility Track)		
NURS1430	Transition to the Professional Nurse Role	4
Successful completion of NURS 1430		5
NURS1460	Health Assessment	1
ENGL1215	College Writing I	3
BIOL2540	Pathophysiology***	3
Semester total		**16**
Fourth Semester		
NURS1440	Medical/Surgical Nursing I	5
NURS1450	Nursing Med/Surgical Skills Lab	1
NURS2410	Family Nursing	3
BIOL1226	Nutrition	3
COMM1228	Interpersonal Communications	3
Semester total		**15**
Fifth Semester		
NURS2400	Medical/Surgical Nursing II	5
NURS2420	Complex Care and Leadership Concepts	5
HUMA1125	Moral Problems	3
Semester total		**13**
Total Required Credits		**75**

Gen ed courses may be taken earlier but not later than the identified semester.

- BIOL 2515 Anatomy and Physiology I and BIOL 2516 Anatomy and Physiology II may be used together in place of BIOL 1200 Human Biology. Educational programs to become a Registered Nurse generally require BIOL 2515 and BIOL 2516.

If you plan to apply to such a program in the future, consider taking these courses instead of BIOL 1200. BIOL 2516 Anatomy and Physiology II must be taken concurrently and successfully passed with Practical Nurse 1 in the first semester of the program.

Human Biology or Anatomy and Physiology I & II, ATI TEAS Exam and Certified Nursing Assistant are all requirements prior to acceptance into the nursing program. (See Nursing Application Packet for details).

Note: During clinical rotations, nursing students may be required to travel up to a 100-mile radius from their home campus.

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** The Associate Degree in Nursing (ASN) requires applicants to be on any state registry as a certified nursing assistant. The ASN program also requires applicant to take the ATI TEAS admission exam with an achievement level of Proficient or higher (58.7%).

***Course has prep course or pre-requisite requirement.

Auto Body Collision Technology

Winona Campus

OVERVIEW

In Auto Body Collision Technology at Minnesota State College Southeast in Winona, you'll learn refinishing, repair, replacement, and adjustment of body panels. The program also includes structural, mechanical, and electrical repair as well as new technologies such as working with aluminum and carbon fiber. With experience in all of these areas, you will have career opportunities in several different specialties upon graduation.

Our students develop strong problem-solving skills through hands-on learning and classroom instruction. You will learn how to access and interpret product data sheets, service information, and estimating guides. Students have the opportunity to take the coursework to earn I-CAR industry accreditation. Most importantly, you'll work on real vehicles in our state-of-the art facility.

Auto Body Collision Technology is certified by the ASE Education Foundation (formerly NATEF), making the program at Minnesota State College Southeast one of only a handful of schools in the United States certified in the four major areas of Auto Body: Refinishing, structural, non-structural, and mechanical/electrical. Job placement in this major is 100%.

MAJORS WITHIN

Auto Body Collision Technology	AAS	67 credits
Auto Body Collision Technology	Diploma	60 credits
Auto Body Refinishing	Certificate	26 credits
Auto Body Sheet Metal Repair and Replacement	Certificate	30 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Perform body panel and minor structural repairs and parts replacement.
2. Perform vehicle refinishing preparation, application, and paint detailing.
3. Dismantle and reassemble vehicle body parts, trim, interior components, and non-structural glass.
4. Demonstrate safe and professional work habits.
5. Perform minor mechanical and electrical collision-related procedures.
6. Assess a vehicle's damage, develop a repair plan through interpretation of service information, and communicate the calculation of repair costs and procedures to related parties.

PROGRAM HIGHLIGHTS

Certified by the Automotive Service Excellence (ASE) Education Foundation

Instructors are Automotive Service Excellence (ASE) certified.

The program follows Inter-Industry Conference on Auto Collision Repair (I-CAR) recommended guidelines and offers the students the opportunity to gain I-CAR course credits.

Program is continually upgraded to maintain the latest technology used in industry.

70% of coursework is hands-on in a lab setting.

CAREER OPPORTUNITIES

Auto Body and Structural Repair
Auto Body Refinishing
Damage Claims Writer
Shop Manager/Owner
Parts and Supply Industry
Related Manufacturing

Auto Body Collision Technology - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
GEN ED	Math Requirement	3
ABCT1115	Introduction to Transportation	1
ABCT1125	Auto Body Welding 1	2
ABCT1135	Auto Body Mechanical 1	2
ABCT1145	Vehicle Disassembly/Reassembly	2
ABCT1155	Refinishing 1	2
ABCT1165	Sheet Metal Repair and Replacement	5
Semester total		**17**
Second Semester (Spring)		
GEN ED	English/Communication Requirement	3
ABCT1245	Plastic and Composites	2
ABCT1255	Refinishing 2	5
ABCT1265	Refinishing Lab	2
ABCT1275	Production Lab 1	4
Semester total		**16**
Third Semester (Fall)		
GEN ED	MnTC Goal 1-10 (see advisor)	3
ABCT1316	Auto Body Basic Electrical	3
ABCT1325	Auto Body Welding 2	2
ABCT1335	Auto Body Mechanical 2	3
ABCT1345	Structural Repairs	3
ABCT1355	Refinishing 3	2
ABCT1375	Production Lab 2	2
Semester total		**18**
Fourth Semester (Spring)		
ABCT Technical Electives (see advisor)		4
GEN ED	Humanities Requirement	3
GEN ED	Social Science Requirement	3
ABCT1417	Repair Planning and Estimating	3
ABCT1485	Collision Lab	2
Semester total		**16**
Total Required Credits		**67**

Auto Body Sheet Metal Repair and Replacement Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
ABCT1115	Introduction to Transportation	1
ABCT1125	Auto Body Welding I	2
ABCT1145	Vehicle Disassembly/Reassembly	2
ABCT1155	Refinishing 1	2
ABCT1165	Sheet Metal Repair and Replacement	5
Semester total		**12**
Second Semester (Spring)		
GEN ED	GenEd Electives	2
ABCT1245	Plastic and Composites	2
ABCT1275	Production Lab I	4
Semester total		**8**
Third Semester (Fall)		
ABCT Technical Electives (see advisor)		4
ABCT1325	Auto Body Welding 2	2
ABCT1345	Structural Repair	3
Semester total		**9**
Total Required Credits		**29**

Auto Body Collision Technology - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
GEN ED	Math Requirement (1000 level)	2
ABCT1115	Introduction to Transportation	1
ABCT1125	Auto Body Welding 1	2
ABCT1135	Auto Body Mechanical 1	2
ABCT1145	Vehicle Disassembly/Reassembly	2
ABCT1155	Refinishing 1	2
ABCT1165	Sheet Metal Repair and Replacement	5
Semester total		**16**
Second Semester (Spring)		
GEN ED	English/Communication Requirement	2
ABCT1245	Plastic and Composites	2
ABCT1255	Refinishing 2	5
ABCT1265	Refinishing Lab	2
ABCT1275	Production Lab 1	4
Semester total		**15**
Third Semester (Fall)		
ABCT1316	Auto Body Basic Electrical	3
ABCT1325	Auto Body Welding 2	2
ABCT1335	Auto Body Mechanical 2	3
ABCT1345	Structural Repairs	3
ABCT1355	Refinishing 3	2
ABCT1375	Production Lab 2	2
Semester total		**15**
Fourth Semester (Spring)		
GEN ED	Job Seeking Skills	1
ABCT Technical Electives (see advisor)		4
ABCT1417	Replanning and Estimating	2
ABCT1475	Production Lab 3	3
ABCT1485	Collision Lab	4
Semester total		**14**
Total Required Credits		**60**

Auto Body Refinishing - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
GEN ED	GenEd Electives (see advisor)	2
ABCT1115	Introduction to Transportation	1
ABCT1145	Vehicle Disassembly/Reassembly	2
ABCT1155	Refinishing 1	2
Semester total		**7**
Second Semester (Spring)		
Technical Electives (see advisor)		4
ABCT1245	Plastic and Composites	2
ABCT1255	Refinishing 2	5
ABCT1265	Refinishing Lab	2
Semester total		**13**
Third Semester (Fall)		
ABCT Technical Electives (see advisor)		4
ABCT1355	Refinishing 3	2
Semester total		**6**
Total Required Credits		**26**

Automotive Technology

Winona Campus

OVERVIEW

If you're fascinated by all things automotive, you'll want to get on the inside track to an Automotive Technology career at Minnesota State College Southeast in Winona.

Automotive Technology is a 2 year, 55-credit diploma that is packed with everything you'll need to know to find employment in this high-paying, high-demand career area. The course load is flexible enough to allow part-time employment while going to college.

Start with the basics: Shop safety, use of service manuals, preventative maintenance, and the use of automotive tools and equipment. You will then progress to in-depth, hands-on knowledge of vehicle systems such as:

- Brakes
- Suspension and Steering
- Electrical
- Heating, Ventilation, and Air Conditioning (HVAC)
- Engine Repair and Performance
- Automatic Transmissions and Transaxles
- Drivetrain and Axles

This program also offers an introductory look into hybrid and electric vehicles, as well as light duty diesel operations and maintenance.

For a faster career start, you can begin with the 17-credit Automotive Maintenance and General Repairs - Certificate and go to straight to work or continue your training onward with the Automotive Technology - Diploma.

With your training in Automotive Technology, you will be working in an exciting, rewarding career that will always be in demand. Apply today!

PROGRAM HIGHLIGHTS

State-of-the-art lab in the Norris P. Abts Transportation Center operates as a live shop

Students work on customer vehicles, as well as program cars, allowing real hands-on experience.

Students will learn all aspects of an automotive repair facility, from vehicle repairs to customer care.

Text and curriculum designed around Automotive Service Excellence (ASE) Certification.

CAREER OPPORTUNITIES

Certified Technician
Service Manager
Service Writer
Shop Manager/Owner
Vehicle Inspector
Insurance Adjuster
Vehicle Sales
Part Sales
Salvage Yard

MAJORS WITHIN

Automotive Technology	Diploma	55 credits
Automotive Maintenance and General Repairs	Certificate	17 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Demonstrate safety practices and policies in an environmentally safe and compatible environment.
2. Demonstrate the ability to diagnose related vehicle repairs using problem solving techniques.
3. Demonstrate the ability to operate electrical diagnostic equipment.
4. Demonstrate automotive repairs.
6. Develop a plan for a career path in the automotive technology trade.

Automotive Technology - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
AUTO1150	General Automotive	4
AUTO1155	Brakes	5
AUTO1160	Suspension and Steering	5
AUTO1165	Electrical/Electronic Systems I	3
Semester total		**17**
Second Semester (Spring)		
AUTO1250	Electrical/Electronic Systems II	4
AUTO1255	Engine Performance I	5
AUTO1260	Heating, Ventilation, and Air Conditioning	5
AUTO1265	Introduction to Hybrid and Electric	1
AUTO1270	Introduction to Light Duty Diesel	1
Semester total		**16**
Third Semester (Fall)		
AUTO2350	Engine Repair	5
AUTO2355	Engine Performance II	5
Semester total		**10**
Fourth Semester (Spring)		
AUTO2450	Automatic Transmission and Transaxle	5
AUTO2455	Drivetrain and Axle	5
AUTO2460	Automotive Technology Capstone	2
Semester total		**12**
Total Required Credits		**55**

Automotive Maintenance and General Repairs - Certificate

Course No.	Course Name	Credits
AUTO 1150	General Automotive	4
AUTO 1155	Brakes	5
AUTO 1160	Suspension and Steering	5
AUTO 1165	Electrical/Electronic Systems I	3
Total Required Credits		**17**

Band Instrument Repair

Red Wing Campus

OVERVIEW

Translate your love of music into a rewarding hands-on career in Band Instrument Repair at Minnesota State College Southeast in Red Wing.

Without quality band instrument repair technicians, the music stops. From across the United States and around the world, students come to Red Wing, Minnesota, to study band instrument repair, where you can learn the skills necessary for employment and advancement in this rewarding, viable career option. Our training is rigorous, requiring tenacity and a desire for excellence.

In 2 semesters of comprehensive study, the Band Instrument Repair Diploma program will teach you the fundamentals of repairing clarinets, trumpets, flutes, trombones, saxophones, French horns, oboes, bassoons, and large brass. You will also learn how to fabricate tools and instrument parts using lathes, drill presses, sanders, and bench motors.

Incorporating all diploma-level BIR courses, the 2-year Associate of Applied Science in Band Instrument Repair degree adds coursework specific to small business development and marketing; it also includes college-level general education classes such as math, English, and humanities. The A.A.S. was designed primarily for students who want the one-year program, but have sufficient transferable college general education credits to narrow the time frame to complete the A.A.S. degree to one-year.

Up to 48 students enroll yearly in Band Instrument Repair, many coming from either performance or music education backgrounds - men and women looking to channel their interests and talents in a challenging educational setting where hands-on practice is central to success.

You will join graduates who are successfully employed in repair shops associated with music stores, school districts, and independent repair shops. In 2015-2017, 95% of our graduates found work in the field.

For additional information, go to www.redwingmusicrepair.org. To become a student, apply for admission to MSC Southeast.

PROGRAM HIGHLIGHTS

Pay in-state tuition regardless of state/country of origin

Nationally recognized program

80% of coursework is done in a lab setting

Hands-on practice is emphasized in a repair shop environment

Program has an excellent reputation with employers throughout the country

A viable alternative career within the field of music

Students come from all over the world to take part in this unique program

CAREER OPPORTUNITIES

Music Stores and Repair Shops
School Districts
Musical Instrument Manufacturers
Entrepreneurial Opportunities (with experience)

WWW.REDWINGMUSICREPAIR.ORG

MAJORS WITHIN

Band Instrument Repair - AAS	60 credits
Band Instrument Repair - Diploma	42 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Evaluate, repair and play test a clarinet, flute, sax, oboe and bassoon.
2. Evaluate, repair and play test a trumpet, trombone, horn, and large brass.
3. Perform basic fabrication and repair support techniques using a bench motor, metal lathe and sander, incorporating related accessories and hand tools.
4. Exhibit attitudes and behaviors commensurate with employer expectations.

Band Instrument Repair - AAS

Course No.	Course Name	Credits
First Year		
General Education Requirements - 2000 level minimum		
Course from any MnTC Goal 1 - 10		3
Goal 4: Mathematics		3
Goal 5: History, Social, and Behavioral Sciences		3
Goal 6: Humanities and Fine Arts		3
COMM1420	Social Media Communications	3
Semester total		**15**
Second Year		
Semester 1		
BIRT1100	Woodwind Repair Fundamentals	5
BIRT1104	Woodwind Repair I	4
BIRT1110	Brasswind Repair Fundamentals	4
BIRT1125	Brasswind Repair 1	5
BIRT1130	Band Instrument Repair Open Lab I	1
ACCT2201	Financial Accounting	4
Semester total		**23**
Semester 2		
BIRT2100	Woodwind Repair II	5
BIRT2104	Woodwind Repair III	4
BIRT2110	Brasswind Repair II	5
BIRT2121	Large Brasswind Repair	4
BIRT2130	Band Instrument Repair Open Lab II	1
BUSN2000	Small Business Development	3
Semester total		**22**
Total Required Credits		**60**

Band Instrument Repair - Diploma

Course No.	Course Name	Credits
Semester 1		
GenEd	Math Requirement - 1000 level	2
GenEd	English Requirement - 1000 level	2
BIRT1100	Woodwind Repair Fundamentals	5
BIRT1104	Woodwind Repair I	4
BIRT1110	Brasswind Repair Fundamentals	4
BIRT1125	Brasswind Repair 1	5
BIRT1130	Band Instrument Repair Open Lab I	1
Semester total		**23**
Semester 2		
BIRT2100	Woodwind Repair II	5
BIRT2104	Woodwind Repair III	4
BIRT2110	Brasswind Repair II	5
BIRT2121	Large Brasswind Repair	4
BIRT2130	Band Instrument Repair Open Lab II	1
Semester total		**19**
Total Required Credits		**42**

Biomedical Equipment Technology

Winona Campus

OVERVIEW

Biomedical equipment technician training from Minnesota State College Southeast will give you the skills and knowledge to maintain, adjust, calibrate, and repair a wide variety of electronic and electromechanical, as well as computerized and networked equipment used in hospitals.

You will also have the skills needed to work on equipment used in practitioners' offices such as CAT scanners, ultrasound equipment, electric wheelchairs, and sophisticated dental, optometric and ophthalmic equipment. The degree offering is built on the foundation of the two-year Electronics program and is directed by instructor Marc Kalis.

This up and coming occupation is in high demand as the medical equipment repair field is expected to grow 27% in the next decade, faster than the average of all occupations. The number of job openings is expected to outnumber qualified applicants, due in part to the increased demand for healthcare services and the increasing complexity of the medical equipment used in hospitals and by private practitioners.

To be successful in Biomedical Equipment repair you:

- Must have technical skills and problem solving abilities
- Need good hand/eye coordination and show mechanical aptitude
- Must show great attention to detail, have excellent communication skills and have the ability to work as a team

MAJORS WITHIN

Biomedical Equipment Technology, AAS 66 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Use knowledge and skills to analyze, troubleshoot, measure and/or program systems and devices used in the biomedical equipment industry.
2. Work as a productive and responsible team member.
3. Repair systems and equipment by applying logic and knowledge to solve complex problems associated with biomedical equipment technology.
4. Demonstrate the use of software, programming, and interfacing to troubleshoot micro and personal computers and their applications within the biomedical equipment technology industry.
5. Apply acquired skills and learn new skills by engaging in lifelong learning.
6. Demonstrate an ability to apply knowledge of mathematics, science, and engineering to the analysis of biomedical equipment problems.
7. Demonstrate an ability to communicate effectively.
8. Function with a respect for diversity and knowledge of professional, social, and global issues.

PROGRAM HIGHLIGHTS

Learn to service and maintain medical equipment

Work in computerized and networked electronic and electromechanical environments

Instructors have experience in multiple disciplines

Learn communication skills to work in a high tech environment with other respected professionals in healthcare and medical facilities

Learn how to support medical staff in the use of technology

Job stability and satisfaction

Career growth and development opportunities

CAREER OPPORTUNITIES

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

Biomedical Equipment Technology - AAS

Course No.	Course Name	Credits
General Education Requirements (can be taken any semster)		
Course from any MnTC Goal 1 - 10 (see advisor for courses)		3
Goal 1: Written and Oral Communications		3
Goal 4: Mathematics		3
Goal 5: History, Social, and Behavioral Sciences		3
Goal 6: Humanities and Fine Arts		3
Total Gen Ed Requirements		**15**
First Semester		
ELEC1202	Introduction to DC Electricity	2
ELEC1204	Introduction to AC Electricity	2
ELEC1209	DC Theory and Circuits	2
ELEC1212	Digital Electronics I	3
ELEC1214	Electronic Fabrication Technology	2
ELEC1330	Introduction to Instrumentation and Control	2
Semester total		**13**
Second Semester		
BMET2221	Introduction to Biomedical Equipment	3
BMET2222	Biomedical Equipment Safety	2
ELEC1220	Electronic Communications	2
ELEC1250	Introduction to Solid State	4
ELEC1500	Networking I	3
Semester total		**14**
Third Semester		
BMET2223	Biomedical Equipment I	3
ELEC2211	Digital Electronics II	4
ELEC2227	PC Hardware & OS	4
ELEC2260	Linear Integrated Circuits	4
Semester total		**15**
Fourth Semester		
BMET2224	Biomedical Equipment II	3
BMET2225	Clinical Internship	3
ELEC2500	Networking II	3
Semester total		**9**
Required Credits		**66**

Business Administration

Winona Campus & Online

OVERVIEW

A degree in Business Administration from Minnesota State College Southeast will prepare you for a career with endless opportunities.

Business Administration is a versatile degree, giving students a basic understanding of accounting, economics, marketing, and management along with business law and ethics. The role of a business administration professional encompasses a wide range of responsibilities in managing an organization in terms of time and resources.

The Business Administration Associate of Applied Science degree at Minnesota State College Southeast provides students with a basic knowledge of accounting, business, and economics while developing problem-solving, communication, and managerial skills.

With a degree in Business Administration from Minnesota State College Southeast you will obtain a well-rounded understanding of how to operate a business effectively and efficiently.

Not only will you learn the theory and quantitative skills necessary for a business professional, you will also learn highly sought-after soft skills to be able to communicate effectively and give professional presentations.

The career outlook for those with a degree in Business Administration is strong. Almost every organization, from health care, to sports entertainment, to technology, has a need for professionals who can manage their business. The possibilities are endless!

PROGRAM HIGHLIGHTS

2 year business administration degree

100% online option available

Excellent reputation with employers and students

Versatile and flexible degree provides pathways to variety of business career options

Student organizations such as Student Senate provide leadership and professional growth opportunities

CAREER OPPORTUNITIES

Administrative Manager
Executive Assistant
Compliance Manager
Administrative Officer
Labor Relations Specialist

MAJORS WITHIN

Business Administration, AAS	60 credits

PROGRAM OUTCOMES

Program graduates will be able to:
1. Demonstrate foundational knowledge in accounting, economics, marketing, and management in the application of business concepts and theories.
2. Demonstrate effective skills in written and oral communication.
3. Apply mathematical, analytical, and business knowledge skills to formulate and solve problems and to make decisions relevant to the needs of business.
4. Demonstrate proficiency in personal computer operations and applications.
5. Demonstrate an understanding of human society and culture in order to function as aneffective employee and citizen.
6. Apply the skills of making ethical business decisions.

Business Administration - AAS Degree

Course No.	Course Name	Credits
First Semester		
ACCT 2201	Financial Accounting	4
BUSN 1245	Business Computers	3
BUSN 2210	Legal Environment of Business	3
MNTC Goal 1	Written and Oral Communication	3
MNTC Goal 4	Mathematics	3
Semester total		**16**
Second Semester		
ACCT 2202	Managerial Accounting	4
BUSN 2215	Business Ethics	3
BUSN 2000	Small Business Development	3
ADMS1419	Business Communications	3
ACCT1218	Spreadsheets Concepts and Applications	3
Semester total		**16**
Third Semester		
BUSN 2225	Principles of Marketing	3
ECON 2530	Macroeconomics	3
BUSN, ACCT or SMGT Technical Electives		3
MNTC Goal 5	History, Social, and Behavioral Science	3
MNTC Goal 6	Humanities and Fine Arts	3
Semester total		**15**
Fourth Semester		
BUSN 2220	Principles of Management	3
ECON 2520	Microeconomics	3
BUSN, ACCT or SMGT Technical Electives		3
GEN ED	Course from MnTC Goal 1-10 (see advisor for courses) 3	
Semester total		**13**
Required Credits		**60**

Business Management

Red Wing & Winona Campus

OVERVIEW

The Business Management program at Minnesota State College Southeast is perfect for working adults who are new to management or are interested in moving up in management status. Best of all, this program is available online, so you can work your classes into your busy schedule!

Our unique accelerated learning program enables you to complete an AAS degree in approximately 3 years. Accelerated learning uses activities that involve your senses in an intensive, yet fun environment. You will absorb more information in a shorter time while enjoying the support of fellow students.

Learning takes place with a group of students who have similar backgrounds and training needs. You and the group will move rapidly through the required courses, enabling you to learn from one another.

Are you already employed in the work force? Your employer will benefit from your participation in the Business Management program. Company projects may be completed as class assignments and the focus is on building the specific skills that are needed in your work situation.

PROGRAM HIGHLIGHTS

Accelerated learning for adults

Classes held mostly in the evening

Enhancement program for people in business/industry

Teaching methods build self-esteem and critical thinking skills

Emphasis on leadership development

Network with learners from a variety of area businesses

CAREER OPPORTUNITIES

Supervisor
Workplace Leader
Department Head
Office Manager

MAJORS WITHIN

Business Management	AAS	60 credits
Leadership and Supervision	Certificate	12 credits
Project Management	Certificate	9 credits
Quality Improvement	Certificate	9 credits

See backside for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

1. Demonstrate leadership skills and identify approaches to motivation to achieve a productive work environment.
2. Apply human resource management practices at a supervisory management level.
3. Apply marketing, management, and organizational theories in a supervisory setting.
4. Demonstrate financial management skills at a non-financial management level.
5. Demonstrate analytical skills in identifying and solving supervisory business problems.
6. Utilize current business technology.
7. Plan, prepare, and deliver effective oral and written communications.

Business Management - AAS

Course No.	Course Name	Credits
Electives: can be completed in any semester		
Technical Electives		6
Course from any MnTC Goal 1-10 (see advisor for courses)		3
Goal 1: Written and Oral Communications		3
Goal 4: Mathematics		3
Goal 5: History, Social, and Behavioral Sciences		3
Goal 6: Humanities and Fine Arts		3
Electives total		**21**
Fall Semester		
SMGT 1210	Supervision Principles	3
SMGT 1216	Leadership Development	3
SMGT 2218	Service Management	3
Semester total		**9**
Spring Semester		
SMGT 1207	Budgeting & Analysis for Managers	4
SMGT 1212	Managing for Quality	3
SMGT 2214	Teambuilding	3
Semester total		**9**
Fall Semester		
BUSN 2225	Principles of Marketing	3
SMGT 1214	Practical Problem Solving	3
SMGT 2216	Coaching & Productivity Enhancement	3
SMGT 2220	Management Theories & Organizational Studies	3
Semester total		**12**
Spring Semester		
ADMS 1419	Business Communications	3
SMGT 1749	Project Management	3
SMGT 2210	HR Issues for Managers	3
Semester total		**9**
Total Required Credits		**60**

Leadership and Supervision - Certificate

Course No.	Course Name	Credits
Fall Semester		
SMGT1210	Supervision Principles	3
SMGT1216	Leadership Development	3
Semester total		**6**
Spring Semester		
SMGT 2210	HR Issues for Managers	3
SMGT 2214	Teambuilding	3
Semester total		**6**
Total Required Credits		**12**

Project Management - Certificate

Course No.	Course Name	Credits
Fall Semester		
SMGT 1214	Practical Problem Solving	3
SMGT 2218	Service Management	3
Semester total		**6**
Spring Semester		
SMGT 1749	Project Management	3
Semester total		**3**
Total Required Credits		**9**

Quality Improvement - Certificate

Course No.	Course Name	Credits
Fall Semester		
SMGT 2216	Coaching & Productivity Enhancement	3
SMGT 2220	Management Theories & Organizational Studies	3
Semester total		**6**
Spring Semester		
SMGT 1212	Managing for Quality	3
Semester total		**3**
Total Required Credits		**9**

Business Transfer Pathway

Winona Campus and Online

OVERVIEW

The Business Transfer Pathway (AS) will start you on the route to a 4-year degree.

A successful business career relies on competitive edge, and MSC Southeast has developed the curriculum to help achieve that goal. At Minnesota State College Southeast, the Business Transfer Pathway Associate of Science (AS) Degree is specifically designed for students who plan to continue their education in a business related field, such as Business Administration, Management, Marketing, Accounting, Human Resources, and International Business.

A wide variety of employment opportunities are available for skilled, capable, and dependable business professionals. Employers are looking qualified candidates with excellent communication, organization, and human relations skills and enthusiasm for the job and organization. The courses provide a global perspective and are integrated with the latest technology. In this program, you will gain knowledge and explore a wide variety of industries, getting the background and understanding to be a successful business professional.

With a focus on providing our students flexible delivery options, the Business Transfer Pathway (AS) at MSC Southeast can be completed entirely online. You may enroll full or part-time, beginning in either the fall or spring semester.

Transfer University

Bemidji State University
Metropolitan State University
Minnesota State University, Moorhead
Minnesota State University, Mankato
Southwest Minnesota State University
St. Cloud State University
Winona State University

MAJORS WITHIN

Business Transfer Pathway, AS Degree — 60 Credits

See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

- Effectively communicate in the context of business (oral and written communication)
- Utilize data to engage in effective decision-making in a business
- Apply the skills of making ethical business decisions
- Demonstrate a mastery of the core areas of business including accounting, economics/finance, marketing, management, planning & strategy.
- Demonstrate application of best practices of business administration in the functional areas of business.

PROGRAM HIGHLIGHTS

World-class faculty with a combined 50 years of industry experience spanning business management, economics, accounting, and leadership

State of the art online curriculum facilitating local, regional, and national instruction

Dedicated career and academic advising for the students

Credential allows for immediate employment or guaranteed transfer to a Minnesota State university

CAREER OPPORTUNITIES

The purpose of the Business Transfer Pathway (AS) is to prepare students for transfer into a designated bachelor's degree program at a Minnesota State university or the University of Minnesota.

Business Transfer Pathway - AS Degree

Course No.	Course Name	Credits
First Semester		
ACCT 2201	Financial Accounting	4
BUSN 1245	Business Computers	3
BUSN 2210	Legal Environment of Business	3
ENGL 1215	College Writing 1	3
COMM 1218	College Speech	3
Semester total		**16**
Second Semester		
ACCT 2202	Managerial Accounting	4
BUSN 2215	Business Ethics	3
BUSN 2000	Small Business Development	3
ENGL 2525	College Writing 2	3
MATH 1230	Introduction to Statistics	3
Semester total		**16**
Third Semester		
BUSN 2225	Principles of Marketing	3
ECON 2530	Macroeconomics	3
MATH 1220	College Algebra	3
ACCT or BUSN	Technical Elective	4
GOAL 3	Environmental Science (BIOL 1120) or Environmental Chemistry (CHEM 1122)	3
Semester total		**16**
Fourth Semester		
BUSN 2220	Principles of Management	3
ECON 2520	Microeconomics	3
GOAL 6	MnTC Elective Goal 6	3
GOAL 7 or 9	MnTC Elective Goal 7 or 9	3
Semester total		**12**
Required Credits		**60**

CNC Machine Tool

Winona Campus

OVERVIEW

In the MSC Southeast CNC Machine Tool program, you'll learn the precision skills of CNC operations on state-of-the-art equipment. We offer the training and education you'll need for a rewarding career in the field of precision manufacturing.

Our program has a strong emphasis on CNC operation, programming, and 3D modeling. You will learn to produce a CAD 3D model, program a CNC machine with your model, and machine the part on a cutting edge CNC machine. Our new advanced manufacturing lab is equipped with 10 CNC machines, including two 2019 Hurco vertical mills, two 2019 Doosan lathes, and one 2020 Haas toolroom mill.

The curriculum at MSC Southeast is based on the philosophy that hands-on is the best way to learn CNC operations and programming.

MAJORS WITHIN

CNC Machine Tool	Diploma	59 credits
Precision Machining	Diploma	32 credits
Machining Basics	Certificate	13 credits
Machining Right Skills Now	Certificate	17 credits
Engineering and CNC	Certificate	11 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Be employable at entry level machining jobs in related fields.
2. Use the basic skill and knowledge of machine shop operations in manual and CNC machining to produce parts to blueprint specifications.
3. Demonstrate safe work habits.
4. Clearly communicate through verbal and written skills.
5. Use the math and computer skills necessary in the machine trades.

PROGRAM HIGHLIGHTS

20+ stations of Computer Aided Drafting (CAD) and Computer Aided Machining

(CAM) programming software available for student training

70% of coursework is hands-on

Computer Numerical Control (CNC) machines offers wire electrical discharge machining (edm), turning and milling technology

Focus is on keeping up with the technology used in industry

Employment opportunities are abundant locally as well as regionally

CAREER OPPORTUNITIES

Micro Machining
Medical Machining
Moldmaker
Diemaker
Toolmaker
CNC Machinist
Production Machinist
General Machinist

CNC Machine Tool - 2-year Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
CMAE 1510	Print Reading	2
MACH 1601	Introduction to Precision Machining	4
MACH 1610	Precision Measuring and Gauging	2
MACH 1615	Precision Machining Processes	3
GenEd	Elective (see advisor)	3
Semester total		**14**
Second Semester (Spring)		
MACH 1625	Engineering Drawings 2	2
MACH 1630	Introduction to CNC Theory	3
MACH 1642	CNC Operations 1	2
MACH 1643	CNC Operations 2	2
MACH 1650	Introduction to EDM	2
MACH 1662	Introduction to CAD/CAM + 3D Printing	3
Math or English Requirement (see advisor)		2
Semester total		**16**
Third Semester (Fall)		
MACH 2633	CNC Precision Machining Mill	4
MACH 2635	CNC Precision Machining Lathe	4
MACH 2637	CAM Programming and Toolmaking Application 1	3
MACH 2660	Advanced CAD/CAM 1	3
Math or English Requirement (see advisor)		2
Semester total		**16**
Fourth Semester Spring		
MACH 2639	CAM Programming and Toolmaking Application 2	3
MACH 2640	CNC Precision Machining Capstone	5
MACH 2642	CNC Precision Machining App	4
COMM 1509	Job Seeking Skills	1
Semester total		**13**
Total Required Credits		**59**

Machining Right Skills Now - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
CMAE 1510	Print Reading	2
MACH 1601	Introduction to Precision Machining	4
MACH 1610	Precision Measuring and Gauging	2
MACH 1615	Precision Machining Processes	3
MACH 1620	Internship	4
GenEd	Math Requirement (see advisor)	2
Total Required Credits		**17**

Precision Machining - 1-yr Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
CMAE 1510	Print Reading	2
MACH 1601	Introduction to Precision Machining	4
MACH 1610	Precision Measuring and Gauging	2
MACH 1615	Precision Machining Processes	3
GenEd	Math Requirement (see advisor)	2
GenEd	English Requirement (see advisor)	2
Semester total		**15**
Second Semester (Spring)		
MACH 1625	Engineering Drawings 2	2
MACH 1630	Introduction to CNC Theory	3
MACH 1642	CNC Operations 1	2
MACH 1643	CNC Operations 2	2
MACH 1650	Introduction to EDM	2
MACH 1662	Introduction to CAD/CAM + 3D Printing	3
Technical Elective (see advisor)		2
COMM 1509	Job Seeking Skills	1
Semester total		**17**
Total Required Credits		**32**

Machining Basics - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
CMAE 1510	Print Reading	2
MACH 1601	Introduction to Precision Machining	4
MACH 1610	Precision Measuring and Gauging	2
MACH 1615	Precision Machining Processes	3
Math Requirement (see advisor)		2
Total Required Credits		**13**

Engineering and CNC - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
CMAE1510	Print Reading	2
MACH1610	Precision Measuring and Gauging	2
MACH1642	CNC Operations 1	2
MACH1643	CNC Operations 2	2
MACH1662	Introduction to CAD/CAM + 3D Printing	3
Total Required Credits		**11**

Computer Aided Drafting (CAD) Design Technologies

100% Online

OVERVIEW

Complex products all start with a plan. By receiving a degree from Minnesota State College Southeast's online CAD drafting program, you will learn how to translate ideas at the product conception stage into physical work plans that launch the design process. As a CAD designer, you will be an essential part of any technical team.

Employment opportunities in the CAD drafting field abound, and a degree from MSC Southeast's online CAD drafting program will prepare you with the specific skills employers are looking for. Solidworks, Inventor, Google SketchUP, Autocad - they're all here, and you'll learn how to apply these industry-standard software programs on a project basis just as you will on the job.

Our highly experienced CAD drafting faculty will teach you the tools of the trade so that you can be successful in your career on day one. And with their industry connections, MSC Southeast instructors will help you find an internship to gain invaluable real-world experience.

Have a busy schedule or just like to work at your own pace? MSC Southeast's online CAD drafting program is flexible enough to accommodate your busy lifestyle, but rigorous enough to ensure you develop the skills employers demand.

PROGRAM HIGHLIGHTS

Courses are taught using state of the art CAD 3D Parametric software

Excellent training for self-starters

CAD Drafters/Designers are in constant demand

The courses are focused on developing your skills for employment

Instructors are licensed because of their experience in the drafting and design field

CAREER OPPORTUNITIES

Mechanical Designers
Plant Designers
Mechanical Drafters
CAD Technicians

MAJORS WITHIN

Computer Aided Design (CAD) Drafting Technologies	AAS	60 credits
Computer Aided Design (CAD) Drafting Technologies	Diploma	33 credits
Computer Aided Drafting (CAD) Technologies	Certificate	9 credits
Basic Drafting Technologies	Certificate	16 credits

See back for program plans

PROGRAM OUTCOMES

Program graduates will be able to:

1. Complete industry standard assembly drawings using 2d and 3d CAD.
2 Complete industry standard part drawings using 2d and 3d CAD.
3. Calculate mating part conditions to guarantee part fits.
4. Define and apply proper design materials.
5. Define and apply proper standard part vendors.
6. Communicate verbally and in written forms.

Computer Aided Design (CAD) Drafting Technologies AAS

Course No.	Course Name	Credits
Fall		
MDAD1250	**Print Reading**	**3**
MDAD1204	**Autocad**	**3**
MDAD1251	Manuf. Processes	3
MDAD1255	Free CAD	3
COMM1420	Social Media Communications (Tech Elective)	3
Semester total		**15**
Spring		
MDAD1241	**Solidworks**	**3**
MDAD1252	**Working Drawings 1**	**3**
MDAD1216	Mechanisms	3
MDAD1272	CAD Elective Drawing 2 (Tech Elective)	3
ENGL1215	College Writing I	3
Semester total		**15**
Fall		
MDAD1253	**Working Drawings 2**	**3**
MDAD1254	Mold Design	3
MDAD1206	Geometric Tol	3
MDAD1271	CAD Elective Drawing 1 (Tech Elective)	3
MATH1220	College Algebra	3
Semester total		**15**
Spring		
MDAD1256	**Design Project 1**	**3**
MDAD1257	**Design Project 2**	**3**
SOCS1110	Introduction to Sociology	3
HUMA1125	Moral Problems	3
PHYS1215	Physics	4
Semester total		**16**
	Credit total shown - 61*	
	Total Required Credits - 60	

Note: Liberal Arts classes can be taken during the summer session as well

Computer Aided Design (CAD) Drafting Technologies Diploma

Course No.	Course Name	Credits
Fall		
MDAD1250	**Print Reading**	**3**
MDAD1204	**Autocad**	**3**
MDAD1251	Manufacturing Processes	3
MDAD1255	Free CAD	3
ENGL1215	College Writing I	3
Semester Total		**15**
Summer		
COMM1420	Social Media Communications	3
Semester Total		**3**
Spring		
MDAD1241	**Solidworks**	**3**
MDAD1252	**Working Drawings 1**	**3**
MDAD1216	Mechanisms	3
MDAD1272	CAD Elective Drawing 2 (Tech Elective)	3
MATH1220	College Algebra	3
Semester Total		**15**
	Total Required Credits - 33	

Basic Drafting Technologies - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
MDAD1250	**Print Reading**	**3**
MDAD1204	**Autocad**	**3**
MDAD1251	Manufacturing Processes	3
Semester Total		**9**
Second Semester (Spring)		
MDAD1241	**Solidworks**	**3**
MDAD1252	**Working Drawings 1 (Tech Elective)**	**3**
MDAD1216	Mechanisms (Tech Elective)	3
Semester Total		**9**
	Credit total shown - 18*	
	Total Required Credits - 16	

Computer Aided Drafting (CAD) Technologies - Certificate

Course No.	Course Name	Credits
Fall		
MDAD1250	Print Reading (Tech Elective)	3
MDAD1204	Autocad	3
Semester Total		**6**
Spring		
MDAD1241	Solidworks	3
Semester Total		**3**
	Total Required Credits - 9	

BOLD = Courses in bold depict the part-time course sequence
***Required credit totals may vary based on suggested technical elective choices**

Computer Engineering Technology

Winona Campus

OVERVIEW

Hardware… Software… System Automation… these components fit together to create the increasingly complex world in which we live.

A degree in Computer Engineering Technology from Minnesota State College Southeast in Winona spans hardware, software, and system automation. This degree is designed to prepare you for a challenging career in programming, data analysis, and system integration.

The two-year program combines the foundations of electrical hardware, the nuances of programming, and the rigors of process control. Courses are taught on campus in Winona and online.

The curriculum includes AC, DC, and digital circuits, database generation, and programming of microcontrollers, programmable logic controllers, and commercial languages such as C++ and JAVA.

This degree gives students the opportunity to go into computer hardware, software, and industrial automation positions that require coding, database analysis, and Internet of Things (IOT) connectivity.

You'll complete the Computer Engineering Technology AAS by working with faculty to design a capstone course that will demonstrate your ability to solve a programming or computer engineering problem. Projects may range from custom purpose robots to automated data processing applications.

PROGRAM HIGHLIGHTS

State-of-the-art electronic and industrial automation laboratories

Hands-on electronics and automation curriculum

Remote courses for database and commercial programming language instruction

Opportunities for internships throughout the industry

High demand employment outlook

CAREER OPPORTUNITIES

Computer Engineering Technician
Software Development and Support
Computer Programming
Database Analysis
Industrial Automation

MAJORS WITHIN

Computer Engineering Technology, AAS 60 credits

PROGRAM OUTCOMES

Program graduates will be able to:

- Understand the foundations of electronics, including digital logic, alternating current, and direct current.
- Configure, troubleshoot, and program microcontroller based hardware, including programmable logic controllers.
- Understand programming environments spanning ladder logic, C++, JAVA, SQL, and VB.net.
- Comprehend the interface between electronics hardware, analog and digital inputs, and backend programming, bridging the software/hardware divide.

Computer Engineering Technology - AAS Degree

Course No.	Course Name	Credits
First Semester		
Goal 4	Mathematics	3
ELEC1202	Introduction to DC	2
ELEC1204	Introduction to AC	2
ELEC1209	DC Theory & Circuits	2
ELEC1212	Digital Electronics 1	3
COMC1730	Introduction to Programming with .Net	3
Semester total		**15**
Second Semester		
MATH1230	Introduction to Statistics	3
COMC2747	Database Applications Programming	4
ENGL1215	College Writing I	3
ELEC2221	Programmable Controllers	3
COMC2740	Intro to Java/C/C++/C#	3
Semester total		**16**
Third Semester		
ECON1210	Survey of Economics	3
ELEC2211	Digital Electronics 2	4
COMC2742	Java/C++/C# Programming 2	3
COMC2722	Database Design w/ SQL	3
NWAT1641	Networking Fundamentals	3
Semester total		**16**
Fourth Semester		
NWAT 2673	Unix Operating Systems	3
ELEC2230	Microcontrollers	5
Goal 6	Humanities & Fine Arts	3
COMC2999	Computer Engineering Technology Capstone	2
Semester total		**13**
Total Required Credits		**60**

Construction Technology

Winona Campus

OVERVIEW

MSC Southeast's Construction Technology program graduates can look forward to an outstanding job market as the construction industry continues to grow.

Construction tradesmen and women make up the largest group of building-trade workers. They work quickly, accurately, and efficiently to maximize use of time and materials. With a shortage of these qualified professionals in today's job market, graduates of MSC Southeast's Construction Technology program can expect to find many employment opportunities in Southeast Minnesota and beyond.

At MSC Southeast in Winona, our students gain hands-on skills in the construction lab and on-site in a real-world environment. In addition to gaining experience with the tools, materials, methods, and standard practices of the trade, our students learn:

- Planning, designing, estimating, and blueprint reading
- GPS geosystems, solar, and green building
- Building, finishing, and installing custom cabinets

MAJORS WITHIN

Construction Technology	AAS	60 credits
Construction Technology	Diploma	37 credits

See back for program plan

PROGRAM OUTCOMES

1. Produce quality carpentry labor working safely under the direction of a construction foreman.
2. Understand basic carpentry theory and apply the use of hand and power tools of the carpentry trade.
3. Communicate efficiently with the construction company and its employees.
4. Produce adequate math skills to be able to solve math related construction problems on site.

PROGRAM HIGHLIGHTS

MSC Southeast program has excellent placement history

There is a huge demand for quality trades men and women

Learn new technologies such as geosystems, solar, and geothermal

Curriculum integrates BPI standards for energy efficiency

Work hands-on with non-profit organizations to better the community

Opportunities are almost endless -- you can take your training in several different directions.

CAREER OPPORTUNITIES

Commercial & Residential Carpentry
Construction Management
Small Business Owner
Cabinet Making
Concrete Finisher
Insulator
Lumberyard

Construction Technologies - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
CARP 1100	Cabinetry 1	2
CARP 1105	Residential Construction 1	2
CARP 1110	Concrete Construction	2
CARP 1115	Emerging Construction Technologies	2
CARP 1120	Architectural Drawings	1
CARP 1125	Carpentry Lab	5
Goal 4	Mathematics	3
Semester total		**17**
Second Semester (Spring)		
CARP 1200	Cabinetry 2	3
CARP 1205	Residential Construction 2	1
CARP 1210	Commercial Construction 1	1
CARP 1215	Construction Estimating	2
CARP 1220	Architectural Drawings 2	1
CARP 1225	Carpentry Lab 2	4
Goal 1 Written and Oral Communications		3
Technical Elective (see advisor for approved electives)		2
Semester total		**17**
Third Semester (Fall)		
CARP2110	Commerical Construction 2	1
CARP2215	Emerging Construction Technologies 2	2
Goal 6	Humanities and Fine Arts	3
Goal 5	History, Social and Behavioral Sciences	3
Technical Elective (see advisor for approved electives)		3
Semester total		**12**
Fourth Semester (Spring)		
CARP2105	Residential Construction 3	1
CARP2210	Commercial Construction 3	2
CARP2230	Carpentry Internship	7
Course from MnTC Goal 1-10 (see advisor for courses)		3
Technical Elective (see advisor for approved electives)		1
Semester total		**14**
	Total Required Credits - 60	

Construction Technologies - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
CARP 1100	Cabinetry 1	2
CARP 1105	Residential Construction 1	2
CARP 1110	Concrete Construction	2
CARP 1115	Emerging Construction Technologies	2
CARP 1120	Architectural Drawings	1
CARP 1125	Carpentry Lab	5
Goal 4 Mathematics		3
Technical Elective (see advisor for approved electives)		2
Semester total		**19**
Second Semester (Spring)		
CARP 1200	Cabinetry 2	3
CARP 1205	Residential Construction 2	1
CARP 1210	Commercial Construction 1	1
CARP 1215	Construction Estimating	2
CARP 1220	Architectural Drawings 2	1
CARP 1225	Carpentry Lab 2	4
Computer Requirement		1
English or Communications Requirement		2
Technical Elective (see advisor for approved electives)		3
Semester total		**18**
	Total Required Credits - 37	

Cosmetology

Winona Campus

OVERVIEW

If you're ready to start a fun, exciting, and creative career in cosmetology you need the right education!

Experience outstanding training in classroom, lab, and clinic settings at Minnesota State College Southeast Cosmetology Academy in Winona. Our curriculum is designed to complete classroom studies in just a few weeks, so you will start getting hands-on experience in our clinic setting right away.

At Southeast Cosmetology Academy, you'll learn fundamental and advanced cosmetology skills in:

- Men's and women's razor, scissor, and clipper haircutting
- Dimensional and monochromatic hair coloring technique
- Permanent wave and chemical straightening hair texture services
- Manicures and pedicures
- Gel, fiberglass, liquid and powder nail enhancements
- Body treatments, facials, chemical peels and electrotherapy
- Makeup application

Practice beauty techniques on real clients.
Get the hands-on training you need to become a licensed cosmetologist in our Student Salon & Spa. The facilities at Southeast Cosmetology Academy provide our students and their clients with a high quality salon experience. Develop the professional skills you need to succeed in the industry, including time management and record keeping.

There are a variety of career options in cosmetology, and our graduates are working successfully in many different areas. We offer specific certificate programs in nail care and skin care. Advanced training in these areas will broaden your employment opportunities.

CAREER OPPORTUNITIES

Practitioner
Salon Manager
Salon Educator
Corporate Educator
Platform Artist
Sales Associate
Salon Consultant
Cosmetology School Instructor
Esthetician
Make Up Artist
Author
Product/Equipment Inventor

MAJORS WITHIN

Advanced Esthetic, Certificate	20 credits
Cosmetology, AAS	67 credits
Cosmetology, Diploma	52 credits
Esthiology, Certificate	21 credits
Nail Care Technology, Certificate	13 credits

See back side for program plan

PROGRAM OUTCOMES

1. Evaluate hair, skin, and nail care needs of clients and recommend possible solutions and products.
2. Perform hair, skin, and nail care services that are at a standard mandated by the Board of Barber and Cosmetologist Examiners and to the satisfaction of the customer.
3. Demonstrate dependability, punctuality, and professionalism through interaction with salon clientele, classmates, and instructors.
4. Keep records on client services and appointments accurately and thoroughly.
5. Demonstrate the use of time management by completing services and projects within the recommended or allotted time.
6. Complete the minimum number of quota service requirements mandated by the Board of Barber and Cosmetologist Examiners.
7. Comply with Minnesota Cosmetology Statutes 154 and Rules 2105 and 2110 as mandated by the Board of Barber and Cosmetologist Examiners.

Cosmetology - Diploma

Course No.	Course Name	Credits
First Semester (Fall or Spring)		
COSM 1100	Industry Methodology	3
COSM 1101	Dermatology	1
COSM 1102	Hairshaping I	2
COSM 1103	Hairshaping Lab	1
COSM 1104	Esthiology	2
COSM 1105	Nail Technology I	1
COSM 1106	Nail Technology II	1
COSM 1107	Chemical Procedures I	1
COSM 1108	Chemical Procedures Lab	2
COSM 1109	Hairstyling I	2
COSM 1112	Clinic	3
Semester total		**19**
Second Semester (Fall or Spring)		
COSM 1201	Hairstyling II	2
COSM 1202	Chemical Procedures II	3
COSM 1203	Hairshaping II	2
COSM 1113	Clinic	3
COSM 1114	Clinic	3
COSM 1115	Clinic	3
Semester total		**16**
Third Semester (Fall, Spring or Summer)		
COSM 1200	License Preparation	2
COSM 1116	Clinic	3
COSM 1117	Clinic	3
COSM 1118	Clinic	3
Semester total		**11**
Fourth Semester (Fall, Spring or Summer)		
COSM 1218	Clinic	2
COSM	COSM 1219 Capstone Clinic MN or COSM 1220 Capstone Clinic WI	4
Semester total		**6**
Total Required Credits		**52**

An Associate of Applied Science (AAS) in Cosmetology may be earned as well. This requires a total of 15 more credits from General Education courses in Goal Areas 1, 4, 5, 6 and one more chosen with the advisor.

Esthiology - Certificate

Course No.	Course Name	Credits
First Semester		
COSM 1100	Industry Methodology	3
COSM 1101	Dermatology	1
COSM 1104	Esthiology	2
COSM 1600	Esthiology Clinic I	4
COSM 1602	Esthiology Clinic II	4
Semester total		**14**
Second Semester		
COSM 1604	Esthiology Capstone	3
COSM 1605	Esthiology Clinic III	4
Semester total		**7**
Total Required Credits		**21**

Nail Technology - Certificate

Course No.	Course Name	Credits
First Semester		
COSM 1100	Industry Methodology	3
COSM 1101	Dermatology	1
COSM 1105	Nail Technology I	1
COSM 1106	Nail Technology II	1
COSM 1701	Nail Clinic I	3
COSM 1702	Nail Clinic II	4
Total Required Credits		**13**

Advanced Esthetic - Certificate

Course No.	Course Name	Credits
Can be completed in one semester		
COSM 1801	Advanced Esthetics I	3
COSM 1802	Advanced Facials	1
COSM 1803	Chemical Peels I	1
COSM 1804	Chemical Peels II	1
COSM 1805	Machine Exfoliation	1
COSM 1806	Micro-Needling	1
COSM 1807	Advanced Esthetics Clinic I	3
COSM 1808	Advanced Esthetics Clinic II	3
COSM 1809	Advanced Esthetics Clinic III	3
COSM 1810	Advanced Esthetic Clinic IV Capstone	3
Total Required Credits		**20**

Criminal Justice

100% Online

Are you motivated to serve your community? Do you have a strong sense of justice? Are you curious about what goes on behind the scenes in law enforcement, the courts, and corrections facilities? Minnesota State College Southeast's Criminal Justice program is an excellent place to start your education in the fields of law enforcement and human services.

The four Criminal Justice options at MSC Southeast provide students with varying levels of education. While some positions require an associate degree or higher, the knowledge and skills attained through a certificate or diploma is preferred for nearly all entry level jobs. These tiered awards allow students to earn credentials at their own pace as their schedules permit.

For maximum flexibility, all Criminal Justice coursework is available 100% online, so you can plan your education around the work and family commitments in your life.

Certificate - 16 Credits
If you're considering an entry level position within a criminal justice or human services field, the 16-credit certificate in Criminal Justice is a good place to start. This program includes two liberal arts classes and three classes directly related to criminal justice, plus a 1-credit class in Career and Education planning.

Diploma - 32 Credits
The one-year diploma in Criminal Justice includes a balance of 16 liberal arts credits and 16 criminal justice credits. This coursework is foundational to any career path in the field. If you have already earned the certificate, you can add classes to complete the diploma.

Associate of Applied Science (AAS) - 60 Credits
This 2-year includes more in-depth studies in topics such as computer crimes, evidence procedures, and criminal law. If you have already earned the diploma, you can add classes to complete the associate of applied science degree.

Criminal Justice Transfer Pathway (AS) - 60 Credits
This 2-year degree is designed for students who are planning to continue to a 4-year degree at a Minnesota state university. You'll transfer seamlessly with a flexible, affordable combination of criminal justice classes and the 40-credit Minnesota Transfer Curriculum (MnTC) package.

Every faculty member in MSC Southeast's Criminal Justice program has working experience in the criminal justice profession, totaling over 150 years of experience. Additionally, all faculty have post-graduate degrees. This combination of expertise in the profession coupled with commitment to higher education is a testimony to the depth and knowledge of MSC outheast's Criminal Justice Program.

PROGRAM HIGHLIGHTS

Explore the historical development of Law Enforcement, Courts, and Corrections

Overview of the evolution, history, theories and societal responses associated with the juvenile justice system

Make-up of the criminal justice system and their interrelationships in our diverse society

How society influences policing

Examine issues of crime, violence, and punishment from the perspectives of criminal justice professionals, criminals, and prisoners

CAREER OPPORTUNITIES

Corrections Officers
Probation Officers
Local Police Departments
State and Federal Agencies
Human Services
Correctional Treatment Specialist
Security Officers
Gaming Surveillance Officers

Program Learning Outcomes

1. Understand how the criminal justice system works and how public opinion influences policies for responding to crime
2. Understand the numerous components of criminal justice system
3. Understand the causation of friction between community and police such as political influence, corruption, policy/law discretion, and discriminatory acts
4. Understand the sociological, psychological and biological perspectives on the causation of crime and criminal behavior
5. Understand hiring practices, training evolutions, subcultures, attitudes and orientation of criminal justice professionals

Criminal Justice - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL1215	College Writing I	3
SOCS1110	Introduction to Sociology	3
HUMA1125	Moral Problems	3
INSP1525	Career and Educational Planning	1
MATH	Any 1000 level math course	2
CJSP1102	Introduction to Criminal Justice	3
Semester total		**15**
Second Semester (Spring)		
SPAN1230	Introduction to Hispanic Cultures	3
PSYC1110	Introduction to Psychology	3
POLS1101	Introduction to Political Science **OR**	
POLS1120	American Government	3
CJSP1220	Police and Community	3
CJSP1230	Introduction to Corrections	3
Semester total		**15**
Third Semester (Fall)		
SOCS2525	Social Deviance **OR**	
SOCS2545	Diversity and Social Change	3
CJSP2104	Introduction to Criminology/ Criminal Behavior	3
CJSP2110	Juvenile Justice/Delinquency	3
CJSP2140	Crime Victims/Computer Crimes	3
CJSP2250	Leadership/Ethics in Criminal Justice	3
Semester total		**15**
Fourth Semester (Spring)		
HUMA1430	Exploring World Cultures OR	
HUMA1435	Multicultural America	3
CJSP2205	Criminal Law and Procedures	3
CJSP2225	Courtroom and Evidence Procedures	3
GEN ED	MnTC Goal 1-10 (see advior for courses)	3
Technical Elective (see restricted technical electives)		3
Semester total		**15**
	Total Required Credits - 60	

Criminal Justice - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL	Any 1000 level English course	2
SOCS1110	Introduction to Sociology	3
INSP1525	Career and Educational Planning	1
CJSP1102	Introduction to Criminal Justice	3
CJSP2110	Juvenile Justice/Delinquency	3
CJSP2250	Leadership for Criminal Justice	3
Semester total		**15**
Second Semester (Spring)		
MATH	Any 1000 level Math course	2
HUMA1125	Moral Problems	3
PSYC1110	Introduction to Psychology	3
SPAN1230	Introduction to Hispanic Cultures	3
CJSP1220	Police and Community	3
CJSP1230	Introduction to Corrections	3
Semester total		**17**
	Total Required Credits - 32	

Criminal Justice Transfer Pathway - AS

Course No.	Course Name	Credits
First Semester		
CJSP 1102	Introduction to Criminal Justice	3
INSP 1525	Career and Educational Planning	1
ENGL 1215	College Writing I	3
MATH 1230	Introduction to Statistics	3
PSYC 1110	Introduction to Psychology	3
HUMA 1125	Moral Problems	3
Semester total		**16**
Second Semester		
CJSP 1230	Introduction to Corrections	3
CJSP 1220	Police and Community	3
COMM 1228	Interpersonal Communication **OR**	
COMM 1218	College Speech	3
CHEM 1225	Introduction to Forensic Science	3
SOCS 1110	Introduction to Sociology	3
Semester total		**15**
Third Semester		
SOCS 2545	Diversity and Social Change OR	
SOCS 2525	Social Deviance	3
CJSP 2104	Introduction to Criminology/ Criminal Behavior	3
CJSP 2110	Juvenile Justice/Delinquency	3
BIOL 1201	Introduction to Biology	4
HUMA 1435	Multicultural America	3
Semester total		**16**
Fourth Semester		
CJSP 2205	Criminal Law and Procedures	3
ENGL 2525	College Writing II	3
HLTH 1105	Personal Health and Fitness I	1
SPAN 1230	Introduction to Hispanic Cultures	3
SOCS 1205	Sociology of the Family	3
Semester total		**15**
	Total Required Credits - 60	

Criminal Justice - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
SOCS1110	Introduction to Sociology OR	
PSYC1110	Introduction to Psychology	3
INSP1525	Career and Educational Planning	1
CJSP1102	Introduction to Criminal Justice	3
Semester total		**7**
Second Semester (Spring)		
HUMA1125	Moral Problems	3
CJSP1230	Introduction to Corrections	3
CJSP1220	Police and Community	3
Semester total		**9**
	Total Required Credits - 16	

Please note:

The Criminal Justice program does not lead directly to a professional license. Additional education and training is required to meet the standards established by the Minnesota Peace Officer Standards and Training (POST) Board for employment as a peace/law enforcement officer.

Cyber and Information Security

100% online

OVERVIEW

Minnesota State College Southeast's Cyber and Information Security program incorporates network and systems administration with cyber security to prepare students for employment in a very high demand profession.

The online Cybersecurity & Network Administration A.A.S. degree provides graduates with the technical and soft skills necessary to obtain a position in the exciting and lucrative IT Cybersecurity field. This major includes intensive technical training in topics such as cloud security, device hardening, intrusion prevention systems, firewalls, and security threats and countermeasures.

In the Cyber and Information Security A.A.S. degree, the focus is on preventing and investigating computer-related crimes. In addition to technical cyber security skills, students become familiar with the various components of the criminal justice system, learning how to collect and maintain evidence, use interpersonal communication skills, write effectively, present and testify in court, and liaison with criminal justice agencies.

MAJORS WITHIN

Cybersecurity and Network Administration, AAS	60 credits
Cyber and Information Security, AAS	60 credits

PROGRAM OUTCOMES

1. Demonstrate the ability to understand fundamental concepts behind cybersecurity that will help them design security systems that can be trusted.
2. Demonstrate an understanding of software and hardware components in modern computing environments and their individual functions.
3. Demonstrate an understanding of how networks are built and operate with the skills to identify security vulnerabilities and the proficiency to secure them.
4. Demonstrate proficiency with the concepts, tools, and security controls that can be used to protect networks, servers, and applications from cybersecurity threats.

PROGRAM HIGHLIGHTS

Acquire proactive skills in protecting and securing private and corporate network digital information

Learn and understand cyber security breaches and mitigation techniques

Emphasis on soft skills includes how to communicate professionally with customers and co-workers.

Coursework is taught online for maximum flexibility.

CAREER OPPORTUNITIES

Federal, state and county law enforcement agencies

Private industry cyber security manager

Forensic analysts

Cyber security private investigator

Cybersecurity and Network Administration - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
NWAT 1601	Windows Workstation I	2
NWAT 1602	Windows Workstation II	1
NWAT 1607	IT Fundamentals	3
NWAT 1641	Networking Fundamentals	3
NWAT 1650	Cybersecurity Fundamentals	3
ENGL 1215	College Writing I	3
Semester total		**15**
Second Semester (Spring)		
NWAT 1649	Windows Server I	3
NWAT 2120	Network Security I	3
NWAT 2689	Computer Forensic Investigation	3
COMM 1218	College Speech	3
Goal 4	Mathematics	3
Semester total		**15**
Third Semester (Fall)		
NWAT 1800	Scripting Fundamentals	3
NWAT 2220	Network Security II	3
NWAT 2683	Security Threats and Countermeasures	3
NWAT 2684	Windows Server & Desktop Security	3
Goal 6	Humanities and Fine Arts	3
Semester total		**15**
Fourth Semester (Spring)		
NWAT 2110	Cloud Computing	3
NWAT 2125	Server Visualization	3
NWAT 2692	Electronic Devices Forensics	3
NWAT 2900	Cybersecurity Operations	3
Goal 5	History, Social and Behavioral Sciences	3
Semester total		**15**
Total Required Credits		**60**

Cyber and Information Security - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
NWAT 1601	Windows Workstation I	2
NWAT 1602	Windows Workstation II	1
NWAT 2689	Computer Forensics Investigation	3
NWAT 1641	Networking Fundamentals	3
NWAT 1650	Cybersecurity Fundamentals	3
ENGL 1215	College Writing I	3
Semester total		**15**
Second Semester (Spring)		
NWAT 1649	Windows Server I	3
NWAT 2683	Security Threats and Countermeasures	3
CJSP 1102	Introduction to Criminal Justice	3
COMM 1218	College Speech	3
Goal 4	Mathematics	3
Semester total		**15**
Third Semester (Fall)		
NWAT 2684	Windows Server & Desktop Security	3
CJSP 2104	Intro to Criminology/Criminal Behavior	3
CJSP 2205	Criminal Law and Procedures	3
CJSP 2140	Crime Victims and Computer Crimes	3
Goal 6	Humanities and Fine Arts	3
Semester total		**15**
Fourth Semester (Spring)		
NWAT 2676	Wireless Communications	3
NWAT 2692	Electronic Devices Forensics	3
NWAT 2693	Website/Applications Security	3
CJSP 2225	Courtroom and Evidence Procedures	3
Goal 5	History, Social and Behavioral Sciences	3
Semester total		**15**
Total Required Credits		**60**

Early Childhood Education

100% online

OVERVIEW

The Early Childhood Education program focuses specifically on the education of professionals in the early childhood field.

The most important strength of caregivers in the early childhood field is the education received by the practitioners in both theory and process-oriented learning. Results of international research on child care indicate that the education of the child care providers is directly related to increased social, cognitive, and emotional growth of children.

Early childhood professionals will be prepared to practice professional, ethical, and high-quality care giving strategies within diverse settings, caring for children from infancy through school-age years. Students will be prepared to enter the early childhood field as well as inspired to continue lifelong learning with the opportunity to pursue a baccalaureate by completing the AA with ECED elective courses (and/or certificate option).

Early Childhood Education is an online program. The courses are ideal for practitioners who are beginning their careers or already care for children. Caregivers/professionals will increase their effectiveness and competence through curriculum, guidance, caregiving and teaching skills, professional development, and ethical practice. Students will be directly evaluated on these skills during their hands-on experiences throughout the program.

The development of a professional portfolio will be a component of the Early Childhood Education program for students to demonstrate competence, based on standards from the National Association for the Education of Young Children (NAEYC).

PROGRAM HIGHLIGHTS

Transfer options allow students to continue their education toward a bachelor's degree

Online program offers supportive distance learning environment for new and experienced early childhood educatorss

Combination of child development, professional development, and career application courses

Huge national demand for highly trained early childhood educators

CAREER OPPORTUNITIES

Nanny
Family Child Care Provider
Child Care Center Teacher
Child Care Center Director
Nanny Placement Agency Owner
Paraprofessional
Substitute Teacher
Child Advocate

MAJORS WITHIN

Early Childhood Education	AAS	60 credits
Early Childhood and Early Elementary Support/Tutor	AAS	60 credits
Early Childhood Development	Diploma	32 credits
Child Care Assistant	Certificate	16 credits

See backside for program plan

PROGRAM OUTCOMES

1. Utilize their understanding of developmentally appropriate practice respective to the characteristics and needs of young children.
2. Understand and value the importance and complex characteristics of families and communities.
3. Develop partnerships with families, community, and educational professionals as well as additional service providers
4. Design and implement outcome-based learning experiences through application of the knowledge in relation to goals, benefits, and uses of assessment.
5. Use systematic, critical, and creative processes to apply ethical and professional decision-making.
6. Demonstrate proficiency in gathering, analyzing, and synthesizing information for the professional portfolio.

Early Childhood Development - Diploma

Course No.	Course Name	Credits
First Semester (Fall or Spring)		
ECED1101	Early Childhood Field Experience*	6
ECED1102	Orientation to Childcare Licensing	1
ECED1150	Child Growth and Development	3
ECED1136	Interpersonal Relationships and Diversity in Early Childhood	3
ECED1132	Behavior and Emotional-Social Development of the Young Child	3
Semester total		**16**
Second Semester (Fall or Spring)		
ENGL	Diploma English	2
MATH	Diploma Math	2
SOCS	Social Science	3
Elective	Technical Electives (see advisor)	9
Semester total		**16**
Total Required Credits		**32**

Early Childhood Education - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ECED1101	Early Childhood Field Experience*	6
ECED1102	Orientation to Childcare Licensing	1
ECED1150	Child Growth and Development	3
ECED1136	Interpersonal Relationships and Diversity in Early Childhood	3
ECED1132	Behavior and Emotional-Social Development of the Young Child	3
Semester total		**16**
Second Semester (Spring)		
ENGL	Goal 1: Written and Oral Communication	3
MATH	1000-level Math	2
SOCS/PSYC	Goal 5: History, Social, and Behavioral Sciences	3
ECED1231	Developmentally Appropriate Environments and Experiences for Young Children	3
ECED1475	History and Professions in Early Childhood	3
Semester total		**14**
Third Semester (Fall)		
ECED2350	Foundations of Language and Literacy	3
ECED1020	Child Health, Safety, and Nutrition	3
Elective	Technical Elective (see advisor)	3
Elective	Technical Elective (see advisor)	3
HUMA	Goal 6: Humanities and Fine Arts	3
Semester total		**15**
Fourth Semester (Spring)		
Elective	Liberal Arts and Science Elective	3
Elective	Liberal Arts and Science Elective	3
ECED2440	Intro to Early Childhood Special Education	3
ECED2215	Supporting Infant and Toddler Development	3
Elective	Technical Elective (see advisor)	3
Semester total		**15**
Total Required Credits		**60**

Child Care Assistant - Certificate

Course No.	Course Name	Credits
First Semester (Fall or Spring)		
ECED1101	Early Childhood Field Experience*	6
ECED1102	Orientation to Childcare Licensing	1
ECED1150	Child Growth and Development	3
ECED1136	Interpersonal Relationships and Diversity in Early Childhood	3
ECED1132	Behavior and Emotional-Social Development of the Young Child	3
Total Required Credits		**16**

Early Childhood and Early Elementary Support/Tutor - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ECED1103*	Early Childhood Field Experience (part 1)	3
ECED1104*	Early Childhood Field Experience (part 2)	3
ECED1110	Instructional Competencies for Paraprofessionals	1
ECED1150	Child Growth and Development (F/Sp)	3
ECED1136	Interpersonal Relationships and Diversity in Early Childhood (F)	3
ECED1132	Behavior and Emotional-Social Development of the Young Child (F)	3
Semester total		**16**
Second Semester		
ENGL	Goal 1: Written and Oral Communication	3
MATH	1000-level math	2
SOCS1205	Sociology of the Family	3
ECED1230	Children with Difficult Behaviors	3
ECED1475	History and Professions in Early Childhood (Sp)	3
Semester total		**14**
Third Semester		
ECED2350	Foundations of Language and Literacy (F)	3
ECED1020	Child Health, Safety, and Nutrition (F)	3
ECED2105	Building Numeracy Skills for Young Learners	3
ECED2535	Tutoring Striving Young Readers	3
PSYC1115	Lifespan Psychology	3
Semester total		**15**
Fourth Semester		
HUMA	Goal 6: Humanities and Fine Arts	3
HUMA1430	(Recommend: Exploring World Cultures)	3
ECED2440	Intro to Early Childhood Special Education (Sp)	3
PSYC2522	Positive Psychology	3
ECED2550	Multisensory Strategies for Young Learners	3
Semester total		**15**

Early Childhood Education Transfer Pathway

OVERVIEW

If you are planning to advance to a high level position in the field, the Early Childhood Education Transfer Pathway associate of science degree from MSC Southeast is a great first step. This 2-year early childhood education associates degree is specifically designed for students who want to begin college at MSC Southeast, then transfer to a Minnesota State university to complete a bachelor's degree.

This 100% online education program from Minnesota State College Southeast offers a supportive distance learning environment for new and experienced early childhood educators. Coursework can be completed for the early childhood education associates degree online with local field experience in a licensed early childhood setting, working with children between the ages of 0-8. Students are directly evaluated during their field experiences throughout the program.

The development of a professional portfolio is a component of the MSC Southeast Early Childhood Education program for students to demonstrate competence, based on standards from the National Association for the Education of Young Children. The completed portfolio will be presented at the completion of the MSC Southeast associate degree.

MAJORS WITHIN

Early Childhood Education Transfer Pathway, AS	60 credits

TRANSFER PATHWAYS

The Early Childhood Education Transfer Pathway AS offers students a powerful option: the opportunity to complete an Associate of Science degree with course credits that directly transfer to related bachelor's degree programs at Minnesota State universities.

The curriculum has been specifically designed so that students completing this pathway degree and transferring to one of the seven Minnesota State universities enter the university with junior-year status.

All courses in the Transfer Pathway associate degree will directly transfer and apply to the designated bachelor's degree programs in a related field.

The Early Childhood Education Transfer Pathway (AS) degree transfers to the following universities:
Metropolitan State Univeristy
Minnesota State University - Moorhead
Saint Cloud State University
Southwest Minnesota State University
Winona State University.

PROGRAM HIGHLIGHTS

Transfer options allow students to continue their education toward a bachelor's degree

Online program offers supportive distance learning environment for new and experienced early childhood educatorss

Combination of child development, professional development, and career application courses

Huge national demand for highly trained early childhood educators

CAREER OPPORTUNITIES

The purpose of the Early Childhood Education Transfer Pathway degree is to prepare students for transfer into a designated bachelor's degree program at a Minnesota State university.

Graduates may also be able transfer to additional private and public colleges/universities.

At university level, students may prepare for teacher licensure.

Early Childhood Education Transfer Pathway - AS

Course No.	Course Name	Credits
First Semester		
ENGL	Goal 1: Written and Oral Communication (recommend College Writing I)	3
COMM	Goal 1: Written and Oral Communication (recommend College Speech)	3
ECED1150	Child Growth and Development (F/Sp)	3
ECED1136	Interpersonal Relationships and Diversity in Early Childhood (F)	3
ECED1132	Behavior and Emotional-Social Development of the Young Child (F)	3
Semester total		**15**
Second Semester		
ENGL	Goal 1: Written and Oral Communication	3
MATH	College Level (recommend College Algebra)	3
SOCS/PSYC	Goal 5: History, Social, and Behavioral Sciences	3
ECED1231	Developmentally Appropriate Environments and Experiences for Young Children (Sp)	3
ECED1475	History and Professions in Early Childhood (Sp)	3
Semester total		**15**
Third Semester		
ECED2350	Foundations of Language and Literacy (F)	3
ECED1020	Child, Health, Safety, and Nutrition (F)	3
SOCS/PSYC	Goal 5: History, Social, and Behavioral Sciences	3
SOCS/PSYC	Goal 5: History, Social, and Behavioral Sciences	3
HUMA	Goal 6: Humanities and Fine Arts	3
Semester total		**15**
Fourth Semester		
HUMA	Goal 6: Humanities and Fine Arts	3
HUMA	Goal 6: Humanities and Fine Arts	3
ECED2440	Intro to Early Childhood Special Education (Sp)	3
BIOL/CHEM	Goal 3 Science (recommend Environmental Science/Biology)	3
BIOL/CHEM	Goal 3 Science (recommend Environmental Chemistry)	3
Semester total		**15**
Total Required Credits		**60**

Electrical Engineering Technology

Winona Campus

OVERVIEW

Experience hands-on electrical systems design, development, and troubleshooting with challenging coursework in science, mathematics, and automation.

The 2-year Electrical Engineering Technology degree at Minnesota State College Southeast in Winona will prepare you to enter industry as a front-line engineering technician. These professionals work with technologists, engineers, and management to assist in the design, development, and implementation of systems ranging from printed circuit board assemblies to industrial robots.

You will also have the mathematical and analytical background to pursue a 4-year degree through one of our engineering university partners:

- Milwaukee School of Engineering (MSOE): Bachelor of Science in Electrical Engineering
- Winona State University (WSU): Bachelor of Science in General Engineering

Students have the option to double major in both Electronics Technology and Electrical Engineering Technology, allowing for maximum exposure to laboratory-based electronics principles as well as to physics, calculus, and advanced electronics curriculum.

PROGRAM HIGHLIGHTS

A full semester of Industrial Automation curriculum at MSC Southeast's state-of-the art Industrial Controls Laboratory.

Advanced circuit analysis, electronics, and Programmable Logic Controller curriculum allowing for immediate employment upon graduation.

Transfer opportunities to 4-year university engineering programs.

Program combines hands-on learning with a rigorous foundation in engineering technology theory.

CAREER OPPORTUNITIES

Electrical Engineering Technician
Electronics Technician
Engineering Test Technician
Field Service Technician
Industrial Controls Technician

MAJORS WITHIN

Electrical Engineering Technology, AAS	68 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Understand AC/DC circuit fundamentals.
2. Understand digital circuits and signals.
3. Be proficient in programming and troubleshooting microcontrollers and Programmable Logic Controllers (PLCs).
4. Be competent in solid state component operation, troubleshooting, and implementation (including diodes, BJTs, Op-Amps, and FETs).
5. Prove understanding of physics, calculus, and frequency domain analysis of circuits.
6. Demonstrate comprehensive applied engineering and laboratory based skills.

Electrical Engineering Technology - AAS

Course No.	Course Name	Credits
First Semester		
ELEC 1202	Introduction to DC Electricity	2
ELEC 1204	Introduction to AC Electricity	2
ELEC 1209	DC Theory & Circuits	2
ELEC 1212	Digital Electronics I	3
ENGL 1215	College Writing I	3
PSYC 1110	Introduction to Psychology	3
		15
Second Semester		
ELEC 1251	Solid State Devices	4
ENGL 1410	Technical Writing	3
COMM 1218	College Speech**	3
MATH 1225	Pre-Calculus	3
PHYS 1215	College Physics I	4
		17
Third Semester (Fall)		
ELEC 2211	Digital Electronics II	4
ELEC 2260	Linear Integrated Circuits	4
ELEC 2505	Advanced DC/AC Circuit Analysis	3
MATH 2440	Calculus I (or MATH212 at WSU)	4
		15
Fourth Semester (Spring)		
Goal 6	Humanities and Fine Arts	3
ECON 1210	Survey of Economics	3
ELEC 2230	Microcontroller Applications	5
ELEC 2510	Advanced Electronic Circuit Analysis	3
MATH 2445	Calculus II (or MATH213 at WSU)	4
ELEC 2221	Programmable Controllers	3
		21
	Total Required Credits - 68	

*** COMM 1218 transfers as GS1003 to MSOE.*

Electronics Technology

Winona Campus

OVERVIEW

The skilled electronics technician thus has a wide choice of career opportunities. Equipped with knowledge of electric and electronic principles, the graduate may work in design, repair, or installation of industrial, automotive or home electronics, and maintenance of these devices.

An electronic technician is trained to use instruments and equipment in testing, repair and maintenance of electronic systems. The work may include installation, adjustment and correction of malfunctions in computers, communications devices and other electronic equipment.

Entry each term and part-time enrollment are possible, but not all required and elective courses are available every term.

MAJORS WITHIN

Electronics Technology, AAS	64 credits
Electronics Technology, Diploma	47 credits
Automation Electronics, Certificate	12 credits
Electronics Lab Assistant, Certificate	20 credits
Basic Electronics, Certificate	9 credits (also offered in Red Wing)

See back for program plans

PROGRAM OUTCOMES

Program graduates will be able to:

1. Use knowledge and skills to analyze, troubleshoot, measure and/or program systems and devices used in the Electronics industries.
2. Repair systems and equipment by applying logic and knowledge to solve complex problems.
3. Demonstrate the use of software, programming, and interfacing to troubleshoot micro and personal computers.
4. Demonstrate an ability to communicate effectively.
5. Demonstrate an ability to apply knowledge of mathematics, science, and engineering to the analysis of electronic problems.
6. Apply acquired skills and learn new skills by engaging in lifelong learning.
7. Work as a productive and responsible team member.
8. Function with a respect for diversity and knowledge or professional, social, and global issues.

PROGRAM HIGHLIGHTS

Broad spectrum of career opportunities

Current technology is implemented in the curriculum

50% of class work is hands-on

Our instructors stay current in the electronics field

Electronic technicians play a critical role in technology

CAREER OPPORTUNITIES

Electronic System Installation/ Maintenance

Manufacturing System Installation/ Maintenance

Electronic Engineering Technician

Computer Equipment Repair/Maintenance

Computer Network Installation/ Maintenance

Wireless Communication Systems Installation/Maintenance

Technical Field Service and Sales

Security System Technician

Residential Electronics Systems Integrator

Electronics Technology - AAS

Course No.	Course Name	Credits
General Education Requirements (can be taken any semester)		
Goal 1: Written and Oral Communications		3
Goal 4: Mathematics		3
Goal 5: History, Social, and Behavioral Sciences		3
Goal 6: Humanities and Fine Arts		3
Course from any MnTC Goal 1 - 10 (see advisor)		3
Total credit requirments		**15**
First Semester (Fall)		
ELEC1202	Introduction to DC Electricity	2
ELEC1204	Introduction to AC Electricity	2
ELEC1209	DC Theory and Circuits	2
ELEC1212	Digital Electronics I	3
ELEC1214	Electronic Fabrication Technology	2
ELEC1330	Introduction to Instrumentation & Control	2
Semester total		**13**
Second Semester (Spring)		
ELEC1220	Electronic Communications	2
ELEC1250	Introduction to Solid State	4
ELEC1251	Solid State Devices	4
NWAT1641	Networking Fundamentals	3
Semester total		**13**
Third Semester (Fall)		
ELEC2211	Digital Electronics II	4
ELEC2227	PC Hardware & OS	4
ELEC2260	Linear Integrated Circuits	4
Semester total		**12**
Fourth Semester (Spring)		
ELEC2230	Microcontroller Applications	5
NWAT1670	WAN Technologies	3
Technical Elective (see advisor for approved electives)		3
Semester total		**11**
	Total Required Credits - 64	

Electronics Lab Assistant - Certificate

Course No.	Course Name	Credits
General Education Requirements (can be taken any semester)		
Math Requirement		2
Total credit requirments		**2**
First Semester (Fall)		
TECHNICAL ELECTIVES (fall or spring)		5
ELEC1202	Introduction to DC Electricity	2
ELEC1204	Introduction to AC Electricity	2
ELEC1212	Digital Electronics I	3
ELEC1214	Electronic Fabrication Technology	2
		14
Second Semester (Spring)		
ELEC1250	Introduction to Solid State	4
		4
	Total Required Credits - 20	

Electronics Technology - Diploma

Course No.	Course Name	Credits
General Education Requirements (can be taken any semester)		
English/Communications Requirement		2
Math Requirement		2
Total credit requirments		**4**
First Semester (Fall)		
ELEC1202	Introduction to DC Electricity	2
ELEC1204	Introduction to AC Electricity	2
ELEC1209	DC Theory and Circuits	2
ELEC1212	Digital Electronics I	3
ELEC1214	Electronic Fabrication Technology	2
ELEC1330	Introduction to Instrumentation & Control	2
Semester total		**13**
Second Semester (Spring)		
ELEC1220	Electronic Communications	2
ELEC1250	Introduction to Solid State	4
ELEC1251	Solid State Devices	4
NWAT1641	Networking Fundamentals	3
Semester total		**13**
Third Semester (Fall)		
ELEC2211	Digital Electronics II	4
ELEC2227	PC Hardware & OS	4
ELEC2260	Linear Integrated Circuits	4
Semester total		**12**
Fourth Semester (Spring)		
ELEC2230	Microcontroller Applications	5
Semester total		**5**
	Total Required Credits - 47	

Automation Electronics - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
ELEC1202	Introduction to DC Electricity	2
ELEC1204	Introduction to AC Electricity	2
ELEC1212	Digital Electronics I	3
ELEC1330	Introduction to Instrumentation & Control	2
ELEC2221	Programmable Controllers	3
	Total Required Credits - 12	

Basic Electronics - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
ELEC1202	Introduction to DC Electricity	2
ELEC1204	Introduction to AC Electricity	2
ELEC1209	DC Theory & Circuits	2
ELEC1212	Digital Electronics I	3
	Total Required Credits - 9	

English Transfer Pathway

Red Wing | Winona | Online

OVERVIEW

Begin your journey into the world of literature and writing at MSC Southeast.

The English Transfer Pathway at Minnesota State College Southeast will set you on your way to a bachelor's degree in English at any one of the seven state universities within the Minnesota State system.

The study of English prepares students to be stronger communicators, more reflective readers, and better critical thinkers. It is a preparation not only for a career but also for living an enriched life.

The pathway includes core courses in both writing and literature, as well as several English electives. Students also have the option of simultaneously completing the Creative Writing Certificate while pursuing the English Pathway.

When you complete the English Transfer Pathway:
- You will have an Associate of Arts degree in hand
- You will be ready to transfer, with junior status, to a Minnesota State University
- You will have acquired communication skills useful in a variety of settings

The English Transfer Pathway is offered on campus in Winona and Red Wing, Minnesota, or the degree can be earned online.

PROGRAM HIGHLIGHTS

Solid preparation for English bachelor's completion

Traditional as well as contemporary literature studies

Seasoned English faculty with many publications

Variety of advanced creative writing electives

CAREER OPPORTUNITIES

- English teacher
- Creative writer (poetry, fiction, essay)
- Editor, journalist, researcher
- Technical writer, copywriter
- marketing and public relations
- Web content specialist

MAJORS WITHIN

English Transfer Pathway, AA Degree 60 Credits
See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:
1. Perform close analysis of literature at an introductory level
2. Demonstrate knowledge of canonical works of literature
3. Demonstrate knowledge of literature of under-represented populations
4. Demonstrate discipline-specific knowledge of audience and rhetorical situations
5. Create discipline-specific documents that employ effective techniques for specific writing situations

Englisth Transfer Pathway - AA

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL1215	College Writing I	3
COMM1218	College Speech **OR**	
COMM1228	Interpersonal Communications	3
ENGL1165	Introduction to Literary Studies	3
Natural Science Elective		4
Health & Wellness Requirement		2
Semester total		**15**
Second Semester (Spring)		
ENGL2525	College Writing II	3
ENGL1445	Introduction to Creative Writing	3
COMM1420	Social Media Communications	3
ENGL1365	Survey of British Literature	3
Math Elective		3
Semester total		**15**
Third Semester (Fall)		
ENGL2470	Creative Writing: Business of Writing	1
ENGL1265	Multicultural Literature	3
ENGL2410	Creative Writing: Fiction	3
Goal 5 Electives		6
Technology Requirement		2
Semester total		**15**
Fourth Semester Spring		
ENGL2460	Creative Writing: Poetry	3
ENGL2450	Creative Writing: Nonfiction	3
Goal 5 Elective		3
Liberal Arts Transfer Course Elective		3
Natural Science Elective		3
Semester total		**15**
Total Required Credits		**60**

Exercise Science Transfer Pathway

Winona Campus

OVERVIEW

The need for educated professionals in the field of fitness and nutrition is greater than ever.

Are you passionate about fitness, health, and wellness? A 2-year degree in Exercise Science from Minnesota State College Southeast in Winona will prepare you to make a meaningful difference in this exciting career field.

With obesity and chronic disease on the rise, the need for educated professionals in the field of fitness and nutrition is greater than ever.

When you earn an Associate of Science degree in Exercise Science, you will develop a thorough understanding of the human body, including the principles of biology, chemistry, nutrition, human anatomy, human physiology, and kinesiology as they relate to physical fitness and wellness.

Graduates will be ready to explore workforce options right away, or seamlessly transfer to a related major at a Minnesota State university.

Transfer opportunities include college and university programs in physical therapy, exercise physiology, public health, rehabilitative medicine, and other health-related fields.

MAJORS WITHIN

Exercise Science Transfer Pathway, AS Degree 60 Credits

See back for program plannng guide

PROGRAM OUTCOMES

Program graduates will be able to:

1. Demonstrate sound foundational understanding of the principles of biology, chemistry,nutrition, human anatomy, human physiology, and kinesiology as they relate to physical fitness and wellness.
2. Demonstrate basic laboratory skills pertaining to assessments, laboratory methods, sound experimental and analytical practices, data acquisition, and reporting in the exercise sciences.
3. Advocate nutrition and physically active lifestyles as a means to improve quality of life and reduce the prevalence of lifestyle-related diseases.
4. Recognize the limitations and scope of practice for the exercise science professional as it relates to typical clients and special populations.
5. Demonstrate requisite skills and abilities for maintaining professional status and meaningful employment and/or continuing education in exercise science related areas.

PROGRAM HIGHLIGHTS

By developing a thorough understanding of the human body, students in the Exercise Science program are prepared for a variety of careers in health-related fields.

Program graduates can seamlessly transfer to the Athletic Training program at Winona State University.

Additional transfer opportunities into other college and university programs in physical therapy, exercise physiology, public health, rehabilitative medicine, and other health-related fields.

CAREER OPPORTUNITIES

Athletic Trainer
Exercise Physiologist
Personal Fitness Trainer
Aerobics Instructor
Physical Therapist
Physical Therapy Assistant

Exercise Science Transfer Pathway - AS

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL1215	College Writing I	3
MATH1230	Statistics	3
BIOL1201	Introduction to Biology	4
EXSC1280*	Introduction to Exercise Science	3
INSP1525	Career & Education Planning	1
Semester total		**14**
Second Semester (Spring)		
ENGL2525	College Writing II	3
BIOL 1226	Anatomy & Physiology I	4
CHEM1122	Environmental Chemistry	3
HUMA1125	Moral Problems	3
PSYC1110	Introduction to Psychology	3
Semester total		**16**
Third Semester (Fall)		
BIOL2516	Anatomy & Physiology II	4
BIOL1226	Nutrition	3
SOCS1110	Intro to Sociology	3
THPY1410	Kinesiology	3
COMM1218	College Speech OR	-
COMM1228	Interpersonal Communications	3
Semester total		**16**
Fourth Semester (Spring)		
MEDS1610	Pharmacology	2
PSYC2522	Positive Psychology	3
HUMA1445	Women's Studies	3
SPAN1230	Hispanic Cultures	3
EXSC1204*	Personal & Community Health	3
Semester total		**14**
Total Required Credits		**60**

***EXSC1280 & EXSC1204 are Winona State Unveristy courses.**
Note that EXSC1280 MUST BE TAKEN ON CAMPUS at WSU in Winona, MN

Guitar Repair and Building

Red Wing Campus

OVERVIEW

Located on Minnesota State College Southeast's Red Wing campus, the Guitar Repair & Building program prepares students for a career in lutherie. Experience hands-on learning as you progress from basic repairs to the step-by-step process of building an acoustic guitar!

Beginning with the correct use of power and hand tools, our students gain a thorough understanding of woods, adhesives, history, and materials related to fretted instruments. You will practice a variety of common repairs and learn acoustic and electric guitar set-up, fretwork, finishing, and how to perform neck resets.

No previous woodworking experience or musical ability is required, but successful students are detail-oriented, highly motivated, and have the ability to sit at a workbench and stay focused on their work all day.

- First year guitar students build a flat-top steel string or classical guitar in Guitar Repair & Building and also have the option to build an electric guitar.
- Second year students can choose to build a mandolin or archtop guitar and will also design and build their own acoustic guitar, electric guitar, or mandolin as part of the Guitar Development & Production diploma.

Our graduates are in high demand, working with music stores, independent repair shops, and instrument manufacturers. For more information visit redwingmusicrepair.org.

PROGRAM HIGHLIGHTS

Unique in length and comprehensiveness in the United States

Additional career for musicians and teachers

No previous musical or woodworking experience necessary

CAREER OPPORTUNITIES

Music Stores
Repair Shops
Guitar Makers
Entrepreneurial Opportunities

WWW.REDWINGMUSICREPAIR.ORG

MAJORS WITHIN

Electric Guitar Building, Certificate	15 credits
Guitar Development and Production, Diploma	37 credits
Guitar Repair and Building, Diploma	37 credits

See backside for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

1. Diagnose, adjust, and repair, set ups, action, and intonation.
2. Identify and understand parts and materials, and their use and characteristics.
3. Safely and accurately use hand and power tools.
4. Design and build a string instrument.
5. Diagnose, estimate costs, and perform most guitar repairs.
6. Perform finishing processes and touch up.
7. Use the math, communications, and computer skills needed in lutherie.

Guitar Repair and Building - Diploma

Course No.	Course Name	Credits
Fall Semester		
GTRB1400	Introduction to Tools	3
GTRB1405	Guitar Overview	2
GTRB1411	Acoustic Guitar Work	3
GTRB1412	Electric Guitar Work	3
GTRB1416	Guitar Electronics	1
GTRB1420	Acoustic Guitar Neck Resets	2
GTRB1425	Fretwork	3
GTRB1430	Guitar Acoustics	1
Math requirement		2
Semester total		**20**
Spring Semester		
GTRB1441	Acoustic Construction Lecture	3
GTRB1445	Acoustic Guitar Construction Lab	6
GTRB1450	Introduction to Finishing	4
GTRB1451	Guitar Finish Application	1
GTRB1455	Guitar Repairs	3
Semester total		**17**
Total Required Credits		**37**

Guitar Development and Production - Diploma

Course No.	Course Name	Credits
Fall Semester		
GTRB2402	Guitar Repair Shop	4
GTRB2410	Guitar Special Topics	1
GTRB2412	Guitar Special Topics II	1
GTRB2415	Computer Drafting for Guitar	3
GTRB2417	CNC for Guitar Lecture	1
GTRB2418	CNC for Guitar Lab	2
GTRB2425	Archtop Guitar/Mandolin Construction	6
Math requirement		2
Semester total		**20**
Spring Semester		
GTRB2432	Advanced Construction Project	9
GTRB2435	Advanced Finishing	3
GTRB2445	Archtop/Mandolin Construction II	5
Semester total		**17**
Total Required Credits		**37**

Electric Guitar Building - Certificate

Course No.	Course Name	Credits
Fall Semester		
GTRB1412	Electric Guitar Work	3
GTRB1417	Electric Guitar Design	1
GTRB1425	Fretwork	3
Semester total		**7**
Spring Semester		
GTRB1418	Electric Guitar Construction	4
GTRB1450	Introduction to Finishing	4
Semester total		**8**
Total Required Credits		**15**

Health Science Broad Field

Red Wing and Winona Campus

OVERVIEW

If your future career goals include a profession in health care, you will need an advanced education! Health Science Broad Field is a 2-year Associate of Science degree designed for transfer to any of the universities in the Minnesota State System, where you can earn a 4-year degree.

At Minnesota State College Southeast in Winona and Red Wing, you will meet the pre-requisites for further studies in a major such as community health, nursing, pre-medicine, dental hygiene, or allied health care management.

Build a solid educational foundation
Complete the full range of general education courses required for a four-year program, while emphasizing health science courses, including:

- Biology and Microbiology
- Chemistry
- Anatomy & Physiology
- Medical Terminology
- Nutrition

Plan on working closely with your MSC Southeast faculty advisor to stay on track with your coursework and long-term educational goals.

PROGRAM HIGHLIGHTS

Narrow your focus, but keep your options open within the field of health care

Fully transferable to all Minnesota State 4-year Universities

Small class sizes with ample personal attention and feedback

Friendly, dedicated instructors who will know you by name and help you succeed

CAREER OPPORTUNITIES

Health Care Management
Community Health
Dental Hygiene
Nursing
Pre-Medicine
Pre-Occupational Therapy
Pre-Pharmacy
Pre-Physical Therapy

MAJORS WITHIN

Health Science Broad Field, AS Degree 60 Credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Demonstrate sound foundational understanding of the principles of biology, chemistry, nutrition, human anatomy, human physiology, and kinesiology as they relate to physical fitness and wellness.
2. Demonstrate basic laboratory skills pertaining to assessments, laboratory methods, sound experimental and analytical practices, data acquisition, and reporting science and health care.
3. Communicate effectively using appropriate scientific and medical terminology.
4. Explore psychological, social, and ethical issues as they relate to health sciences and health care.
5. Prepare for transfer to a 4-year baccalaureate program.

Health Science Broad Field - AS

Course No.	Course Name	Credits
First Semester (Fall)		
BIOL 1201	Introduction to Biology	4
ENGL 1215	College Writing I	3
BIOL 1226	Nutrition	3
PSYC 1110	Intro to Psychology	3
MEDS 1210	Medical Terminology	2
INSP 1525	Career and Ed Planning	1
Semester total		**16**
Second Semester (Spring)		
BIOL 2515	Anatomy and Physiology I	4
MATH 1230	Introduction to Statistics	3
SPAN 1230	Hispanic Cultures	3
ENGL 2525	College Writing II	3
COMP 1130	Word Processing	1
COMP 1140	Online Communications	1
Semester total		**15**
Third Semester (Fall)		
COMM 1218	College Speech OR	
COMM 1228	Interpersonal Communications	3
BIOL 2516	Anatomy and Physiology II	4
HUMA 1125	Moral Problems	3
PSYC 1115	Lifespan Psychology	3
Semester total		**13**
Fourth Semester (Spring)		
BIOL 2531	Microbiology	3
CHEM 2518	General, Organic and Biochemistry	4
MATH 1220	College Algebra	3
SOCS 1110	Intro to Sociology	3
HUMA 1445	Women's Studies	3
Semester total		**16**
Total Required Credits		**60**

History Transfer Pathway

Winona and Red Wing Campus

OVERVIEW

If you are curious about the past, you will find great rewards in the study of history.

What happened a decade ago? A century ago? A thousand years ago?

In the History Transfer Pathway program at Minnesota State College Southeast you will learn about the events of the past that brought us to where we are today.

This 2-year Associate of Arts degree is designed for direct transfer to any of the seven universities in the Minnesota State System.

History is more than memorizing the "facts," like dates, times, and places. History is how we discover and tell the story of the past.

In your history classes, you will analyze texts critically, evaluate and form judgments on past historical events, and communicate your conclusions in spoken and written form.

In our program, advanced courses in Minnesota, American Indian, and music history will help you build skills in courses at the sophomore level, using historical research, writing, and museum experience.

The study of history is part of a well-rounded education in the liberal arts. Skills in research, writing, and critical thinking are relevant to all careers and professions.

MAJORS WITHIN

History Transfer Pathway, AA Degree 60 Credits
See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:
1. Demonstrate a broad understanding of history in core areas of U.S. and world history
2. Make use of historical thinking
3. Analyze historical sources, distinguishing primary from secondary sources
4. Communicate effectively using historical evidence and methods
5. Analyze and understand the diversity of peoples within their distinctive historical contexts.

PROGRAM HIGHLIGHTS

Provides foundational coursework for continuing onward to a major in history at a 4-year college or university.

Advanced special topic courses at the sophomore level involve historical research into primary source material and museum experience.

Along with a variety of courses offered in the social sciences, the History Transfer Pathway can provide preparation for working toward a social studies teaching license.

CAREER OPPORTUNITIES

Students will generally go on to complete a bachelor's degree or higher. A degree in history can lead to a wide variety of career fields, including:
- Teaching
- Research
- Historic Preservation
- Documentary/Multimedia Editors
- Cultural Resources Management

Completing the A.A. and bachelors's degree is the first step in this educational process.

History Transfer Pathway - AA Degree

Course No.	Course Name	Credits
First Semester (Fall)		
COMP	Any computer course	2
BIOL	Any transfer level biology course	3-4
ENGL1215	College Writing 1	3
INSP1525	Career and Education Planning	1
HIST1108	U.S. History – 1865	3
HUMA1435	Multicultural America	3
Semester total		**15**
Second Semester (Spring)		
ENGL2525	College Writing 2	3
HIST1110	U.S. History 1865 – Present	3
HIST1228	World History to 1500	3
HUMA1430	Exploring World Cultures	3
MATH	MATH1230 Introduction to Statistics OR MATH1220 College Algebra (Social Studies Teaching Majors)	3
Semester total		**15**
Third Semester (Fall)		
CHEM	Any transfer level chemistry course	3-4
COMM	COMM1218 College Speech OR COMM1228 Interpersonal Communications	3
HIST2535	American Indian History	3
HLTH	Any health and wellness course	2
MATH	MATH1230 Introduction to Statistics or MATH1220 College Algebra (Social Studies Teaching Majors)	3
Semester total		**15**
Fourth Semester Spring		
ECON1405	Personal Finance	3
HIST1110	U.S. History 1865 – Present	3
HIST1230	World History 1500 - Present	3
HIST2225	Minnesota History	3
SPAN1230	Introduction to Hispanic Cultures	3
Semester total		**15**
Total Required Credits		**60**

Individualized Studies

Red Wing & Winona Campuses

OVERVIEW

An Associate of Science (AS) degree in Individualized Studies is the right program if:

- **you are undecided about your future career**
- **you want general education courses that transfer**
- **you are interested in a particular career field as well as an emphasis in Liberal Arts**

An AS degree in Individualized Studies leads directly to employment as well as being a transferrable degree that can be accepted at other institutions. Typically, students enroll at Minnesota State College Southeast for two years, and then transfer to another college that has agreed to accept this AS degree. This allows students the opportunity to begin a career or begin a baccalaureate degree at one college and complete it at another. The AS in Individualized Studies allows students to:

- focus on specialized career interests
- combine and integrate a number of subjects into a degree program
- work toward completing the Minnesota Transfer Curriculum (MnTC)
- build on current areas of expertise and experiences.

This program is designed to provide a full complement of Liberal Arts and Science courses transferrable to any Minnesota State College or University. In addition, a direct program pathway has been developed to continue the 2-year A.S. degree and articulate into the 4-year B.A. degree at Metro State University - First College, Twin Cities. Also, one has been developed to articulate into the 4-year Professional Studies B.A. Degree at Winona State University, Winona, Minnesota.

MAJORS WITHIN

Individualized Studies, AS — 60 credits
See backside for program plan

PROGRAM OUTCOMES

1. Acquire expertise in career options and opportunities in a variety of fields
2. Analyze and assess personal values and life goals that affect career decision-making
3. Gain a fundamental understanding of workplace environments
4. Acquire knowledge of self, and subsequently, one's capability for self-direction and self-motivation
5. Utilize the English language to effectively read, write, and listen critically
6. Perform the mathematical computations necessary to succeed as an employee and as a consumer
7. Increase understanding in the fields of science and technology
8. Develop a thoughtful, complete career plan for continuing knowledge and learning in the chosen career field

PROGRAM HIGHLIGHTS

Build Your Own Individualized Degree Plan

Multidisciplinary Coursework - in more than one discipline

Intradisciplinary Coursework - in all the same discipline

Build on Your Areas of Expertise and Experiences

Complete Minnesota Transfer Curriculum Package

Assume Self-Directed Learning

Develop a Sense of Life-Long Learning

Appreciate Reflective Learning

CAREER OPPORTUNITIES

A degree in Individualized Studies is designed to allow you to choose your own direction with opportunities to focus on:
Specialized Careers
Structured Program Areas
Combined Areas of Expertise
Integrated Professions

Individualized Studies - AS

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL 1215	College Writing I	3
BIOL 1201	Introduction to Biology	4
MATH 1220	College Algebra	3
PSYC 1110	General Psychology	3
SPAN 1230	Introduction to Hispanic Cultures	3
INSP 1525	Career & Educational Planning	1
Semester total		**17**
Second Semester (Spring)		
COMM 1218	College Speech	3
OR		
COMM 1228	Interpersonal Communications	
CHEM 1430	Principles of Chemistry	4
BUSN 1245	Business Computers	3
OR		
3 1-credit COMP courses		
HUMA 1430	Exploring World Cultures	3
HIST 1108	US History to 1865	3
Semester total		**16**
Third Semester (Fall)		
ENGL 2525	College Writing II	3
HUMA 1435	Multicultural America	3
GEOG 1210	Physical Geography	3
PSYC 2530	Social Psychology	3
ENGL 1265	Multicultural Literature	3
Semester total		**15**
Fourth Semester Spring		
HUMA 1125	Moral Problems	3
ARTS 1101	Introduction to the Arts	3
PSYC 2522	Positive Psychology	3
SOCS 1110	Introduction to Sociology	3
HUMA 1445	Introduction to Women's Studies	3
Semester total		**15**
Total Required Credits		**63**

Liberal Arts and Sciences

Red Wing | Winona | Online

OVERVIEW

A well-rounded education, with a range of coursework in the arts, humanities, mathematics, and sciences, provides the basis for lifelong learning. By earning an Associate of Arts degree at Minnesota State College Southeast, you gain a credential you can take with you to transfer into a four-year college or university program as a junior in college.

The study of liberal arts and sciences isn't just about memorizing facts - it's learning how to learn, so you will be prepared to adapt to an ever-changing world. You are not training for a specific job but gaining the communications and reasoning skills that will enhance your career opportunities in any area you might pursue in the future.

Workforce Readiness
There is an increasing national need for all working-age adults to possess at least two years of higher education. Our region's workforce communities have indicated that they are seeking "well-rounded" individuals who possess strong critical thinking, problem solving, and communications skills. With an Associate of Arts in Liberal Arts and Sciences, you will be better qualified to pursue your career options.

Students can finish an Associate of Arts degree within four semesters at MSC Southeast. All essential courses are offered every semester, and the college offers evening classes, online classes, and hybrid classes. A full array of Liberal Arts and Sciences courses are available at both the Red Wing and Winona campuses.

MAJORS WITHIN

Associate of Arts 60 credits
See back side for MnTC requirements

TRANSFER

Learn how your credits can transfer between Minnesota State colleges and universities at www.mntransfer.org.
This is a web service that enables students and advisors to access official, consistent and accurate transfer information. MnTransfer is a collaborative effort among:

- Minnesota State Colleges and Universities
- Minnesota private colleges
- University of Minnesota

PROGRAM HIGHLIGHTS

Build skills and knowledge that will remain relevant today, tomorrow, and beyond

Gain high-demand analytical, communication and critical thinking, skills

Meet general education requirements needed for transfer

Choose electives that are appropriate for your planned transfer program

Small class sizes and dedicated faculty

CAREER OPPORTUNITIES

An associate of arts degree is the foundation of your future education.
This degree is designed for transfer to 4-year colleges and universities.
However, the lifelong skills and abilities mastered in the Associate of Arts program will serve students who may enter the workforce directly after completing the degree.

Liberal Arts and Sciences - AA Degree

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL 1215	College Writing I	3
COMM 1218 or	College Speech	
COMM 1228	Interpersonal Communications	3
MNTC Goal 5	History/Social/Behavioral Science (1st discipline)	3
MNTC Goal 6	Humanities/Fine Arts (1st discipline)	3
INSP 1525	Career and Educational Planning	1
HLTH	Any 1000 level Hlth course	1
COMP	Any 1000 level Comp course	1
Semester total		**15**
Second Semester (Spring)		
ENGL 2525	College Writing 2	3
MNTC Goal 3	Natural Science (without lab)	3
MNTC Goal 4	Mathematics	3
MNTC Goal 5	History/Social/Behavioral Science (2nd discipline)	3
MNTC Goal 6	Humanities/Fine Arts (2nd discipline)	3
Semester total		**15**
Third Semester (Fall)		
MNTC Goal 3	Natural Science (with lab)	4
MNTC Goal 5	History/Social/Behavioral Science	3
MNTC Goal 6	Humanities/Fine Arts	3
Any Course	1000 or above	3
HLTH	Any 1000 level Hlth course	1
COMP	Any 1000 level Comp course	1
Semester total		**15**
Fourth Semester Spring		
MNTC Any	Any 1100 or above	3
Any Course	1000 or above	3
Any Course	1000 or above	3
Any Course	1000 or above	3
Any Course	1000 or above	3
Semester total		**15**
Total Required Credits		**60**

Mechatronics Technology

Winona & Red Wing Campus

OVERVIEW

Mechanical systems, electrical devices, and industrial automation combine for a cutting edge career.

If you like working with your mind and your hands, the challenging field of mechatronics technology may be the career choice for you! Mechatronics technology is the cutting edge discipline of building, troubleshooting, and maintaining the industry of tomorrow.

Mechatronics technicians work with industrial electricians, engineers, and technical support staff to ensure that production processes and equipment can be expanded and sustained in a wide range of industries.

At MSC Southeast in Winona, Mechatronics Technology students will learn skills spanning electronics, mechanics, hydraulics, and motors. You will understand how to set up and maintain advanced programmable logic controllers, drives, human-machineinterfaces, and actuators. Graduates with this credential work in settings such as manufacturing, automation, control systems, and agriculture, such as:

- installing industrial robots at leading manufacturing firms
- deploying automated milking parlors on dairy farms
- troubleshooting high-tech industrial mechanical operations

Whether studying electrical, mechanical, or instrumentation systems, the faculty will be able to draw a line from each lecture to what is taking place in today's most advanced industries.

PROGRAM HIGHLIGHTS

Taught by industry and academic professionals who can connect modern industrial processes with cutting-edge advances in the world of mechatronic

Lecture and lab coursework directly relate to what is taking place in today's most advanced industries

Capstone project will demonstrate your ability to integrate what you have learned in the program

CAREER OPPORTUNITIES

Automation Technicians
Industrial Engineering Technicians
Industrial Machinery Mechanics
Commercial & Industrial Maintenance Technicians

MAJORS WITHIN

Mechatronics Technology, AAS	60 credits
Electromechanical Technology, Dipoloma	31 credits
Industrial Maintenance, Certfiicate	10 credits
Automation Foundations, Certificiate	11 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Understanding AC/DC electrical circuits
2. Proficiency with pneumatic & hydraulic systems
3. Control and troubleshoot electrical motors
4. Installation and configuration of Variable Frequency Drives (VFD) and Human
5. Machine Interfaces (HMI)
6. Successful troubleshooting of electro-mechanical systems
7. Demonstration of multi-system integration via a program capstone project

Mechatronics Technology, AAS

Course No.	Course Name	Credits
First Semester		
ELEC 1202	Introduction to DC	2
ELEC 1204	Introduction to AC	2
ELEC 1209	DC Theory & Circuits	2
ELEC 1212	Digital Electronics I	3
MECH 1610	Basic Industrial Controls	3
GEN ED	Math Requirement	3
Semester total		**15**
Second Semester		
MECH 1620	Programmable Controllers	3
MECH 1700	Mechanical Power Transmission	2
MECH 1710	Introduction to Hydraulic & Pneumatics	2
MECH 1720	Machining for Maintenance	3
WELD 1455	Trades Enhancement Welding	3
Goal 1	Written and Oral Communications	3
Semester total		**16**
Third Semester		
MACH 1661	Introduction to CAD/CAM	2
MECH 1630	Advanced PLC Programming	3
MECH 1631	Motors & Drives	3
MECH 1640	Integrated Industrial Systems	3
Liberal Arts and Sciences Elective (see advisor for courses)		3
Semester total		**14**
Fourth Semester		
MECH 1632	Process Control Systems	3
MECH 1730	Robotics	3
MECH 1800	Mechatronics Capstone	3
GEN ED	Humanities Requirement	3
GEN ED	Social Science Requirement	3
Semester total		**15**
Total Required Credits		**60**

Industrial Maintenance, Certificate

Course No.	Course Name	Credits
MECH1700	Mechanical Power Transmission	2
MECH1710	Fluid Power	2
MECH1720	Machining for Maintenance	3
WELD1455	Trades Enhancement Welding	3
	Total Required Credits - 10	

Automation Foundations, Certificate

Course No.	Course Name	Credits
MECH1202	DC Electricity	2
MECH1204	AC Electricity	2
MECH1212	Digital Electronics	1
MECH1610	Basic Industrial Controls	3
MECH1620	Programmable Controllers	3
	Total Required Credits - 11	

Electromechanical Technical, Diploma - WINONA

Course No.	Course Name	Credits
First Semester		
ELEC 1202	Introduction to DC	2
ELEC 1204	Introduction to AC	2
ELEC 1209	DC Theory & Circuits	2
ELEC 1212	Digital Electronics I	3
MECH 1610	Basic Industrial Controls	3
GEN ED	Liberal Arts elective	3
	Semester total	**15**
Second Semester		
MECH 1620	Programmable Controllers	3
MECH 1700	Mechanical Power Transmission	2
MECH 1710	Introduction to Hydraulic & Pneumatics	2
MECH 1720	Machining for Maintenance	3
WELD 1455	Trades Enhancement Welding	3
GEN ED	English/Communications Requirement	3
	Semester total	**16**
	Total Required Credits - 31	

Electromechanical Technical, Diploma - RED WING

Course No.	Course Name	Credits
First Semester		
ELEC 1202	Introduction to DC	2
MECH 1610	Basic Industrial Controls	3
MECH 1700	Mechanical Power Transmission	2
MECH 1710	Introduction to Hydraulic & Pneumatics	2
WELD 1455	Trades Enhancement Welding	3
GEN ED	Liberal Arts elective	3
Semester total		**15**
Second Semester		
ELEC 1204	Introduction to AC	2
ELEC 1209	DC Theory & Circuits	2
ELEC 1212	Digital Electronics I	3
MECH 1620	Programmable Controllers	3
MECH 1720	Machining for Maintenance	3
GEN ED	English/Communications Requirement	3
	Semester total	**16**
	Total Required Credits - 31	

Network Administration and Technology

Winona Campus

OVERVIEW

Network Administration is among the fastest growing fields in today's global society.

In our Network Administration Technology program at MSC Southeast, you will learn to meet the challenges of an ever-changing computer-networking environment.

Students are trained academically on the various ways in designing, planning, implementing and managing network systems with an emphasis in the "hands-on" applied approach to learning. The "hands-on" approach stressed throughout the program adds a dimension necessary to acquire practical troubleshooting skills to function efficiently in this complex computer field.

MAJORS WITHIN

Network and System Administration, AAS	60 credits
IT Support Technician, Diploma	32 credits

PROGRAM HIGHLIGHTS

Curriculum is designed to be "hands-on"

Fast growing field, challenging field

Evening courses available for working adults

Cisco Certified and Microsoft Certified

CAREER OPPORTUNITIES

Network Administration Assistant
Microsoft Network Administrator
Cisco Certified Network Associate
Internet Network Assistant
Network Administrator Assistant
Certified Netware Administrator
Hardware and Software Technicians

PROGRAM OUTCOMES

1. Analyze, plan for and support operating system maintenance.
2. Evaluate, identify and implement appropriate security standards.
3. Acquire technical skills and knowledge necessary to become highly competitive candidates for job openings and promotions within information technology or related fields.
4. Design, build and manage PC networks in a multi-vendor OS environment. (Microsoft or Linux, etc.)
5. Configure and implement routers and switches to operate in a typical LAN/WAN environment.
6. Perform TCP/IP skills in using and configuring network protocols.
7. Identify, implement and configuring security best practices.

Network Administration & Technology - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
NWAT1601	Windows Workstation I	2
NWAT 1602	Windows Workstation II	1
NWAT 1607	IT Fundamentals	3
NWAT 1641	Networking Fundamentals	3
NWAT 1650	Cybersecurity Fundamentals	3
Goal 1	Written and Oral Communication	3
Semester total		**15**
Second Semester (Spring)		
NWAT 1649	Windows Server I	3
NWAT 2100	Cisco Networking I	3
NWAT 2676	Wireless Communications	3
NWAT 2673	Linux Operating Systems	3
Goal 4	Mathematics	3
Semester total		**15**
Third Semester (Fall)		
NWAT 2669	Windows Server II	3
NWAT 2684	Windows Server & Desktop Security	3
NWAT 2200	Cisco Networking II	3
Goal 5	HIstory, social and Behavioral Sciences	3
Goal 6	Humanities and Fine Arts	3
Semester total		**15**
Fourth Semester (Spring)		
NWAT 2110	Cloud Computing	3
NWAT 2300	Cisco Networking III	3
NWAT 2950	Network & System Administration Capstone	3
NWAT 2125	Server Virtualization	3
Gen Ed	MnTC Goal 1-10 (see advisor for courses)	3
Semester total		**15**
	Total Required Credits -	**60**

IT Support Technician - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
NWAT1601	Windows Workstation I	2
NWAT 1602	Windows Workstation II	1
NWAT 1607	IT Fundamentals	3
NWAT 1641	Networking Fundamentals	3
NWAT 1650	Cybersecurity Fundamentals	3
Goal 1	Written & Oral Communication	3
Semester total		**15**
Second Semester (Fall)		
NWAT 1649	Windows Server I	3
NWAT 2100	Cisco Networking I	3
NWAT 2676	Wireless Communications	3
NWAT 2673	Linux Operating Systems	3
Goal 4	Mathematics	2
Gen Ed	MnTC Goal 1-10	3
Semester total		**17**
	Total Required Credits -	**32**

Political Science Transfer Pathway

Red Wing | Winona | Online

OVERVIEW

The study of political science teaches valuable analytical, communication, and research skills.

Are you interested in the important political issues of the world today? Do you want to better understand how governments operate? Are you curious about how and why people make political choices and the consequences of those choices?

At Minnesota State College Southeast in Winona, Red Wing, or online, you'll be able to explore these important issues while earning a 2-year degree designed for transfer to any Minnesota State university.

As a Political Science major, you will study:

- Systems of government and institutions
- Political behavior and culture
- Media, interest groups, non-governmental organizations
- Citizen rights and liberties
- Elections and political parties
- Political responses to modern problems
- Political values and ideals

After graduating with the Political Science Transfer Pathway AA degree, you can transfer in as a junior and complete your bachelor's degree by earning 60 additional credits at one of the seven Minnesota State universities (admission requirements, including GPA, apply).

The Political Science Transfer Pathway AA degree is the foundation of a well-rounded education with a range of coursework in the liberal arts and sciences. It provides the basis for understanding and participating in political life as a citizen and employment or involvement with: government, education, politics, business, legal fields, interest groups, media, international and community organizations.

PROGRAM HIGHLIGHTS

Broad liberal arts foundation with focus in Political Science

Guaranteed transfer to designated bachelor's programs

Small class sizes

Variety of course delivery methods: on campus in Red Wing and Winona, hybrid, 100% online

CAREER OPPORTUNITIES

Students generally go on to earn complete a bachelor's degree or higher. A degree in political science can lead to employment in:

- Politics
- Government
- Education
- Law
- Media
- Interest groups and community
- organizations

MAJORS WITHIN

Political Science Transfer Pathway, AA Degree	60 Credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Demonstrate familiarity with concepts fundamental to the study of political science
2. Demonstrate understanding of basic political processes and institutions
3. Develop critical thinking skills to analyze current political issues
4. Reflect on their own and others' values in the context of politics.

Political Science Transfer Pathway - AA Degree

Course No.	Course Name	Credits
First Semester (Fall)		
POLS1120	American Government	3
SOCS1110	Introduction to Sociology	3
ENGL1215	College Writing I	3
HUMA1125	Moral Problems	3
COMP1130	Word Processing/Presentations	1
COMP1135	Spreadsheet Applications	1
INSP1525	Career & Educational Planning	1
Semester total		**15**
Second Semester (Spring)		
POLS1101	Intro to Political Science	3
ENGL2525	College Writing II	3
MATH1230	Introduction to Statistics	3
BIO1226	Nutrition	3
SPAN1230	Introduction to Hispanic Cultures	3
Semester total		**15**
Third Semester (Fall)		
POLS1130	World Politics	3
HUMA1435	Multicultural America	3
BIOL1200	Human Biology	4
HIST1108/1110	US History	3
HLTH1225	Stress Management	2
Semester total		**15**
Fourth Semester Spring		
POLS1140	Environment & Society	3
HIST2525	Minnesota History	3
COMM1218	College Speech	3
PSYC2531	Social Psychology	3
SOCS2545	Diversity and Social Change	3
Semester total		**15**
Total Required Credits		**60**

Practical Nursing

Red Wing & Winona Campus

OVERVIEW

Download nursing program information packets and application forms from our website: www.southeastmn.edu/nursing

Practical Nursing - Diploma
The Practical Nursing major is designed to provide students with the knowledge and skills necessary to provide direct nursing care to patients in hospitals, nursing homes, clinics, home and community-based settings within the scope of practice of a Practical Nurse.

This challenging 3-semester program requires students to demonstrate competence in classroom theory, laboratory experiences, simulated events, and supervised clinical rotations. We recommend that students complete general education coursework prior to entering the nursing program.

The Practical Nursing program at MSC Southeast is accredited by the Accreditation Commission for Education in Nursing (ACEN) and approved by the Minnesota Board of Nursing.

MAJORS WITHIN

Practical Nursing, Diploma 34-38 credits

PROGRAM OUTCOMES

1. Patient-centered care
Evaluate nursing care provided to patients, families, groups, populations, and communities from diverse backgrounds in a variety of settings to ensure that it is compassionate, age and culturally appropriate, and based on a patient's preferences, values, and needs.
2. Teamwork and collaboration
Collaborate with members of the interprofessional healthcare team, utilizing effective communication, to engage in shared decision-making when managing and coordinating patient care.
3. Evidence-based practice
Integrate use of current evidence, clinical expertise, and patient/family preferences and values when making clinical decisions.
4. Quality improvement
Utilize quality improvement strategies to effect change in the delivery of patient care.
5.Safety
Implement strategies that minimize risk and provide a safe environment for patients, self, and others.
6. Informatics
Integrate information technology into practice that supports the application of clinical judgment in the management of patient care.
7. Professionalism
Integrate accountable and responsible behaviors that uphold established regulatory, legal, and ethical principles.
8. Leadership
Utilize leadership, management, delegation, and priority-setting skills in the provision and management of safe, quality, patient-centered care.

PROGRAM HIGHLIGHTS

Successful applicants can begin core classes in fall or spring semester.

Clinical and lab experiences provide simulated scenarios and direct patient care with healthy and ill patients across the lifespan.

Multiple clinical sites allow the student to explore different fields within nursing before graduation.

Program is focused on preparation for passing the NCLEX-PN® and successfully beginning a nursing career.

Due to the chronic nursing shortage, there are several loan forgiveness programs available to graduates.

A degree in nursing is a solid pathway to a sustaining career.

CAREER OPPORTUNITIES

Acute Care
Clinics
Home Health Care
Hospice Care
Long Term Care

Practical Nursing - Diploma

Course No.	Course Name	Credits
Prerequisitie	**Application Checklist**	
BIOL 1200	Human Biology* or	4
BIOL 2515	Anatomy and Physiology I*	
Semester total		**4**
First Semester		
BIOL2516	Anatomy and Physiology II***	4
HEAL1701	Practical Nurse 1	7
HEAL1702	Practical Nurse 1 Clinical/Lab	5
PSYC1115	Lifespan Psychology	3
Semester total		**15-19 credits**
Second Semester		
ENGL 1215	College Writing 1***	3
HEAL 1801	Practical Nurse 2	7
HEAL 1802	Practical Nurse 2 Clinical/Lab	5
Semester total		**15**
Required Credits		**34-38**

* BIOL 2515 Anatomy and Physiology I and BIOL 2516 Anatomy and Physiology II may be used together in place of BIOL 1200 Human Biology. Educational programs to become a Registered Nurse generally require BIOL 2515 and BIOL 2516.

If you plan to apply to such a program in the future, consider taking these courses instead of BIOL 1200. BIOL 2516 Anatomy and Physiology II must be taken concurrently and successfully passed with Practical Nurse 1 in the first semester of the program.

Human Biology or Anatomy and Physiology I & II, ATI TEAS Exam and Certified Nursing Assistant are all requirements prior to acceptance into the nursing program. (See Practical Nursing Application Packet for details).

Note: During clinical rotations, nursing students may be required to travel up to a 100-mile radius from their home campus.

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** The Practical Nursing (PN) degree requires applicants to be on any state registry as a certified nursing assistant. The ASN program also requires applicant to take the ATI TEAS admission exam with an achievement level of Proficient or higher (58.7%).

***Course has prep course or pre-requisite requirement.

Pre Social Work Transfer Pathway

Winona and Red Wing Campus

OVERVIEW

Prepare for a career in the helping professions by beginning college at Minnesota State College Southeast.

The 2 year Pre Social Work Transfer Pathways degree offers a valuable route to a satisfying career, where you can be a resource for individuals and families who need help and guidance. By earning an A.S. in Pre Social work, you will be ready to transfer to any of the universities in the Minnesota State system.

You will complete the MN Transfer Credit package of 40 general education credits and an additional 20 career-focused credits specific to preparation in the Social Work field. A work-related externship is required, providing you with an opportunity to explore your educational and career objectives through practical work experience in a social work related setting.

Graduates who go on to complete the Bachelors of Social Work or a higher degree may find work at local and regional service agencies as licensed social workers in the fields of school, family, medical, or clinical social work.

PROGRAM HIGHLIGHTS

Pre Social Work courses are taught by experienced social workers.

Students take Pre Social Work courses along with a wide variety of general education courses, particularly in psychology and sociology.

Students complete a practicum at a social services agency.

Minnesota State College Southeast is in direct partnership with Winona State University's Social Work program, providing a seamless transfer experience.

CAREER OPPORTUNITIES

Child Welfare Case Worker
Clinical Mental Health Social Worker
Geriatric Social Worker
Hospice Social Worker
School Counselor
Substance Abuse Counselor

MAJORS WITHIN

Pre Social Work Transfer Pathway, AS Degree 60 Credits
See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

1. Describe the history of the social work profession and evolution of its delivery systems.
2. Demonstrate knowledge of basic concepts, theories, and strategies used in social work, and apply basic skills related to general education curriculum requirements for the pre-social work degree.
3. Apply the ethics, values, and attitudes necessary for successful social work practice, including:
    - Understanding of the role of diversity in assessing and meeting needs of client populations;
    - Interest in the social work profession;
    - Critical thinking skills;
    - Appropriate attendance and demeanor.
4. Evaluate one's own attitude, personality, interpersonal skills, and limitations.

Pre-Social Work Transfer Pathway - AS Degree

Course No.	Course Name	Credits
First Semester (Fall)		
PSYC1110	Introduction to Psychology	3
ENGL1215	College Writing I	3
HUMA1125	Moral Problems	3
SOCS1110	Introduction to Sociology	3
CHEM1122	Environmental Chemistry	3
INSP1525	Career and Educational Planning	1
Semester total		**16**
Second Semester (Spring)		
PSYC1115	Lifespan Psychology	3
ENGL2525	College Writing II	3
MATH1230	Introduction to Statistics	3
POLS1120	American Government	3
PSYC1223	Psychology of Death and Dying	3
Semester total		**15**
Third Semester (Fall)		
PSYC2526	Abnormal Psychology	3
COMM1218	College Speech	3
PSWK2510	Introduction to Social Work	3
BIOL1200	Human Biology	4
HUMA2526	Exploring World Cultures	3
Semester total		**16**
Fourth Semester Spring		
PSWK2525	Pre-Social Work Field Experience	3
SPAN1230	Introduction to Hispanic Cultures	3
SOCS1205	Sociology of the Family	3
SOCS2545	Diversity and Social Change	3
HLTH1220	Wellness through Nutrition	1
Semester total		**13**
Total Required Credits		**60**

Psychology Transfer Pathway

Winona and Red Wing Campus

OVERVIEW

Psychology is the scientific study of how people behave, think, and feel. Begin your education in psychology at MSC Southeast.

Why do people behave in a certain way? What forces drive human relationships? How does the brain process information? If you are curious about questions like these, the study of psychology may be the educational pathway for you.

At Minnesota State College Southeast in Red Wing and Winona, the Psychology Transfer Pathway A.A. degree offers students a powerful option: the opportunity to complete an associate degree designed for direct transfer to designated Psychology bachelor degree programs at Minnesota State universities.

After graduating with the Psychology Transfer Pathway A.A. degree, you can transfer in as a junior and complete your bachelor's degree by earning 60 additional credits at one of the seven Minnesota State universities (admission requirements, including GPA, apply).

The Psychology Transfer Pathway A.A. degree is the foundation of a well-rounded education with a range of coursework in the liberal arts and sciences, providing the basis for lifelong learning. The insights you gain from this degree will impact your success in any future career, whether in the field of psychology or in business, education, health care, or any other profession.

MAJORS WITHIN

Psychology Transfer Pathway AA Degree 60 Credits
See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

1. Describe key concepts and overarching themes in the field of psychology
2. Apply psychological concepts to real and hypothetical scenarios
3. Utilize scientific inquiry to evaluate and interpret basic psychological research
4. Describe the roles of ethics and personal values in the field of psychology
5. Analyze how psychological principles apply to diverse populations
6. Communicate knowledge of psychological principles through various methods, such as verbally, in writing, or through formal presentations

PROGRAM HIGHLIGHTS

The MSC Southeast Psychology Department offers a wide range of courses that focus on psychology as a scientific discipline. Courses include: introduction to psychology, abnormal psychology, lifespan development, social psychology, positive psychology, statistics, psychology of human sexuality, and more.

Our courses focus on studying human behavior and development in the context of a diverse and rapidly changing world. We use a mix of lecture, discussion, and hands-on activities to encourage students to apply the science of psychology to real-life situations.

CAREER OPPORTUNITIES

Many occupations within the field of psychology require a graduate degree either at the master or doctoral level. These include:

- Clinical/counseling psychologist
- Marriage and family therapist
- Counselor
- Psychometrist
- School psychologist
- Organizational consultant
- Academic researcher
- College professor

Completing the A.A. and bachelors's degree is the first step in this educational process.

Psychology Transfer Pathway - AA Degree

Course No.	Course Name	Credits
First Semester (Fall)		
PSYC1110	Introduction to Psychology	3
COMM1228	Interpersonal Communications	3
MATH1230	Introduction to Statistics	3
BIOL1120	Environmental Science	3
HUMA1125	Moral Problems	3
Semester total		**15**
Second Semester (Spring)		
PSYC1115	Lifespan Development	3
ENGL1215	College Writing 1	3
BIOL1200	Human Biology	4
SOCS1110	Introduction to Sociology	3
COMP1130	Word Processing & Presentation Applications	1
COMP1135	Spreadsheet Applications	1
Semester total		**15**
Third Semester (Fall)		
PSYC2526	Abnormal Psychology	3
ENGL2525	College Writing 2	3
HIST1108	US History to 1865	3
SPAN1230	Introduction to Hispanic Cultures	3
HUMA1445	Introduction to Women's Studies	3
Semester total		**15**
Fourth Semester Spring		
PSYC2533	Statistics for the Behavioral Sciences	4
HLTH1225	Stress Management	2
ARTS1101	Introduction to the Arts	3
PSYC2522	Positive Psychology	3
PSYC2531	Social Psychology	3
Semester total		**15**
Total Required Credits		**60**

Radiography

Winona Campus

OVERVIEW

The Radiography Program equips students with educational experiences within classroom and clinical settings and prepares them for a rewarding career in medical imaging.

Radiographers play a key role in the medical team, providing diagnostic radiology services in hospitals, clinics, and advanced medical imaging centers. Administering ionizing radiation, the radiographer produces images of any designated body part, including bones, joints, and internal organs. The radiographer instructs and positions patients, manipulates x-ray equipment, selects appropriate exposure factors, provides radiation protection, processes images and evaluates image quality.

Through classroom study, labs, and clinicals, you will be well trained in all aspects of the technology and patient care.

No Wait List: Unlike many programs in the region, the Radiography Program at MSC Southeast will never have a waiting list. We are ready to welcome qualified students into the program now.

ADDITIONAL INFORMATION: WWW.SOUTHEASTMN.EDU/RADIOGRAPHY

PROGRAM HIGHLIGHTS

You will work directly with patients.

The clinical experience allows you to explore different modalities within radiography.

Our instructors are committed to student success.

CAREER OPPORTUNITIES

Hospitals
Medical Clinics
Medical Imaging Centers

ADDITIONAL INFORMATION

Download a program information packet and radiography program application packet from our website: www.southeastmn.edu/radiography

MAJORS WITHIN

Radiography, AAS 69 credits

PROGRAM OUTCOMES

Goal 1: Students/Graduates will demonstrate clinical competence
Learning Outcomes:
- Students will provide patient care
- Students will demonstrate proficiency in radiographic positioning
- Students will practice radiation safety principles

Goal 2: Students/Graduates will practice critical thinking skills
Learning Outcomes:
- Students will perform non-routine procedures
- Students will analyze images

Goal 3: Students/Graduates will apply effective communication skills
Learning Outcomes:
- Students will practice oral communication
- Students will illustrate written communication

Goal 4: Students/Graduates will synthesize the importance of professionalism
Learning Outcomes:
- Students will determine the importance of professional development
- Students will demonstrate professional behavior

Radiography - AAS

Course No.	Course Name	Credits
Pre-program		
These courses must be taken prior to any RAD courses. All credits count towards the Radiography Major.		
ENGL1215	College Writing I or equivalent	3
BIOL2515	Anatomy & Physiology I	4
Goal 4	Mathematics	3
	Pre-program total:	**10**
YEAR 1:		
Fall Semester		
RADT2601	Introduction to Radiologic Sciences	4
RADT2605	Radiographic Imaging I	3
RADT2611	Radiographic Positioning and Procedures 1	5
BIOL2516	*Anatomy & Physiology II	4
	Semester total:	**16**
Spring Semester		
RADT2617	Clinical Practicum I (12 weeks--36 hours/week)	9
RADT2663	Modalities (online) (4 days-clinical observation)	2
MnTC Goal 5	*Social Sciences requirement (online)	3
	Semester total:	**14**
Summer		
RADT2625	Radiographic Positioning and Procedures II	3
MnTC Goal 6	*Humanities Requirement	3
	Summer total:	**6**
YEAR 2:		
Fall Semester		
RADT2642	Clinical Practicum II (16 weeks--36 hours/week)	12
RADT2635	Radiographic Pathology (online)	1
	Semester total:	**13**
Spring Semester		
RADT2631	Radiographic Imaging II (hybrid)	3
RADT2620	Equipment Operation & Maintenance (12 weeks)	2
RADT2650	Radiation Protection and Biology (12 weeks)	2
RADT2673	Clinical Practicum III (4 weeks--36 hours/week)	3
	Semester total:	**10**
	Credits total:	**69**

* 2000 level General Education courses required unless specified

RADT2686	Sectional Anatomy	3	Elective
RADT2680	Introduction to Mammography	2	Elective
RADT2660	Computed Tomography	2	Elective

Sociology Transfer Pathway

Red Wing | Winona | Online

OVERVIEW

Sociology: the scientific study of human social relationships, societies, and institutions.

Minnesota State College Southeast in Winona and Red Wing is the place to start your journey into the dynamic field of Sociology.

- How does social media change culture?
- What are the effects of different family styles on children?
- Can we explain crowd behaviors?
- How can community programs help people escape poverty?
- What are the risk factors for criminal behavior?

These are some of the questions asked in sociology, and at MSC Southeast, you'll explore these and many others in this incredibly diverse area of study.

Our **Sociology Transfer Pathway Associate of Arts** degree program allows you to:

- Begin a solid introductory background in sociology.
- Build the foundation of a liberal arts education that involves critical thinking, promotes lifelong learning, and can serve you well in any profession.
- Transfer as a junior into designated bachelor-level sociology programs at the seven Minnesota State universities. (Admission requirements such as minimum GPA may apply.)
- This degree is offered at both the Winona and Red Wing campuses, with classes available in fall, spring, and summer terms.

MAJORS WITHIN

Sociology Transfer Pathway, AA Degree 60 Credits

See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

1. Describe how factors such as race, religion, gender, social status and historical events impact modern society.
2. Analyze behaviors and interactions of individuals, groups, institutions, events, and ideas in today's diverse society.
3. Recognize most current and detailed research methods to critically examine human behavior in social settings.
4. Discuss the effects of socialization and social constraints that have shaped our diverse society.
5. Demonstrate knowledge of sociological theories and their applications in contemporary society.

PROGRAM HIGHLIGHTS

Program includes a range of courses in different areas of sociology as a science, including Introduction to Sociology, Sociology of the Family, Social Deviance, and Diversity and Social Change. It is also combined with the Social Psychology course offered by the Psychology Department.

Emphasis is on developing a real-world understanding of sociological phenomena and theories, with a variety of teaching techniques such as lecture, discussion, video, interactive materials, and service learning opportunities.

Instructors have backgrounds that include areas such as criminal justice, religion and philosophy, psychology, human resources, and the military.

CAREER OPPORTUNITIES

Many occupations within the field of sociology require a graduate degree either at the master or doctoral level. Completing the AA and bachelor's degree is the first step in this educational process.

- Politics
- Advocacy
- Business
- Human resources
- Counseling
- Education
- Research

Sociology Transfer Pathway - AA Degree

Course No.	Course Name	Credits
First Semester (Fall)		
ENGL1215	College Writing I	3
SOCS1110	Introduction to Sociology	3
INSP1525	Career & Educational Planning	1
HUMA1125	Moral Problems	3
CHEM1122	Environmental Chemistry	3
COMP1130	Word Processing/Presentations	1
COMP1135	Spreadsheet Applications	1
Semester total		**15**
Second Semester (Spring)		
MATH1230	Introduction to Statistics	3
SOCS1205	Sociology of the Family	3
PSYC1110	Introduction to Psychology	3
COMM1218	College Speech	3
SPAN1230	Introduction to Hispanic Cultures	3
Semester total		**15**
Third Semester (Fall)		
Elective		3
HUMA1435	Multicultural America	3
BIOL1200	Human Biology	4
SOCS2545	Diversity & Social Change	3
HLTH1225	Stress Management	2
Semester total		**15**
Fourth Semester Spring		
Elective		3
SOCS2525	Social Deviance	3
HIST2525	Minnesota History	3
ENGL2525	College Writing II	3
PSYC2531	Social Psychology	3
Semester total		**15**
Total Required Credits		**60**

Software Development and Support

Online & Red Wing Campus

OVERVIEW

Software Development and Support are some of the most highly sought skills in today's job market. Build your future!

At Minnesota State College Southeast, you will learn computer programming, web development, and support using a hands-on approach. These courses use broad concepts leading to detailed approaches to help you become an expert.

Learn from anywhere. All courses are available online. A rich online application environment, instructor developed recordings, and computer programming demonstrations make learning convenient.

High quality instruction. All of the lessons and exercises are designed to move students through the process of becoming software developers. You will learn a huge variety of skills ranging from broad concepts (analysis and design, software engineering, and teamwork) down to the details of coding for different environments (web servers, web clients, and IoT). Our students also use hands-on learning and cutting edge tools to create a production-level system of their own design.

Programming students design, code, and deploy applications using a wide variety of languages, tools, and computer environments, including:

- C#, Java, C, JavaScript, Angular
- HTML, CSS
- UML, SQL
- Programming/design tools: Visual Studio, IntelliJ, Android Studio
- Iterative design and coding methods
- Create business applications for the Web, Windows, and Android

Students in all of theSoftware Development and Support majors also learn to create web content, and install, deploy, and support many technologies. These include:

- Web content authoring (Adobe Dreamweaver, Photoshop, Animate)
- GitHub
- Cloud services, such as Azure web applications and databases
- Windows desktop and server operating systems
- Database and Web server management
- PC hardware

MAJORS WITHIN

IT Support	AAS	60 credits
IT Support	Diploma	47 credits
Software and Web Development	AAS	60 credits
Software and Web Development	Certificate	30 credits

See backside for program plan

PROGRAM HIGHLIGHTS

All Software Development and Support courses are available online

All Computer Programming lectures are available through lecture capture technology

Computer Programming assessment tests are online

Curriculum is constantly evolving to keep up with technology

Skilled programmers are needed in every industry

CAREER OPPORTUNITIES

Computer Programmers for Software Development Firms
Consulting Firms
Education
Business & Industry

IT Support - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ARTS 1222	Intro to Graphic Design	3
COMC 1741	Web Design, HTML, CSS	3
NWAT 1601	MS Workstation I	2
NWAT 1602	MS Workstation II	1
NWAT 1607	PC Hardware Support	3
COMC	Technical elective	3
Semester total		**15**
Second Semester (Spring)		
Goal 1	Written and Oral Communication	3
Goal 5	History, Social, and Behavioral Sciences	3
COMC 1746	Web Graphics and Animation	3
COMC	Technical elective	3
COMC	Technical elective	3
Semester total		**15**
Third Semester (Fall)		
COMP 1509	Job Seeking Skills	1
Gen Ed (elective)		3
COMC 1714	Intro to Visual Database Application Tools	3
COMC 1754	Microsoft Server Mgt for Web Developers	3
COMC	Technical elective	3
COMC	Technical elective	2
Semester total		**15**
Fourth Semester (Spring)		
Goal 4	Mathematics	3
COMC 2722	Database Design & Mgt w/SQL	3
COMC 1745	Web Design and Technologies	3
COMC 2754	Computer Careers Capstone Project	3
COMC 2793	Computer Careers Internship	3
Semester total		**15**
	Total Required Credits - 60	

IT Support - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
HUMA 2522	Intro to Graphic Design	3
COMC 1741	Web Design, HTML, CSS	3
NWAT 1601	MS Workstation I	2
NWAT 1602	MS Workstation II	1
NWAT 1607	PC Hardware Support	3
Semester total		**12**
Second Semester (Spring)		
Gen Ed	English or Communications Requirement	2
COMC 1746	Web Graphics and Animation	3
COMC	Technical elective	3
COMC	Technical elective	3
Semester total		**11**
Third Semester (Fall)		
COMP 1509	Job Seeking Skills	1
Gen Ed	Math Requirement	2
COMC 1714	Intro to Visual Database Application Tools	3
COMC 1754	Microsoft Server Mgt for Web Developers	3
COMC	Technical elective	3
Semester total		**12**
Fourth Semester (Spring)		
COMC 2722	Database Design & Mgt w/SQL	3
COMC 1745	Web Design and Technologies	3
COMC 2754	Computer Careers Capstone Project	3
COMC 2793	Computer Careers Internship	3
Semester total		**12**
	Total Required Credits - 47	

Software & Web Development - AAS

Course No.	Course Name	Credits
First Semester (Fall)		
ARTS 1222	Intro to Graphic Design	3
COMC 1714	Intro to Visual Database Application Tools	3
COMC 1730	Intro to Programming with .Net	3
COMC 1741	Web Design, HTML, CSS	3
NWAT 1601	MS Workstation I	2
Semester total		**14**
Second Semester (Spring)		
Goal 1	Written and Oral Communication	3
COMC 2722	Database Design & Mgt w/SQL	3
COMC 1746	Web Graphics and Animation	3
COMC 2740	Intro to Java/C/C++/Programming	3
COMC 2750	UML Modeling and Iterative Development	2
Semester total		**14**
Third Semester (Fall)		
Goal 5	History, Social, and Behavioral Sciences	3
COMC 2733	JavaScript and Web App Frameworks	3
COMC 1754	Microsoft Server Mgt for Web Developers	3
COMC 2742	Java/C++/C# Programming II	3
COMC 2747	Database Application Development	4
Semester total		**16**
Fourth Semester (Spring)		
COMM 1015	Job Seeking Skills	1
Goal 4	Mathematics	3
Gen Ed	MnTC Goal 1-10 (see advisor)	3
COMC 1745	Web Design & Technologies II	3
COMC 2749	Web Application Development	3
COMC 2754	Computer Careers Capstone Project	3
Semester total		**16**
	Total Required Credits - 60	

Software & Web Development - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
COMC 1714	Intro to Visual Database Application Tools	3
COMC 1730	Intro to Programming with .Net	3
COMC 2733	JavaScript and Web App Frameworks	3
Semester total		**9**
Second Semester (Spring)		
COMC 2722	Database Design & Mgt w/SQL	3
COMC 2740	Intro to Java/C/C++/Programming	3
COMC 2750	UML Modeling and Iterative Development	2
Semester total		**8**
Third Semester (Fall)		
COMC 1741	Web Design, HTML, CSS	3
COMC 1754	Microsoft Server Mgt for Web Developers	3
COMC 2742	Java/C++/C# Programming II	3
COMC 2747	Database Application Development	4
Semester total		**13**
Four Semester (Spring)		
COMC 1745	Web Design & Technologies II	3
COMC 2749	Web Application Development	3
COMC 2754	Computer Careers Capstone Project	3
Semester total		**9**
	Total Required Credits - 30	

Transportation Management

Winona Campus

OVERVIEW

Become a leader in the field of moving products, people, and priorities across town or across the nation.

Get ready for a fast moving career! At Minnesota State College Southeast in Winona, you can earn an Associate of Applied Science degree in Transportation Management in 2 years or less.

Hands-on truck driver training is just the beginning. After you earn your commercial driver's license (CDL), you will progress to coursework related to dispatch, fleet management, business, and accounting. And if you already have a CDL and driving experience, Credit for Prior Learning may be an option.

People who work in this career field can expect to have high-level responsibilities. In a typical work day, you may:

- Request, coordinate, and monitor movement of products
- Choose transportation routes with the highest return on investment
- Review work orders and arrange maintenance activities
- Set schedules to determine work operations

If you're ready to start a career in a dynamic, fast paced work environment, consider a degree in Transportation Management. Full-time and part-time tracks available in this program -- you can enroll anytime.

MAJORS WITHIN

Transportation Management - AAS, 60 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Understand business principles critical to the management of transportation fleets and workers.
2. Learn the keys to business dynamics, ethics, and operations used every day across the industry.
3. Obtain a Commercial Driver's License
4. Develop the communication skills needed to effectively correspond with professionals across the business hierarchy.

PROGRAM HIGHLIGHTS

Hand's on training combines the rigors of Commercial Driver's License curriculum with business and accounting concepts critical to managing people and fleets.

Opportunity to offer credit for prior learning (CPL) to students who currently hold a CDL and have existing experience in the field of truck driving.

On-line options for students looking to complete the degree while working full-time in the truck driving industry.

Perfect educational option for professional truck drivers interested in moving out of the cab and into the office.

Full-time and part-time tracks available. Enroll anytime.

CAREER OPPORTUNITIES

Logistics and Transportation Manager
Supply Chain Manager
Load Planning and Scheduling
Fleet Operations Manager
Driver Safety and Training
Scheduling Manager

Transportation Management - AAS Degree

Course No.	Course Name	Credits
First Semester (Fall)		
TRDR1400	Safe Driving Fundamentals	4
TRDR1405	Proficiency Development	4
TRDR1410	Advanced Driving	4
TRDR1415	Employment Skills	2
TRDR1420	Internship	6
	Semester total	*20*
Second Semester (Spring)		
MATH	College Level Math	3
ENGL 1215	College Writing I	3
COMM 1218	College Speech	3
ECON 1405	Personal Finance	3
BUSN 2100	Operations Management	3
	Semester total	*15*
Third Semester (Fall)		
ACCT 2201	Financial Accounting	4
ACCT 1218	Spreadsheets Concepts and Applications	3
BUSN 2210	Legal Environment of Business	3
ECON 2530	Macroeconomics	3
		13
Fourth Semester (Spring)		
ACCT 2202	Managerial Accounting	4
BUSN 2215	Business Ethics	3
BUSN 2115	Organizational Dynamics	3
BUSN	BUSN Elective	2
	Semester total	*12*
	Total Required Credits	**60**

Truck Driving

Winona Campus

OVERVIEW

Minnesota State College Southeast's Truck Driving program is well-renowned for top-notch instructors, state-of-the-art facilities, and best of all, 100% job placement.

This is a prehire program, meaning many trucking companies hire qualified students once they are enrolled at MSC Southeast. After training is completed, students are ready to get behind the wheel and earn a desirable income. Because highly skilled truckers are in demand, many companies will even pay for your training through tuition reimbursement.

MSC Southeast's program is successful because our 8 week program combines classroom and behind-the-wheel training to prepare you for any situation you may face when on the road. Because the program is so intense, attendance and attitude are crucial, just as they are once you're on the job.

As a student, you'll enjoy a low student-to-instructor ratio to give you the attention you need. You'll also learn from the best—our Truck Driving instructors have over 65 years of safe driving experience and take great pride in the Truck Driving program's motto: "We have an obligation to ourselves, our students, our community and to other highway users, to train the safest, most courteous drivers on the highway today. This is not an obligation we take lightly."

PROGRAM HIGHLIGHTS

Prehire program: Companies are eager to hire you once you're enrolled

Affordability: Many employers offer tuition reimbursement

Learn in a state-of-the-art facility

CAREER OPPORTUNITIES

Over-the-road driver
Local driver
Safety Department
Dispatch
Yard spotters

JOB PLACEMENT

100%

MAJORS WITHIN

Truck Driving, Certificate 20 credits
See back for program plan

PROGRAM OUTCOMES

Program graduates will be able to:

1. Shift various transmissions proficiently.
2. Successfully back vehicle into specified maneuvers.
3. Be aware of utilizing space management in different situations.
4. Properly complete required daily paperwork.
5. Recognize changing road characteristics and properly adjust.

Truck Driving - Certificate

Course No.	Course Name	Credits
TRDR1400	Safe Driving Fundamentals	4
TRDR1405	Proficiency Development	4
TRDR1410	Advanced Driving	4
TRDR1415	Employment Skills	2
TRDR1420	Internship	6
Total Required Credits		**20**

Violin Repair and Making

Red Wing Campus

OVERVIEW

In the Violin Repair and Making program at Minnesota State College Southeast in Red Wing, students learn about tools, woods, materials, and common repair and maintenance techniques. The Violin Repair diploma at MSC Southeast is unique in that it is structured for an entire academic year (two semesters). Other institutions offer shorter workshops, some as brief as a week, that offer an overview of the repair process. There are 3 and 4- year programs that teach violin making but do not provide the same degree of in-depth focus on repairing instruments and bows.

Our students learn in-depth by completing many different repair process multiple times during the year of study. Every step of learning is supported by expert demonstration and lecture.

- Fine motor skills, patience and the ability to focus on the work at hand are essential.
- No previous experience with woodworking is required as violin repair is very different from other woodworking crafts. You will learn from the ground up.
- Students have the option to make a violin over the course of the two-semester program, including varnishing and professional set up.

The aim of the Violin Repair and Making program is for students to be prepared to work in the best violin shops in the world and to continue the lifelong process of learning the art. In recent years, our students have achieved 100% job placement: those who earn the Violin Repair diploma and are seeking employment have consistently found work in the field.

PROGRAM HIGHLIGHTS

Unique in length and comprehensiveness in the United States

CAREER OPPORTUNITIES

Music Stores
Repair Shops
Musical Instrument Manufacturers
Entrepreneurial Opportunities

JOB PLACEMENT

100%

WWW.REDWINGMUSICREPAIR.ORG

MAJORS WITHIN

Violin Repair, Diploma	39 credits

PROGRAM OUTCOMES

Program graduates will be able to:

1. Perform a professional set up on a violin, viola, and cello. This includes fitting pegs, making nuts, fingerboards, saddles, fitting soundposts and bridges.
2. Diagnose and perform violin family repairs to a professional level of quality. This includes taking apart, gluing, reinforcing, making replacement parts, and repairing the varnish.
3. Diagnose and perform basic bow repairs and maintenance, including rehairing and grip replacement, to a professional level. Crack gluing and reinforcement may be included.
4. Demonstrate a working knowledge of the violin makers of the past and present
5. Identify natural resins, solvents, and oils, including their characteristics used in varnish making and touch ups
6. Identify instrument making woods and related materials, including characteristics and origins.
7. Prepare, make, and use basic and specialty hand and power tools.
8. Communicate effectively using written, oral, and electronic methods.

Violin Repair - Diploma

Course No.	Course Name	Credits
GENERAL EDUCATION REQUIREMENTS		
English/Communications requirement		2
Math requirement		2
Semester total		**4**
Fall Semester		
VLNR1301	Introduction to Tools	2
VLNR1305	Basic Materials	1
VLNR1312	Introduction to Violin Playing	1
VLNR1321	Bow Rehairing	4
VLNR1325	Bow Repairs	2
VLNR1327	Violin Varnish	2
VLNR1341	Ebony Work	5
Semester total		**17**
Spring Semester		
VLNR1315	Violin History	2
VLNR1351	Bridges and Soundposts	8
VLNR1361	Violin Repairing	8
Semester total		**18**
Total Required Credits		**39**
OPTIONAL CLASSES		
VLNR1370	Violin Construction I	6
VLNR1371	Violin Construction II	6
		12

Welding Technology

Winona Campus

OVERVIEW

From day one in Welding Technology at MSC Southeast in Winona, you'll be getting hands-on experience in the welding shop. The program begins with training in safety and the proper handling of tools and shop supplies. Over the course of the year, our students become skilled in several welding and cutting processes in a variety of positions, including:

- (OFW) oxy-fuel welding and cutting
- (SMAW) stick welding
- (GMAW) mig welding
- (GTAW) tig welding

Students also learn the proper set up and selection of welding equipment and how to read and perform duties from weld shop blueprints. Since quality is critical, you'll also learn how to inspect your welds to meet today's standards and specifications.

All students must complete a welding capstone, designing a project from concept on through completion. Plus, there's an option to take an elective on-the-job internship, which can help with finding future employment.

Finally, you'll gain the skill to properly set up, complete, and pass a welding bend test to AWS (American Welding Society) D1.1 standards. With your diploma and this credential, you'll have the skills needed to enter today's welding workforce!

Students who earn the certificate in Welding will be ready to start a career in just one semester, by learning all the welding processes in the flat position. When you're ready to learn more, you can come back for one more semester and complete your diploma within 5 years of finishing the certificate.

MAJORS WITHIN

Welding Technology, Diploma	34 credits
Welding Technology, Certificate	17 credits

PROGRAM HIGHLIGHTS

Learn correct use of personal safety equipment and apparel and how to protect against injury

Get hands-on experience in the welding lab from day one

Learn a wide range of welding processes needed by today's employers

Rigorous classroom standards will prepare you for employer expectations

CAREER OPPORTUNITIES

Production manufacturing welder
Structural design welder
Custom fabrication
Specialized welding machine operator
Cutter, pipe fitter
Construction welding
Heavy equipment welder
And much more!

JOB PLACEMENT

100%

Welding Technology - Diploma

Course No.	Course Name	Credits
First Semester (Fall)		
GEN ED	Math Requirement	2
GEN ED	Elective (see advisor for approved electives)	1
WELD 1405	Safety, Theory, Blueprints, & Processes	4
WELD 1410	SMAW, Principles of Stick Welding	3
WELD 1415	Oxy-fuel Weld, Cutting & Brazing	1
WELD 1420	GMAW - MIG Wire Feed I	3
WELD 1430	GTAW - Tungsten Inert Gas Weld I	3
Semester total		**17**
Second Semester (Spring)		
GEN ED	English or Communication Requirement	2
WELD 1425	GMAW-MIG Wire Feed II	3
WELD 1435	GTAW - Tungsten Inert Gas Welding II	3
WELD 1440	Workplace Projects & Fabrication Capstone	3
Technical Electives	(see advisor for approved electives)	6
Semester total		**17**
Total Required Credits		**34**

Welding Technology - Certificate

Course No.	Course Name	Credits
First Semester (Fall)		
GEN ED	Math Requirement	2
GEN ED	Elective (see advisor for approved electives)	1
WELD 1405	Safety, Theory, Blueprints, & Processes	4
WELD 1410	SMAW, Principles of Stick Welding	3
WELD 1415	Oxy-fuel Weld, Cutting & Brazing	1
WELD 1420	GMAW - MIG Wire Feed I	3
WELD 1430	GTAW - Tungsten Inert Gas Weld I	3
Total Required Credits		**17**

COURSE DESCRIPTIONS

ABCT Auto Body Collision Technology
ACCT Accounting
ADMS Administrative Support Careers
ANTH Anthropology
ARTS Arts
AUTO Automotive Technology
BIKE Bicycle Design and Fabrication
BIOL Biology
BIRT Band Instrument Repair
BMET Biomedical Equipment Technology
BUSN Business
CARP Construction Technology
CHEM Chemistry
CJSP Criminal Justice
CMAE Center for Manufacturing & Applied Engineering
COMC Computer Careers
COMM Communications
COMP Computers
COSM Cosmetology
ECED Early Childhood Education
ECON Economics
ELEC Electronics
ENGL English
FYEX FIrst Year Experience
GEOG Geography
GTRB Guitar Repair and Building
HEAL Nursing (P.N.)
HIST History
HLTH Public Health
HUMA Humanities
INSP Individualized Studies Program
MACH CNC Machine Tool
MATH Mathematics
MCOM Mass Communications
MDAD Computer Aided Drafting (CAD) and Design Technologies
MECH Mechatronics
MSIR Musical Instrument Repair
NATS Natural Science
NEME New Media
NURS Nursing
NWAT Network Administration
PHIL Philosophy
PHYS Physics
POLS Political Science
PSWK Pre Social Work
PSYC Psychology
RADT Radiography
SMGT Supervisory Management
SOCS Social Sciences
SPAN Spanish
TRDR Truck Driving
VLNR Violin Repair
WELD Welding

ABCT1115 Introduction to Transportation Careers
Intro to Transportation Careers covers departmental procedures and practices as well expectations of the students in the programs. Safety, environmental concerns, and simulated Right to Know training are a significant part of the course. Basic tools, tool usage, basic power tools, and care of them are included. Threaded fasteners, drive types, torquing, thread compounds, cutting methods, gluing, and adhesives are covered from a generic point and not vehicle specific. (Prerequisites: none) (1 credits: 1 lecture/0 lab)

ABCT1245 Plastics and Composites Repair
The plastics and composites repair course provides opportunity to learn the identification of plastic and composite types and locations used on late model vehicles. Once identified repair methods available for each are presented with hands-on assignments using a variety of methods and materials available in the collision repair industry. Repairs are completed to the point of refinishing readiness. This course utilizes many resources located at various web based sights so that knowledge of future plastics and repair methods can be learned after completion of the course. (Prerequisite or concurrent: ABCT1115) (2 credits: 1 lecture/1 lab)

ABCT1255 Refinishing 2
Refinishing 2 starts with cleaning of vehicle or panels to be refinished and then the development of a paint plan. Preparation of the panel(s) for top coat application, pre-paint cleaning procedures, set-up of spray equipment, mixing of paint materials and application are all part of the processes covered. Additionally paint detailing, paint problems and defects, vehicle protection, masking methods, color identification, and personal safety are included. This course start with top coat systems where refinishing y 1 ended with application of primer materials needed to treat bare metal and correct minor panel imperfections. (Prerequisite or concurrent: ABCT1115, ABCT1155 is highly recommended but not required) (5 credits: 1 lecture/4 lab)

ABCT1265 Refinishing Lab
This lab is intended to provide time needed to perform refinishing procedures for parts and vehicle areas needing refinishing for a variety of reasons. This includes pre-sanding cleaning, paint plan development, abrading of panels, mixing of paint products, application procedures, maintenance of spray equipment, and detailing of paint defects. (Prerequisites or concurrent: ABCT1115 and ABCT1255) (2 credits: 0 lecture/2lab)

ABCT1275 Production Lab 1
This lab allows student to work with skills learned in earlier courses dealing with body repairs on customer vehicle projects. Skill development and refinement is focused on with the idea of moving toward decision making on repair methods and quality control of one's own body repairs. This includes disassembly/reassembly, metal straightening and finishing, body panel adjustments, and detailing of vehicles for customer delivery. Students will utilize references and Standard Operating Procedures (S.O.P.'s) to make decisions and confirm with instructor(s) so as to gain confidence with processes. (Prerequisite: ABCT1115 and 10 additional ABCT credits) (4 credits: 0 lecture/4 Lab)

ABCT1316 Auto Body Basic Electrical
D.C. theory is the starting point for this course which focuses on how circuits work and troubleshooting procedures needed to test them on vehicles. Multi-meters are used to take readings for voltage, amperage, resistance, and voltage drop. Once problem areas are identified repair or replacement procedures are used to fix wiring, connections, or faulty components. Service information is utilized to access vehicle specific circuits for troubleshooting and repairs. Scan tools and service information for diagnostics and calibration will be introduced. Safety for hybrid and electric vehicles is included. (Prerequisites: ABCT1115, ABCT1145, or concurrent with both) (3 Credit: 2 Lecture/1 Lab)

ABCT1335 Auto Body Mechanical 2
The second mechanical course in the auto body program advances the knowledge base and hands on of many systems introduced in Auto Body Mechanical 1. Air conditioning, cooling systems, steering and suspension, brakes, and computerized body and mechanical systems are worked with from a collision damaged perspective. Hands-on assignments are involved in addition to the theory of the systems physics. Scan tools are used in the diagnostics of many of the systems as well as other specialized tools. Utilization of service procedures and service data bases are significant part of the experiences in this course as well. (Prerequisites: ABCT1135, ABCT1115, ABCT1125, ABCT1316 or concurrent enrollment) (3 Credits: 2 lecture/1 Lab)

ABCT1417 Repair Planning and Estimating
Damage analysis and estimating covers the process of analyzing the vehicle following a collision event looking at preexisting conditions as well as collision related damage. The process of gathering customer information, vehicle information, insurance coverage information, vehicle damage, parts options, parts pricing, labor operation pricing, and other related charges and arriving at cost of repairs is the core of the course. Processes needed to document repairs, identify OEM procedures, and paint companies recommendations are critical and covered in the course. Communication of needed information for the customer and insurance company is also focused on with insurance policies and coverage types included. (Prerequisites: 20 credits of ABCT courses completed or concurrently enrolled in the needed credits) (2 credits: 1 lecture/1 lab)

ABCT1475 Production Lab 3
Production Lab 3 requires the student to participate in repair plan with an understanding of industry flat rate units assigned. Goals for the project and student will be established based on flat rate and the student's current skill level so as to focus advancing production speed without sacrifice to quality of the repairs. Projects will be based on smaller projects than previously involved with in previous courses. Body repairs, panel replacement, refinishing procedures, trim and small parts replacement, temporary repairs, vehicle detailing, and various other repairs are included. (Prerequisite: 27 credits or more of ABCT courses) (3 credits: 0 lecture/3 lab)

ABCT1485 Collision Lab
Collision lab is designed to perform task related to collision damage involving some degree of structural analysis and repair procedures. This course is available to complete larger collision projects which may have been begun in the previous term or that are started at the beginning of the term enrolled in course. Emphasis is placed on repairing vehicle utilizing vehicle manufactures recommended repair guidelines and procedures. This course is generally taken along with other lab courses that provide time to perform the refinishing tasks, detailing, vehicle assembly, and preparation for customer delivery. (Prerequisite: 27 credits of ABCT or instructor approval) (4 credits: 0 lecture/4 lab)

ABCT1495 Specialty Lab
This lab is intended to refine skills along with production speed. It is a lab that can be elected by student rather than Specialty Internship. Students enrolled in this lab need to focus on the repair plan and be planning ahead so as to ensure efficient flow to the project work. Most of the project work should be shorter projects or identified tasks so that they can be completed in a few hours of lab time. Multiple projects or assignments will need to be completed and may be from any areas of study or repair processes in the auto body program. (Prerequisite: 27 credits or more of previous ABCT courses) (4 credits: 0 lecture/4 lab)

ABCT1496 Specialty Internship
Specialty internship is designed to provide a real world shop experience before beginning employment in the collision repair industry. Students enrolling in this course will need to secure an auto body industry shop position approved by program instructor and complete all required paperwork with shop manager, instructor, and student signatures. The participating shop must supply a mentor for the internship student who will monitor daily assigned work performing auto collision and body repair tasks. This class is an elective in the final semester of training of the auto body collision technology program. (Prerequisite: Instructor approval) (4 credits: 0 lecture/0 lab/minimum 144 hours internship experience)

ABCT1601 Special Projects Lab
Special projects lab is a variable credit value lab that allows students to contract for 1-4 credits of arranged lab time. This lab time can be used as a way to meet elective credits for certificates, diploma, or AAS degree. This lab can also allow a student to work on specific project of interest providing they have the skills to work independently with only minimal impact on instructional staff working with students enrolled in required courses. All project work must be performed according to an approved repair plan with instructor and all shop safety practices and equipment usage procedures adhered to. (Prerequisite: Instructor approval) (1 credits: 0 lecture/1 lab)

ABCT1602 Special Projects Lab
Special projects lab is a variable credit value lab that allows students to contract for 1-4 credits of arranged lab time. This lab time can be used as a way to meet elective credits for certificates, diploma, or AAS degree. This lab can also allow a student to work on specific project of interest providing they have the skills to work independently with only minimal impact on instructional staff working with students enrolled in required courses. All project work must be performed according to an approved repair plan with instructor and all shop safety practices and equipment usage procedures adhered to. (Prerequisite: Instructor approval) (2 credits: 0 lecture/2 lab)

ABCT1603 Special Projects Lab (3 cr)
Special projects lab is a variable credit value lab that allows students to contract for 1-4 credits of arranged lab time. This lab time can be used as a way to meet elective credits for certificates, diploma, or AAS degree. This lab can also allow a student to work on specific project of interest providing they have the skills to work independently with only minimal impact on instructional staff working with students enrolled in required courses. All project work must be performed according to an approved repair plan with instructor and all shop safety practices and equipment usage procedures adhered to. (Prerequisite: Instructor approval) (3 credits: 0 lecture/3 lab)

ABCT1604 Special Projects Lab
Special projects lab is a variable credit value lab that allows students to contract for 1-4 credits of arranged lab time. This lab time can be used as a way to meet elective credits for certificates, diploma, or AAS degree. This lab can also allow a student to work on specific project of interest providing they have the skills to work independently with only minimal impact on instructional staff working with students enrolled in required courses. All project work must be performed according to an approved repair plan with instructor and all shop safety practices and equipment usage procedures adhered to. (Prerequisite: Instructor approval) (4 credits: 0 lecture/4 lab)

ACCT1210 Payroll Accounting
This course covers the fundamental principles of accounting for payroll in a business environment. Federal Wage and Hour law provides the framework for payroll record keeping requirements that most employers must follow. The course discusses the various payroll taxes that both employers and employees are subject to, filing requirements, and legal deadlines that must be followed. (Prerequisite: none) (2 Credits: 2 lec/0 lab)

ACCT1212 Computerized Acct Applications
Hands on approach to the accounting system. Topical areas covered include but are not limited to general ledger, accounts receivable, accounts payable, payroll, inventory, depreciation, financial statement analysis, departmentalized accounting and client write-up. (Prerequisites: ACCT2201 Financial Accounting) (3 Credits: 3 lecture/0 lab**)**

ACCT1218 Spreadsheets Concepts and Applications
This course uses a spreadsheet system for business applications. Procedures used include: document creation, storage, retrieval, major editing, printing, merger of documents, segments and variables, and graph creation. (Prerequisite: None)
(3 Credits: 3 lecture/0 lab)

ACCT1220 Principles of Bookkeeping I
This course covers the basic accounting cycle for service and merchandising businesses. This includes the analyzing of business transactions, recording transactions in a variety of journals and the preparation of financial reports. (Prerequisite: None) (2 Credits: 1 lecture/1 lab)

ACCT1231 Database Concepts and Applications
This course will utilize database software for various business applications. (Prerequisite: none) (3 Credits: 3 lecture/0 lab)

ACCT2201 Financial Accounting
This course covers the fundamental accounting concepts and principles which are used in a business environment to provide reports on the economic condition of an organization. The focus will be on the accrual method of accounting, utilizing Generally Accepted Accounting Principles (GAAP) to analyze and record transactions. The ultimate objective is to understand the effects of these transactions in order to provide timely and relevant information in the form of financial statements. (Prerequisite: none) (4 credits: 4 lecture/0 lab)

ACCT2202 Managerial Accounting
This course covers the techniques for planning, controlling, and decision making relevant to managing costs in a manufacturing environment. The focus will be on cost concepts and cost behavior in relation to job-order costing, activity-based costing, and process costing. The budgetary process will be analyzed; including

preparing and interpreting a master budget and flexible budget. (Prerequisite: ACCT2201 Financial Accounting or ACCT2211 Principles of Accounting II) (4 credits: 4 lecture/0 lab)

ACCT2214 Auditing
This course covers the methods and procedures used in the audit environment to verify the completeness and accuracy of accounting records. Major topics include professional ethics, the attest function, the nature of evidence, internal control procedures, audit sampling techniques, and the impact of electronic data processing. (Prerequisite: ACCT2201 Financial Accounting) (3 Credits: 3 lecture/0 lab)

ACCT2215 Fund/Non-Profit Accounting
This course is a study of accounting standards and practices used by governmental and other not-for- profit entities. These standards are promulgated by the Governmental Accounting Standards Board in the case of government entities, and by the Financial Accounting Standards Board for non-profit organizations. The use of fund accounting and budgetary considerations are explained along with financial reporting requirements. The four governmental fund types are covered as well as proprietary and fiduciary funds. Transaction analysis is included for all of the various funds used. (Prerequisites: ACCT2201 Financial Accounting) (3 Credits: 3 lecture/0 lab)

ACCT2223 Intermediate Accounting I
This course is an in depth study of financial reporting and statements: objectives, concepts, and analysis. Topics include the demand for and supply of financial accounting information and the conceptual framework for financial reporting. This course also serves as a review of a companys accounting system, the purpose, elements, classification and disclosures associated with the balance sheet, statement of shareholders equity, the income statement and the statement of cash flows. Students will understand business operating activities as it relates to cash, receivables, and inventory cost measurement and flow assumptions. (Prerequisites: ACCT2201 Financial Accounting) (3 Credits: 3 lecture/0 lab)

ACCT2225 Intermediate Accounting II
This course is a continuation of Intermediate Accounting I. Students apply generally accepted accounting principles to valuation of liabilities and account for contingent obligations, investment activities, and financing activities. This course emphasizes meeting the requirements for full disclosure. (Prerequisites: ACCT 2223 Intermediate Accounting) (3 Credits: 3 lecture/0 lab)

ACCT2235 Income Tax
This course covers individual and business income tax law as prescribed in the Internal Revenue code of 1986 and subsequent changes in the tax code. A brief overview of federal tax legislation provides a framework for understanding the law. The components of the tax formula are defined and discussed. The incremental nature of tax rates is explained, and tax rate schedules are used to compute sample cases. Gross income is defined along with exclusions and deductions as well as various tax credits. Business deductions including depreciation are described and calculated. Employee and self-employed related expenses are discussed as well as investor gains and losses. Property transactions and the many different classifications and treatments are discussed. Intuit Proconnect software, which is included with the text, is utilized to acquaint students with professional tax software and assist in return preparation. (Prerequisite: none) (4 credits: 4 lecture/0 lab)

ACCT2240 Cost Accounting
This course is a survey of cost management techniques, including strategic cost management, inventory management, and productivity analysis. The focus will be on decision making and interpreting financial reports. Performance measurements, such as return on investment, residual income, operating performance, and the balanced scorecard will be discussed. (Prerequisite: ACCT2202 Managerial Accounting) (4 credits: 4 lecture/0 lab)

ADMS1417 Word Processing I
This course covers utilization of word processing software to perform basic word processing applications. (Prerequisite: ADMS2410 Keyboarding I or concurrent enrollment) (2 Credits: 2 lecture/0 lab)

ADMS1419 Business Communications
This course provides the study and practice necessary to develop competence in using language effectively and appropriately in business communications. Emphasis is placed on providing a practical grasp of the principles of English usage and style that build the framework for effective business communication. This course develops basic writing techniques for use in composing memos, e-mail messages, and letters. (Prerequisite: Writing College Level Placement or ENGL0528) (3 Credits: 3 lecture/0 lab)

ADMS1424 Integrated Office Skills
An emphasis will be placed on learning transferable skills such as effective written and verbal communication in the workplace; office efficiency via file management, ergonomics, and time management; and seeking assistance via the Internet, software help menus, and editing/proofreading. Through the use of an office simulation, the student will perform tasks based on actual job situations that utilize the skills necessary to work in a computerized office as well as problem solving, decision making, and teamwork. The office simulation uses a variety of business application software including word processing, presentation graphics, e-mail, and the Internet. (Prerequisite or Concurrent: ADMS2410) (2 Credits: 1 lecture/1 lab)

ADMS1425 Desktop Publishing with Publisher
This course provides an introduction to Microsoft Publisher. Topics include creating and editing single-page and multi-page publications, using wizards, commercial printing considerations, editing text, colors, and graphic design objects, personal information sets, logos, the Pack and Go Wizard, plus using Publisher to create flyers, newsletters, brochures, logos, and calendars. Also included are topics covering business forms such as letterhead, business cards, envelopes, and labels with mail merge, business cards, invoices, fax covers, and tables. (Prerequisite: ADMS1417 or equivalent) (2 Credits: 2 lecture/0 lab)

ADMS1452 Electronic Presentations for Business Professionals
This course will allow the student to produce professional-looking presentations using Microsoft PowerPoint. Students will learn to create, edit, and publish presentations with illustrations and shapes, custom backgrounds and SmartArt Diagrams. Use of diagrams, tables, pictures, video, sound, and animation effects will also be discussed. (Prerequisite: None) (2 Credits: 2 lecture/0 lab)

ADMS2410 Keyboarding I
Students will learn the alphabetic and number keys by touch using proper techniques on the computer keyboard; improve

speed and accuracy; format basic business documents including memos and letters; and proofread and apply language arts skills. (Prerequisite: None) (3 Credits: 2 lecture/1 lab)

ADMS2411 Keyboarding II
This course covers production typing using basic business formats. In addition to reviewing office document formats from ADMS 2410 (Keyboarding I), new formats of multiple-page documents and those requiring use of additional word processing features will be covered. Students will continue to develop speed, accuracy, and proofreading skills while demonstrating proper office ergonomics. (Prerequisite: ADMS2410 or equivalent) (3 Credits: 2 lecture/1 lab)

ADMS2416 Word Processing Applications
The student applies the knowledge and skills he/she has developed in Word Processing I and II. (Prerequisites: ADMS2410 Keyboarding I, and ADMS1417 Word Processing I and ADMS2417 Word Processing II) (4 Credits: 4 lecture/0 lab)

ADMS2417 Word Processing II
This course covers utilization of word processing software to increase proficiency in operating word processing software. (Prerequisite: ADMS1417) (2 Credits: 2 lecture/0 lab)

ADMS2431 Administrative Assistant Internship IV
This internship will provide the student with a "real world learning experience" in which the student will apply the knowledge and skills learned in the classroom. This internship is for 192 hours and should be completed near the end of the student's coursework to obtain the maximum benefit for both the student and the interning business. (Prerequisite: None) (4 Credits: 0 lecture/0 lab/4 OJT)

ANTH1210 Introduction to Cultural Anthropology
This course examines the anthropological view of culture, its development, and change. Topics include research methodology, evolutionary theory and society, language and the arts, economic and political systems, gender, family structures and kinship, religion and spirituality, and personal identity. Emphasis will be given to the impact of globalization on various societies. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

ARTS1222 Introduction to Graphic Design
This introductory course provides an overview of various industry-standard software applications used in graphic design. Students will apply visual communication strategies and creative and effective design elements and layouts. The course will focus on fundamental design concepts and historical design styles relating to text and image interaction. Students will develop various types of graphic designs to include typography, color, illustration, symbols, and photography. Prior knowledge of Adobe InDesign and Photoshop is recommended, but not required, for this course. Adobe InDesign and Adobe Photoshop (Creative Suite 6 or Creative Cloud Complete) are required applications for those taking this course online. (Meets MnTC Goal 2 and Goal 6) (Prerequisites: none) (3 credits: 3 lecture/0 lab)

AUTO1112 Auto Trans/Transaxle Lab
This course is a hands-on lab class in which various trans/transaxles are overhauled, adjusted and tested. Basic overhaul techniques, special tool and gauge usage are taught. (Prerequisites: AUTO1105, AUTO1106, AUTO1202, or instructor permission) (3 Credits: 0 lecture/3 lab)

AUTO1113 Drive Train and Axle Lab
This course will develop the students' hands-on skills with emphasis on wheel traction controls. (Prerequisites: AUTO1105, AUTO1106, AUTO1203 or instructor approval) (4 Credits: 0 lecture/4 lab)

AUTO1148 Vehicle Driveability
This course develops skills in diagnosing, testing, and correcting problems related to engine performance. A strong emphasis will be placed on computer controlled systems. (Prerequisites: AUTO1105, AUTO1106, AUTO1118, AUTO1138, AUTO1208, AUTO1228 or instructor approval) (1 Credit: 0 lecture/1 lab)

AUTO1150 General Automotive
This course is designed as a prerequisite for all Automotive Technology courses. In this course students will learn shop safety, automobile identification, service manuals, preventative maintenance, customer care, labor rates and proper use of automotive tools and equipment. Emphasis will also be placed on proper documentation of repair orders. This course also takes a look at how proper communication and shop etiquette can be met, as well as what it takes to be a successful technician. This course is designed to allow students to have the opportunity to apply and practice knowledge learned in the lecture portion of the course in a live lab environment. (Prerequisites: None) (4 Credits: 2 Lecture/2 Lab).

AUTO1155 Brakes
In this course students will learn components and operations of brake hydraulic systems, power brakes, disc and drum brakes, and parking brake systems. Emphasis will also be placed on antilock, and traction/stability control systems. This course will build a foundation to brake system diagnostics and repairs. Students will have the opportunity to apply and practice knowledge learned in the lecture portion of the course in a live lab environment (Corequisite: AUTO1150) (5 Credits: 2 Lecture/3 Lab)

AUTO1160 Suspension and Steering
This course is designed to teach students the various suspension and steering components and their purpose. Students will learn to diagnose faulty steering and suspension components as well as how to properly and safely perform component replacement. Emphasis will also be placed on wheel alignments. Students will have the opportunity to apply and practice knowledge learned in the lecture portion of the courses in a live lab environment. (Corequisites: AUTO1150) (5 Creds: 2 Lecture/3 Lab)

AUTO1165 Electrical/Electronic Systems I
This course is designed to introduce students to basic automotive electrical. Students will begin with how electricity happens, how it flows and how it is affected. Emphasis is placed on voltage, current and resistance. Students will begin reading wiring schematics, learn basic electrical testing, diagnostics, and repairs. This course is designed to allow students to have the opportunity to apply and practice knowledge learned in the lecture portion of the course in a live lab environment. (Corequisites: AUTO1150) (3 Credits: 2 Lecture/1 Lab)

AUTO1202 Auto Trans/Transaxle Theory
This course includes the study of torque converters, planetary gears, clutches, bands, and hydraulics. Instruction of computer and electronic shift controls is also emphasized. The class stresses how an automatic transmission operates and its functions in power train application. (Prerequisites:

AUTO1105, AUTO1106, or instructor approval) (2 Credits: 2 lecture/0lab)

AUTO1203 Drive Train and Axle Theory
This course will instruct the student in repair procedures of manual transmission, four wheel drive, all wheel drive, and front/rear differential. Emphasis will be placed on all components needed for engagement and operation of the above detailed. (Prerequisites: AUTO1105, AUTO1106, or instructor approval) (2 Credits: 2 lecture/0 lab)

AUTO1250 Electrical/Electronic Systems II
This course is the next level of automotive electrical and electronics. This course is designed to go further into advanced vehicle technologies, electrical and electronics systems, their operation, and more in-depth vehicle electrical diagnosis and repair. This course is designed to allow students to apply and practice knowledge learned in the lecture portion of the course in a live lab environment. (Prerequisites: AUTO1150, AUTO1165) (4 credits: 2 Lecture/2 Lab)

AUTO1255 Engine Performance I
This course is designed to introduce engine components, and vehicle systems that affect the engine performance of a vehicle. This course is designed to allow students to have the opportunity to apply and practice knowledge learned in the lecture portion of the course in a live lab environment. (Prerequisite: AUTO1150) (5 Credits: 2 Lecture/3 Lab)

AUTO1260 Heating, Ventilation, and Air Conditioning
This course is designed to educate students about automotive heating, air conditioning and ventilation (HVAC). Students will learn system components, operation and service. Emphasis will be placed on the evacuation and recharge of vehicle refrigerants. Students will have the opportunity to apply and practice knowledge learned in the lecture portion of the course in a live lab environment. (Prerwq: AUTO1150) (5 Credits: 2 Lecture/3 Lab)

AUTO1265 Introduction to Hybrid and Electric
This course is designed to give students an introductory look at Hybrid and Electric vehicles. Students will learn system components, operation, basic diagnostics and service. Emphasis will be placed on High Voltage (HV) safety standards. (Prerequisite: AUTO1150) (1 Credit: 1 Lecture/0 Lab)

AUTO1270 Introduction to Light Duty Diesels
This course is designed to give students an introductory look at automotive diesels. Students will learn system components, operation, as well as basic diagnostics and service. Emphasis will be placed on the differences between gasoline and diesel technology. (Prereq: AUTO1150) (1 Credit: 1 Lecture/0 Lab)

AUTO2350 Engine Repair
This course is designed to educate students on engine components, construction, and service. Emphasis will be placed on engine removal, disassembly and inspection. This course is designed to allow students to apply and practice knowledge learned in the lecture portion of this course in a live lab environment. (Prerequisite: AUTO1150) (5 Credits: 2 Lecture/3 Lab)

AUTO2355 Engine Performance II
This course is the next level of Engine Performance I. This course will further explore vehicle systems that affect engine performance. This course will advance a systematic approach to vehicle engine performance diagnostics. Students will have the opportunity to apply and practice knowledge learned in the lecture portion of the course in a live lab environment. (Prereq: AUTO1150, AUTO1255) (5 Credits: 2 Lecture/3 Lab)

AUTO2450 Automatic Transmission and Transaxle
This course is designed to educate students on automatic transmissions and transaxle components, operations, diagnostics, services and repairs. Students will learn the various transmission designs available as well. This course is designed to allow students to apply and practice knowledge learned in the lecture portion of this course in a live lab environment. (Prerequisite: AUTO1150) (5 Credits: 2 Lecture/3 Lab)

AUTO2455 Drivetrain and Axle
This course is designed to educate students on drive train and axle system components, operation, service and diagnostics. Emphasis will be placed on differential diagnostics and setup. Students will apply and practice knowledge learned in the lecture portion of this course in a live lab environment. (Prerequisite: AUTO1150) (5 Credits: 2 Lecture/3 Lab)

AUTO2460 Automotive Technology Capstone
This course is designed to take all automotive technology skills learned throughout the program and apply them. Students will be applying learned skills to all systems of the vehicle on both customer vehicles and program trainers. This course gives students the opportunity to create and practice a more successful; efficient approach to diagnosing and repairing vehicles. Emphasis will also be placed on student¿s vehicle and customer care skills, as well as proper documentation of their work. (Prerequisites: AUTO1150, AUTO1155, AUTO1160, AUTO1165, AUTO1250, AUTO1255, AUTO1260, AUTO1265, AUTO1270, AUTO2350, AUTO2355) (Corequisites: AUTO2450, AUTO2455) (2 Credits: 1 Lecture/ 1 Lab)

BIKE1030 CAD CAM
This course will familiarize the student with the relationship between computer aided drafting and computer aided machining. Students will learn the principles of CNC machining. Students will learn to transfer CAD data to the machining programs (CAM) and to machine tools using the CAM package. Positive design aesthetics will also be explored and compared to traditional utilitarian design methods. (Prereq: none) (3 credits: 2 lecture/1 lab)

BIKE1040 History and Theory of Bike Design
This course will explore the evolution and developmental history of the bicycles from first invention concepts to modern day designs including electric assist bikes (E-bikes). Case studies will be conducted looking at commercially unique and engineering milestone bike designs in recent history (such as the rise of mountain biking, bike suspension, commuter bikes, gravel bikes, fat bikes, 26 plus, and e-bikes). Emphasis will be given to both practical facets of bicycle design, as well as artistic facets distinguishing similar bikes from one another. Lab work will include basic assembly, setup, adjustment and repair of modern bike building. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

BIKE1050 AL-FE-SS-TI Welding for Bikes
The primary focus is on joining advanced bicycle materials utilizing the Gas Tungsten Arc Welding (GTAW) process including materials like CrMo steels, high strength aluminum alloys, stainless steel and titanium. The course will enhance your knowledge of current thinking in arc welding safety, processes, instruction, concepts, equipment & consumables, and improve your welding skills as they pertain to bicycle fabrication.)Prerequisite: BIKE1010) (3 credits: 2 lecture/1 lab)

BIKE1060 CNC for Bikes
This course introduces the concepts and capabilities of computer numerical control machine tools. Topics include setup, operation, and basic applications. Upon completion, students should be able to explain operator safety, machine protection, data input, program preparation, and program storage. Machine fixturing specific to bicycle fabrication will be covered. (Prerequisite: BIKE1020) (3 credits: 2 lecture/1 lab)

BIKE2010 3D Prototyping
Learn how prototype parts and assemblies can be generated using CAD design data. Understand available processes to rapidly create functional objects, visual models, and working assemblies. Learn to apply a variety of rapid prototyping methods including: 3D Printing, Desktop Machining, Wood Router, Vacuum Forming, Laser Cutting, manual detailing and finishing (paint, decals, etc.). (Prerequisite: none) (3 credits: 2 lecture/1 lab)

BIKE2060 Bicycle Electronics & Test Fixture Automation
This course covers the basic principles of electrical theory and measurement, and common electrical bicycle systems. The fundamental concepts of electricity and electronics that involve direct current (dc), alternating current (ac), resistive circuits, inductance, capacitance, batteries, transformers, motors, and other electronic components are introduced. Electronic shifting and electronic peddle-assist systems are explored and analyzed. The safety aspects of working with electrical systems is covered. The course covers the use of test and measurement equipment commonly found in industry, including: pneumatically driven endurance testing, corrosion and heat testing, performance benchmarking (stiffness/strength), and impact failure testing. (Prerequisite: none) (3 credits: 2 lecture/1 lab)

BIKE2070 Physics for Bikes
This course covers the physics that control the operation of bicycles. The concepts of balance, momentum, rolling resistance, aerodynamics, and stability will be explored in theory and during lab work. Also covered will be how energy is expended by the rider and how this energy is transferred into motion of the bicycle in terms of efficiency and power. Power losses such as aerodynamic drag, friction, and frame flex, and ergonomics will be explored. How electric assist can impact power will also be discussed. Additionally, the thermodynamics and heat transfer of braking systems and how this energy transfer can impact frame and wheel design, and brake component performance will be explored in the classroom and the lab. The concepts relating to rider fit and position on the bicycle relative to power and efficiency will be covered. A discussion of how loads are applied to the frame and wheels, and typical failure points is also covered. (Prereq: none) (1 credits)

BIKE2090 Capstone
This course covers the Capstone project that will demonstrate and showcase the student's knowledge and skills developed over the course of the program. Students will develop a practical physical or virtual model, design concept or algorithm that is relevant to the build, design, or development of bicycles. Facility will assist students in their choice of projects and approve the selected project prior to kickoff. Students must adhere to a strict timeline and other Capstone guidelines. Students will be responsible for project management and presentation format. Students will present their project to facility, industry partners, and peers. Students will be judged on a number of scales predefined in the Capstone guidelines. (Prereq: none) (4 credits)

BIOL1200 Human Biology
Human Biology is a one-semester survey of general human function and interactions in a biological world. Cell and organ system functions are described in the context of normal health. The course introduces the study of human anatomy, physiology, development, and heredity. (MnTC Goal 3) (Prerequisite: none) (4 credits: 3 lecture/1 lab)

BIOL1201 Introduction to Biology
Introduction to Biology will serve as an overview of the principles and theories that drive the study of biology. Students will be exposed to several different disciplines within biology, including but not limited to, molecular and cell biology, genetics, evolutionary biology, and ecology. An emphasis will be placed on relationships between biology and current issues of particular interest to students. (Meets MnTC Goals 3 & 10) (Prerequisite: none) (4 Credits: 3 lecture/1 lab)

BIOL1226 Nutrition
This course covers basic principles of nutrition and their relationship to human health and normal biological function. Students are exposed to current trends in nutrition, behaviors typical of a positive nutritional lifestyle, and a lab like experience to evaluate their own nutritional status. Topics covered include an introduction to the nutrients, digestive function and metabolism, the role of physical activity, dietary standards, proper diet planning, and nutrition related diseases. (Meets MnTC Goals 2 & 3) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

BIOL2240 Soil Science
This course is an introduction to soil studies with focus on agricultural soils. Main emphasis of the course will be studying soil health as the balanced condition among soil chemical, physical and biological characteristics, to be achieved through sustainable soil management. Class time will be spent in lecture, lab exercises and field studies to foster learning about agricultural soils. (Prerequisite: CHEM 1010) (4 Credits: 3 lecture/1 lab)

BIOL2515 Anatomy & Physiology I
Human Anatomy and Physiology I introduces the structure and function of the human body with an emphasis on normal health. This course includes a review of cellular biology, cellular transport, cell reproduction and basic biochemistry. Topics covered include tissues, the integumentary system, skeletal system, articulations, muscular system, and nervous system. (MnTC Goals 2 & 3) (Prerequisite: Recent High School Biology or BIOL1001 or equivalent) (4 credits: 3 lecture/1 lab)

BIOL2516 Anatomy & Physiology II
Human Anatomy and Physiology II continues the study of the human body from Human Anatomy and Physiology I. This course includes principles of chemistry, biochemistry, and molecular biology as they relate to the study of normal body function. Topics covered include the endocrine system, cardiovascular system, immune system, respiratory system, urinary system, digestive system, and reproductive systems. (MnTC Goals 2 & 3) (Prerequisite: Successful completion of BIOL2515 Anatomy & Physiology I) (4 credits: 3 lecture/1 lab)

BIOL2531 Microbiology
Microbiology explores the general characteristics, classification, and pathology of microscopic organisms. Fundamental aspects of microbial control, growth, reproduction, and metabolism, are explored with relation to the role they play in human health, disease, and immunity. Basic laboratory procedures, such as

staining techniques, nutrient preparation, microbial isolation, and microorganism identification are introduced in the laboratory component of this course. (Fulfills MnTC goal 3) (Prerequisite: CHEM2518 or BIOL1200 or BIOL1201 or BIOL2515 or BIOL1001 or equivalent) (3 credits: 2 lecture/1 lab)

BIOL2540 Pathophysiology
This course expands upon knowledge gained in Anatomy and Physiology I and II to explore the changes that result from disease processes in the body. The nature, cause, diagnosis, and treatment of common diseases will be emphasized. Topics will include the immune response, cancer, fluid imbalances, diseases of the individual body systems, and systemic pathophysiology. MnTC Goals 2 & 3 (Prerequisite: BIOL 2516) (3 Credits: 3 lecture/0 lab)

BIRT1100 Woodwind Repair Fundamentals
This course introduces the student to safe use and handling of shop equipment, tools and supplies. The student will learn to diagnose and repair basic problems associated with woodwind instruments. Techniques of disassembly, tenon corking, key fitting, padding, key corking, regulation as well as play testing the instrument will be covered. In addition, nomenclature, care of wood, crack sealing, key straightening, and spring replacement will be taught. As a project for the course, the student will perform a complete repad on a clarinet including record keeping and invoicing requirements. It is recommended that the student have playing skills on the instrument prior to enrolling, as a playing proficiency is required for completion of the course. Grading is based on project evaluation and written tests. (Prerequisite: None) (5 Credits: 3 lecture/2 lab)

BIRT1104 Woodwind Repair I
The student will build on previous skills learned in diagnosing and repairing basic problems associated with woodwind instruments. Techniques of disassembly, tenon fitting, head corking, key fitting, padding, key corking, regulation as well as play testing the instrument will be covered. In addition, nomenclature, care of metal and finishes, body straightening, key alignment, spring replacement, and soft soldering will be taught. As a project for the course, the student will perform a complete repad on a flute including record keeping and invoicing requirements. It is recommended that the student have playing skills on the instrument prior to enrolling, as a playing proficiency is required for completion of the course. Grading is based on project evaluation and written tests. (Prerequisite: BIRT1100 or field experience commensurate with course content as determined by instructor) (4 Credits: 2 lecture/2 lab)

BIRT1110 Brasswind Repair Fundamentals
This course covers the basics of brasswind repair, including nomenclature, chemical flushing, porting procedures, common dent removal, the straightening and alignment of parts, soft soldering and spot finishing. The trumpet will be used to learn a majority of these repairs, though larger brasswinds may be included for the advancing student. Aspects of a safe work environment as well as instrument inspection, repair and invoicing are also included. Grading is based on project evaluation and written tests. (Prerequisite: None) (4 Credits: 2 lecture/2 lab)

BIRT1125 Brasswind Repair I
This course parallels topics and tasks learned in BIRT1110, adding solder projects, complete instrument repair, introduction to trombone handslide repairs and trumpet playing methods. Machine tool operation, aspects of a safe work environment as well as instrument inspection, repair and invoicing are also included. Grading is based on project evaluation and written tests. (Prerequisite: BIRT1110 or field experience commensurate with course content as determined by instructor) (5 Credits: 2 lecture/3 lab)

BIRT1130 Band Instrument Repair Open Lab I
This elective allows students independent work time over and above required coursework to focus on advancing repair skills through working projects assigned in BIRT courses and other specialty projects as approved by instructors. (Prerequisite: Enrollment in BIRT1110, BIRT1125, BIRT1100, and BIRT1104) (1 credit: 0 lecture/1 lab)

BIRT2100 Woodwind Repair II
Using the saxophone as the focus, the student will learn techniques of disassembly and assembly, neck corking, tenon fitting, key fitting, hinge rod making, key corking, padding, regulation, lubrication, and play testing the instrument. Body straightening tone hole leveling, post and key alignment, soft and silver soldering will also be included. It is recommended that the student have playing skills on the instrument prior to enrolling, as a playing proficiency is required for completion of this course. As a project for the course, the student will perform a complete repad on the saxophone including record keeping and invoicing requirements. Grading is based on project evaluation and written tests. (Prerequisites: BIRT1100 and BIRT1104 or field experience commensurate with course content as determined by instructor) (5 Credits: 2 lecture/3 lab)

BIRT2104 Woodwind Repair III
This course will involve the study of common aspects of repair as it relates to the oboe and the bassoon. Using the oboe as the project, nomenclature, installation of cork pads, regulation, play testing, and focus on key mechanism interrelationships will be covered. Topics related to wood care, moisture tube removal, and tone hole replacement will be introduced. Bassoon nomenclature as well as padding and regulation techniques will be covered. Wood treatment, sealing, tenon wrapping, and “U” tube gasket replacement will be studied. It is recommended that the student have playing skills on the instruments prior to enrolling. A playing proficiency on oboe is required for completion of the course. Grading is based on project evaluation and written tests. (Prerequisites: BIRT1100, BIRT1104, & BIRT2100 or field experience commensurate with course content as determined by instructor) (4 Credits: 2 lecture/2 lab)

BIRT2110 Brasswind Repair II
Using the trombone as focus, the student will learn aspects of handslide repair including tube straightening, dent removal, crook repair and installation, and tube installation. Bell section repairs will include alignment, crook dent removal, and gooseneck and flare repairs. The student will also be introduced to piston brass casing, valve and thread repairs. Machine tool operation, aspects of a safe work environment as well as instrument inspection, repair and invoicing are also included. Grading is based on project evaluation and written tests. (Prerequisites: BIRT1110 & BIRT1125 or field experience commensurate with course content as determined by the instructor) (5 Credits: 2 lecture/3 lab)

BIRT2121 Large Brasswind Repair
The french horn will be used to introduce the student to large brasswind repairs as well as rotary valve stringing, adjustment and bearing work. Dent work will focus on the bell section and

mouthpipe. Work on other large brasswinds such as baritone horns and tubas may be included for the advancing student. French horn playing methods, aspects of a safe work environment, as well as instrument inspection, repair and invoicing are also included. Grading is based on project evaluation and written tests. (Prerequisites: BIRT1110, BIRT1125 & BIRT2110 or field experience commensurate with course content as determined by instructor) (4 Credits: 2 lecture/2 lab)

BIRT2130 Band Instrument Repair Open Lab II
This elective allows students independent work time over and above required coursework to focus on advancing repair skills through working projects assigned in BIRT courses and other specialty projects as approved by instructors. (Prerequisite: Enrollment in BIRT2110, BIRT2122, BIRT2100, and BIRT2104) (1 credit: 0 lecture/1 lab)

BMET2221 Introduction to Biomedical Equipment
This introductory course begins with a brief overview of the human body. There will be special focus on the heart and circulatory system. Biomedical instrumentation and measurement will include information on electrodes, sensors, transducers, bioelectric amplifiers, electrocardiographs and other cardiovascular devices. (3 credits: 2 lecture/1 lab)

BMET2222 Biomedical Equipment Safety
This course covers the quality assurance and continuous quality improvement aspects as related to a hospital setting. Electrical safety and preventive maintenance will be covered. Hospital safety codes will be discussed and information from NEC, NFDA and, JCAH will be presented. (Prerequisites: ELEC 1251 Solid State Devices) (2 credits: 2 lecture/0 lab)

BMET2224 Biomedical Equipment II
This course focuses on the various types of equipment used in the hospital setting. These include waveform display devices, fiber optics and lasers, computers, networking, and the Pak system, also radiology and nuclear equipment. (Prerequisites: Intro to Biomed Equipment) (3 credits: 2 lecture/1 lab)

BMET2225 Clinical Internship
This course introduces the student to an on-site learning experience as a biomedical equipment technician. The student will be assigned to a Health Care Facility or Medical Equipment repair company. Supervision of the intern is shared by a biomedical technician, or facility supervisor and a college faculty member. This course gives the students an opportunity to develop the practical skills necessary to work individually or in a group in a professional hospital setting. (Prerequisite: BMET2221, BMET2222, and ELEC1500)(Prerequisite and concurrent: BMET2223, BMET2224, and ELEC2500) (3 Credit: 0 Lect. / Pres, 0 Lab, 3 OTJ)

BUSN1245 Business Computers
This course is designed to provide “hands on” training in the use of the computer aimed at information processing for coursework, personal, and professional purposes. According to skillful design standards, students solve business problems using industry-standard software application programs (word processing, spreadsheets, and database management, presentations, and email/calendar). A brief introduction to file management, cloud technology, and operating system is covered. Students will also develop an understanding of computer safety, security, ethics, and privacy. (Prerequisites: none) (3 credits: 3 lecture/0 lab)

BUSN2000 Small Business Development
A study of current theory and practice relating to starting and managing small firms. It provides a comprehensive coverage of critical small business issues, numerous real-world examples to help students understand how to apply the business management concepts presented in the text, and incorporates material to help them explore small business issues in the Internet. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

BUSN2210 Legal Environment of Business
This course introduces students to ethical theory and decision-making models, as well as to the legal framework in which American business operates, the substantive legal rules that govern American business, domestically and internationally, and the ethical and social responsibility implications of business conduct within the legal environment. Governmental efforts to regulate business activity by statute and administrative agency rules and decisions are emphasized. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

BUSN2215 Business Ethics
A study of ethical problems in business and the foundations for decisions involving ethical issues. Topics include ethical concepts, personal integrity, individual conscience, and company loyalty and responsibility conflicts as they impact on the decision process in the functional areas of business. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

BUSN2220 Principles of Management
This course provides a survey of the traditional functions of management with primary emphasis on planning, organizing, controlling, and leading. This emphasis involves coverage of managerial decision making, leadership, motivation, interpersonal communication, staffing human resources, and organizational structure, design, and change and development. Additional topics include the history of managerial thought, management information systems, international management, and business ethics and social responsibility. (Prereq: none) (3 credits: 3 lecture/0 lab)

BUSN2225 Principles of Marketing
An introduction to the study of marketing in business and other organizations. Topics include: the marketing environment, marketing strategies and decision-making, marketing ethics and the international dimension of marketing strategy. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

CARP1100 Cabinetry I
The student will explore styles, make working drawings, plan for efficiency, develop a building plan, layout cabinets, and estimate materials for a variety of cabinets. (Prerequisite: none) (2credits: 2 lecture/0 lab)

CARP1105 Residential Construction 1
This course will cover common residential framing methods including floor systems, wall framing and sheeting, roof types, interior framing details and wall layout. (Prerequisite: none) (2 credits: 2 lecture/0 lab)

CARP1110 Concrete Construction
This course covers the theory and practices used when designing and installing footings, foundations and flatwork for residential construction as well as light commercial. (Prerequisite: none) (2 credits: 2 lecture/0 lab)

CARP1115 Emerging Construction Technologies 1
This course provides knowledge of new tools, methods, and equipment being used in the construction industry (Prerequisite: none) (2 credits: 1 lecture/1 lab)

CARP1120 Architectural Drawings 1
This unit provides instruction in blueprint reading, interpretation and sketching. This course is a prerequisite to Architectural Drawings 2. (Prerequisite: none) (1 credits: 1 lecture/0 lab)

CARP1125 Carpentry Lab 1
This course is used to practice the theory learned in Framing Theory I, Concrete Construction, and Cabinetry 1. This will cover a number of projects pertaining to footings, foundation, flatwork, wall framing, roof design, and cabinetry. (Prerequisite: none) (5 credits: 0 lecture/5 lab)

CARP1200 Cabinetry 2
This course will provide the student with the knowledge to finish fine woodworking projects. Cabinet installation and plastic laminates will also be covered. (Prerequisite: CARP 1100 Cabinetry 1) (3 credits: 1 lecture/2 lab

CARP1205 Residential Construction 2
This course covers materials, methods and techniques used to frame various roof styles and designs. Ridges, common rafters, hip and valley rafters and jack rafters will be designed, constructed, and installed. (Prerequisite: none) (1 credit: 1 lecture/0 lab)

CARP1210 Commercial Construction 1
This course covers commercial construction practices including steel stud work, structural headers, and commercial building components (Prerequisite: none) (1 credits: 1 lecture/0 lab)

CARP1215 Construction Estimating
This course is intended to introduce the student to the world of residential estimating. Many of the basic mathematical formulas will be covered. (Prerequisite: none) (2 credits: 2 lecture/0 lab)

CARP1220 Architectural Drawings 2
This course advances the skills taught in Architectural Drawings 1 with a focus on industrial and commercial blueprints. (Prerequisite: CARP 1120) (1 credits: 1 lecture/0 lab)

CARP1225 Carpentry Lab 2
This course is used to practice the theory learned in commercial Construction 1, Cabinetry II, and concrete construction. This will gain experience in areas such as roof framing projects, cabinet construction, laminates, steel studs, and decorative concrete projects. (Prerequisite: CARP 1125) (4 credits: 0 lecture/4 lab)

CARP2105 Residential Construction 3
This course covers materials, methods, and techniques used to build stairs, railings, and spindles. Interior millwork and trims will also be discussed along with floor coverings and other interior finishes. (Prerequisite: CARP 1205 Residential Construction 2) (1 credit: 1 lecture/0 lab)

CARP2110 Commercial Construction 2
This course is designed to have students use commercial skills to complete wall assemblies, hollow metal doors and hardware, and stair assemblies. (Prerequisite: CARP 1220 Commercial Construction 1) (1 credit: 0 lecture/1 lab)

CARP2210 Commercial Construction 3
This course is designed to have students gain further knowledge of commercial building and gain knowledge of prefabricated steel buildings. (Prerequisite: CARP 2110 Commercial Construction 2) (2 credit: 1 lecture/1 lab)

CARP2215 Emerging Construction Technologies 2
This course provides the theory and practice to complete commercial systems, modern concrete practices, advanced door hardware, and sustainable building techniques. (Prerequisite: CARP 1115 Emerging Construction Technologies 1) (2 Credits: 1 lecture/1 lab)

CARP2230 Carpentry Internship
An internship allows the student the opportunity to work in an actual industry setting. This site must provide the student with skill building opportunities learned in previous courses of study and provide work that challenges the student beyond that of an unskilled worker. (Prerequisite: none) (7 credits: 0 lecture/0 lab/7 OJT)

CHEM1010 Fundamentals of Chemistry
This purpose of this course is to introduce basic chemical principles and theories for students intending to take any transfer level chemistry course with no recent background in chemistry. It covers measurement in chemistry, the concepts of matter and energy; elements, mixtures, and compounds; chemical formulas; atomic theory and structure; the formation and nomenclature of compounds; chemical bonds; basic chemical reactions; and chemical quantities. (Prerequisite: none) (3 credits: 2 lecture/1 lab)

CHEM1110 Survey of Chemistry
As a one-semester introduction to the field of chemistry this course is designed to allow students to understand how chemistry relates to everyday life by looking at classification of matter, reactivity, solutions and organic compounds. This course is intended for non-science majors interested in early childhood education or students wanting an introduction to the field of chemistry and does not require previous experience in chemistry. (MnTC goal 3) (Prerequisite: Accuplacer Elementary Algebra score of 61 or MATH0522) (4 credits: 3 lecture/1 lab)

CHEM1122 Environmental Chemistry
Environmental Chemistry introduces non-science students to the world of chemical processes, both natural and artificial, in their daily experiences. These phenomenon are related to current environmental issues in the context of human activities and influences. Topics discussed include air pollution, ozone depletion, global warming, acid rain, nuclear power issues, energy sources and the impact recycling has on our environment. (Meets MnTC Goals 3 & 10) (Prerequisite: none) (3 credits: 2 lecture/1 lab)

CHEM1225 Introduction to Forensic Science
This chemistry course will explore the scientific basis and background for crime-scene investigations. Students will explore the entire field of forensic science, including the different kinds of physical evidence, collection, preservation, and proper analysis of evidence, current technologies and techniques used to examine evidence, interpretation of results from a variety of forensic-laboratory analyses, and the ethical implications of using forensic data in a case. Students will perform several laboratory experiments to learn some data analysis techniques. (Meets MnTC Goals 3 & 9) (Prereq: none) (3 credits: 2 lecture/1 lab)

CHEM2518 General, Organic & Biochemistry I
This course is intended as a broad introduction to the basic principles of general, organic and biochemistry. Atomic structure, radioactivity, ionic and covalent compounds, reactions, oxidation-reduction, solutions, acids and base are covered through descriptive, theoretical and laboratory topics. These principles are related to organic and biological chemistry throughout the course as it is foundation course for students enrolled in the health-related programs. However, this course is open to all students enrolled in any program. (MnTC Goals 2 & 3) (Prerequisite: CHEM1110 or 1010 or Recent High School Chemistry with Instructor Approval) (4 credits: 3 lecture/1 lab)

CJSP1102 Introduction to Criminal Justice
This course provides an overview of the philosophical and historical background of the components and policies that make-up the criminal justice system and their interrelationships in our diverse society. It examines deviant behavior in our society and the roles of law enforcement, courts, corrections and community corrections agencies. (Prerequisite: None) (3 Credits: 3 lecture/0 lab)

CJSP1220 Police and Community The objective of the
course is to provide an overview of the evolution and history of police to include how society has influenced policing. Examination of the operational structure of law enforcement agencies will enhance the students understanding of the complexity of policing and recognize the challenges with community policing. Understanding topics such as the nature of police work, recruit selection, enforcement of the law, police discretion, community relations, trends and social problems will broaden the students' awareness of police work in today's modern society. (Prerequisites: College Writing I and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CJSP1230 Introduction to Corrections
This course provides an overview of the historical development of the current correctional system. Students will examine the various components of corrections such as theories of punishment, jails and prisons, offenders, institutional security measures, treatment programming, institutional management and community re-entry programming. (3 Credits: 3 lecture/0 lab)

CJSP2104 Introduction to Criminology/Criminal Behavior
This course provides an introductory overview of the basic concepts, issues, causation, theories, application of theories, and methodology to examine crime and criminal behavior. Students will examine how the various componenets of the criminal justice system respond to the challenges of crime and criminal behavior within our society. (Prereq: Writing College Level Placement and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CJSP2110 Juvenile Justice/Delinquency
The course provides an overview of the evolution, history, theories and societal response associated with the juvenile justice system. Topics such as youth in crisis, delinquency, interventions, treatment philosophy and programming, role of professionals and the juvenile justice systems will be examined. (Prerequisites: Writing College Level Placement and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CJSP2140 Special Topics: Crime Victims and Computer Crimes
Crime Victims surveys victimology as an area within the study of criminal justice. Theories and viewpoints on the role of victim precipitation in crime, and societal reactions such as victim blame are discussed. Victimization patterns in crimes such as homicide, domestic violence, and child abuse are examined. Treatment of victims by the justice system, and issues regarding victims' rights are described. Computer Crimes is designed to expose future practitioners to internet and other computer-facilitated criminal behavior and determine appropriate responses for law enforcement. This course will examine various ways the use of computer technology has evolved in the commission of criminal behavior such as online child exploitation, identity theft, and cyber bullying. Included is an understanding of the responses of social services and the criminal justice system to these types of crimes.(Prerequisites: Writing College Level Placement and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CJSP2202 Constitutional Law
This course is an overview of the U.S. Constitution, with special emphasis on topics relating to criminal justice. Areas of study include the structure of the Constitution and its amendments, separation of powers, as well as the role and decisions of the U.S. Supreme Court. The course will also include an introduction to individual rights and liberties, including right to privacy and the rights of criminal defendants. (Prerequisites: College Writing I and either Introduction to Criminal Justice or Introduction to Corrections) (3 credits: 3 lecture/0 lab)

CJSP2205 Criminal Law and Procedures
This course will introduce students to the main principles of substantive criminal law and procedure. Study will include the elements of major crimes and defenses, and examination of the criminal legal process from investigation through post-sentencing, with special emphasis on laws governing the role of law enforcement. (Prerequisites: Writing College Level Placement and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CJSP2225 Courtroom and Evidence Procedures
The objective of this course is to provide an overview of the technology used in electronic discovery (e-discovery) in civil and criminal cases. It will examine e-discovery identification and preservation to collection, processing, review, production and trial presentation. This course looks at the fast-growing field of digital evidence and provides students with an understanding of proper handling, storage and courtroom testimony related to digital evidence. (Prereq: Writing College Level Placement and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CJSP2250 Leadership for Criminal Justice
Criminal Justice professionals are leaders in their community, and a competent leader is an ethical leader. This course will prepare students for the leadership roles within the criminal justice system, while reviewing ethical dilemmas that may occur along your career path. The ability to lead and follow will equally be addressed, and students will be given a snapshot of the differences associated with a career path in both the public and private sector. Understanding the effectiveness and value of interpersonal communication along with reviewing the techniques to effectively utilize interpersonal communication skills. This class will prove beneficial for new, established, and future individuals working within the criminal justice field. (Prerequisites: Writing College Level and Introduction to Criminal Justice) (3 credits: 3 lecture/0 lab)

CMAE1510 Print Reading
This course will give students an understanding of basic mechanical drawing principles. Topics include the alphabet of lines, arrangement of views, orthographic projections, scaling,

dimensioning, tolerancing, and symbols. Students will read and interpret mechanical drawings. (Prerequisite: none) (2 credits: 2 lecture/0 lab)

COMC1714 Introduction to Visual Database Application Tools
In this course, students will use visual database application tools to learn database design concepts (entities, attributes, relationships, and primary/foreign key definitions), design and create databases and tables, create filter and sort queries, use summary functions, establish referential integrity and constraints, and create multiple table queries, forms, reports, and interactive reports. (3 credits: 2 lecture/1 lab)

COMC1730 Introduction to Programming with .Net
This course introduces programming concepts using Microsoft's .Net framework. Course includes: form layout, event-driven Windows and WebForms programming concepts, variables and data types, variable and control initialization, operators, objects and properties, control structures (if-else, for & while loops), arrays, functions, properties, parameter passing, source control, and unit testing. No previous programming experience is required. (3 credits: 2 lecture/1 lab)

COMC1741 Web Design, HTML, CSS
This course introduces web site design, authoring, management concepts. Students will create web pages which include many common HTML formatting and navigation elements: lists, tables, links, graphics, and CSS styles. (3 Credits: 3 lecture/0 lab)

COMC1745 Web Design and Technologies II
In this course, students will research, plan, design, implement, and evaluate web sites using a variety of technologies. Iterative design, responsive/mobile design, web server setup and administration, content management systems, cloud services, source control, continuous delivery, and social media integration will be covered. (Prereq: COMC1741) (3 credits: 2 lecture/1 lab)

COMC1746 Web Graphics and Animation
This course introduces bitmap graphics, vector graphics, and web animation concepts and tools. Students will edit bitmap images, create vector graphic images, create web animations, and integrate graphics into web pages. (3 credits: 2 lecture/1 lab)

COMC1754 Microsoft Server Management for Web Developers
This course introduces network server configuration and management concepts using Microsoft Windows Server. Course includes Windows Server Enterprise and Server Core installation procedures, user and service accounts, Active Directory, file and folder permissions, Group Policy, TCP/IP routing and subnetting, DHCP configuration, web and FTP server configuration, remote access and VPN configuration, command-line tools, and Docker containers. (3 credits: 2 lecture/1 lab)

COMC2722 Database Design & Management with SQL
Structured Query Language (SQL) is the standard language for defining, maintaining, and querying relational databases on all platforms from mainframes to microcomputers. This course covers relational database design and implementation using SQL. Topics include: select and sort queries, multiple table queries, subqueries, outer joins, aggregate functions, table updates, database design, entity-relationship (E-R) modeling, normalization, and database implementation, modifications & administration. (Prerequisite: none) (3 credits: 2 lecture/1 lab)

COMC2733 JavaScript and Web App Frameworks
This course introduces web client programming skills using JavaScript and Single Page Applications (SPA) using Angular and TypeScript. Topics include variables, objects, functions, events, data types, operators, control structures (if-else, while, for), arrays, images, forms, data validation, the Document Object Model (DOM), Angular/TypeScript components and services, and HttpClient. (Prerequisite: COMC2740) (3 Credits: 2 lecture/1 lab)

COMC2740 Introduction to Java / C/ C++ Programming
This is the first in a series of courses on programming in Java, C, C++, and C# languages. Topics include: Java/C/C++/C# program structure, data types, control structures, functions, parameters, scope, unit testing, class definitions, methods, fields (instance variables), loops, input-output, arrays, iteration, pointers, and IoT devices. (Prerequisite: COMC1730 or instructor permission) (3 credits: 2 lecture/1 lab)

COMC2742 Java/C++/C# Programming II
This course covers object oriented programming concepts using the Java, C#, and C++ languages. Topics include: class declarations, class methods and attributes, creating and using objects, constructors and destructors, function overloading, passing object references as function arguments, class inheritance, memory allocation, object associations/aggregate objects, exception handling, exception classes, unit testing, MVC architecture, FXML GUIs, XML and/or JSON deserialization, IoT microcontrollers, UML, and source control. (Prerequisite: COMC2740 or instructor permission) (3 credits: 2 lecture/1 lab)

COMC2747 Database Application Development
This course introduces database application programming techniques for web-based clients. Topics include: application architecture, C# language, ADO framework (connections, commands, data readers, data adapters, data sets, etc.), .Net Core MVC, domain models, code-first database implementation, controllers, routing, action methods/parameters, views, user interface design & implementation, multiuser concepts, lamda expressions, Entity Data Model, retrieving/updating data using LINQ to Entities, source control. (Prerequisite: COMC2722) (Corequisite: COMC2742) (4 credits: 3 lecture/1 lab)

COMC2749 Web Application Development
This course covers the design and implementation of server-based web applications using Microsoft MVC & EF frameworks and single-page applications (SPA) using Angular, TypeScript, and JavaScript. MVC topics include views, partial views, view components, routing, model binding, tag helpers, and web services/APIs. SPA application topics include components, data binding, directives, services, dependency injection, routing, observables, subjects, forms, pipes, http requests, and REST API. (Prerequisite: COMC2747) (3 credits: 2 lecture/1 lab)

COMC2750 UML Modeling and Iterative Process
This course covers fundamental software engineering concepts of object modeling, the process (using the Unified Process) and notation (using UML) of object oriented analysis and design, the use of design tools, strategies and patterns for applying object oriented methodologies to realistic applications, and design implementation. (Corequisite: COMC2740) (2 Credits: 1 lecture/1 lab)

COMC2754 Computer Careers Capstone Project
Students will work in groups to design, develop, and implement business applications. Students will determine business require-

ments, design database tables, create UML class diagrams, design user interfaces, estimate time lines and costs, and select development and user tools. Following the project design phase, students will implement the project using various technologies including: databases, queries, programming languages, web pages, servers, and source version control. (Corequisite: COMC 2749) (3 credits: 2 lecture/1 lab)

COMC2793 Computer Careers Internship
This course is a supervised off-campus work experience with area businesses and organizations in the information technology field. The internship experience gives students an opportunity to integrate theory and practice by working in a supervised setting. Internships should be recognized as on-the-job training experience that draws and builds upon the student¿s prior academic and practical experience. The work experience must include elements of IT support and/or software engineering experience in order to be approved. It is understood that this experience may take various forms. The student and employer (i.e., worksite supervisor) will clearly identify the IT support/software engineering components.

COMM1015 Job Seeking Skills
Students will gain independence and proficiency in job searching skills through activities and assignments designed to help them learn how to find jobs, how to prepare to apply for jobs, and how to present themselves as candidates for jobs. Skills covered will include how to search electronically for a job; how to develop written documents needed for a successful self-directed job search, including how to create an electronic portfolio; and how to secure, conduct, and follow up on job interviews. (Prerequisite: none) (1 credit: 1 lecture/0 lab)

COMM1218 College Speech
Students develop interpersonal, small group, and public speaking skills as well as an understanding of basic communication principles. (Fulfills MnTC Goal 1) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

COMM1228 Interpersonal Communications
This course focuses on the practical and theoretical interpersonal communication skills needful in the personal, public, and professional contexts found within a diverse society. This course addresses subject matter, such as communication theory, verbal and non-verbal communication, intercultural and cultural communication, communication modes, communication styles, the language of conflict management/resolution, active listening, language choice, and perception. (Meets MnTC Goal 1 and Goal 7) (Prereq: Reading College Level Placement or successful completion of ENGL 0528) (3 credits: 3 lecture/0 lab)

COMM1420 Social Media Communications
This course explores the ways in which social media influences interactions among people in the digital realm. Students will create content using a variety of common social media applications and multi-media, including online writing, listening, and speaking. Students will investigate the development of online communities and increase their knowledge of online rhetoric, the use of analytic tools for audience research and engagement, planning for media events, and evaluation of social media applications. Students will identify, discuss, and reflect upon the ethical dimensions of political, social, and personal life and the ways in which they can exercise responsible and productive citizenship. Meets MnTC Goals 1 & 9. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

COMP1135 Spreadsheet Applications
This course provides an introduction to spreadsheet programs. Students create, edit, and format worksheets, work with formulas and functions, and create charts for professional and personal use. (Prerequisite: none) (1 credit: 1 lecture/0 lab)

COMP1140 Online Communications
This course provides an introduction to communicating online using various social media tools/applications and email. Students will create, communicate, collaborate and network with each other using Facebook, Twitter, Linked-in, and Outlook. Database concepts will also be introduced using online search techniques to provide solutions for today¿s relevant applications. (Prerequisite: none) (1 credit: 1 lecture/0 lab)

COMP1150 Computer Applications
This course introduces operating system software and file management, including cloud storage. Students will develop word processing skills by creating and formatting documents for professional and personal use. Students will also develop spreadsheet skills through data entry, sheet formatting, formula and function manipulation, and chart creation. Finally, students will use presentation graphics software to build effective slide-show presentations.

COSM1100 Industry Methodology
This course provides an introduction to cosmetology, nail technology or skin care, including professional image, salon management and retailing, and successful industry communications. Thorough knowledge in infectious agents, decontamination, and Minnesota laws and rules. (Prerequisite: None) (3 Credits: 3 lecture/0 lab)

COSM1101 Dermatology
This course provides an introduction to basic skin care including physiology and histology of the skin and diseases and disorders. (Prerequisite: None) (1 credit: 0 lecture/1 lab)

COSM1102 Hairshaping I
This course provides elementary hair shaping service skills including hair shaping tools, terms, basic techniques, basic cuts, safety procedures, and decontamination. (Prerequisite: None) (2 Credits: 0 lecture/2 lab)

COSM1103 Hairshaping Lab
This course provides elementary hair shaping service skills including hair shaping tools, terms, basic techniques, basic cuts, safety procedures, and decontamination. (Prerequisite: COSM1102) (1 credit: 0 lecture/1 lab)

COSM1104 Esthiology
This course provides skill training in skin care including pressure point facial, body wraps,extractions and electrotherapy facial treatments. This course also provides theory for product knowledge,skin structure, skin disorders and disease, safety procedures, and decontamination. (Prerequisite: None) (2 credits: 0 lecture/2 lab)

COSM1105 Nail Technology I
This course provides an introduction to nail care including manicuring (basic, spa and oil), pedicuring (basic and spa), hand and arm massage, foot and leg massage, nail structure, nail diseases and disorders,safety procedures, and decontamination. (Prerequisite: None) (1 credit: 0 lecture/1 lab)

COSM1106 Nail Technology II
This course provides skill training in nail technology including artificial tip with overlay, sculpture nails, gel overlays, nail wrap techniques, paraffin waxing, product knowledge, safety procedures, and decontamination. (Prerequisite: None) (1 Credit: 0 lecture/1 lab)

COSM1107 Chemical Procedures I
This course provides an introduction to trichology, cosmetology chemicals and their applications including basic permanent wave techniques, chemical relaxing, basic haircolor techniques, safety procedures, and decontamination. (Prerequisite: None) (1 Credits: 0 lecture/1 lab)

COSM1108 Chemical Procedures Lab I
This course provides an introduction to trichology, cosmetology chemicals and their applications including basic permanent wave techniques, chemical relaxing, basic haircolor techniques, safety procedures, and decontamination. (Prerequisite: COSM1107) (2 credit: 0 lecture/2 lab)

COSM1109 Hairstyling I
This course provides elementary hairstyling service skills including shampooing, scalp massage and treatments, blow styling, thermal styling, roller curls, wet styling, hair care product knowledge, safety procedures, and decontamination. (Prerequisite: None) (2 credits: 0 lecture/2 lab)

COSM1112 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1113 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1114 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1115 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1116 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1117 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1118 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (3 Credits: 0 lecture/3 lab)

COSM1200 License Preparation
This course provides review of all technical and theoretical units and Minnesota laws and rules in preparation of the students written state examinations and completion of skill certificate. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109, COSM11201, COSM1202, COSM 1203) (2 Credits: 1 lecture/1 lab)

COSM1201 Hairstyling II
This course provides advanced skill training in hairstyling techniques including artistry of hair design, thermal straightening, up-styling, braids, thermal waving, safety procedures and decontamination. (Prerequisite: none) (2 credit: 1 lecture/1 lab)

COSM1202 Chemical Procedures II
This course provides advanced skill training in permanent waving and haircoloring. Course provides theory for basic chemistry, chemistry of permanent waves and haircolors. Safety procedures and decontamination are practiced. (Prerequisite: COSM1107 and COSM1108) (3 Credits: 1 lecture/2 lab)

COSM1203 Hairshaping II
This course provides advanced skill training in haircutting including advanced tools, terms, safety procedures, and decontamination. (Prerequisite: COSM1102, COSM1103) (2 credits: 0 lecture/2 lab)

COSM1218 Clinic
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1109) (2 credits: 0 lecture/2 lab)

COSM1219 Capstone Clinic Minnesota
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1100, COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1108, COSM1109, COSM 1201, COSM1202, COSM1203, COSM1112, COSM1113, COSM1114) (4 Credits: 0 lecture/4 lab)

COSM1220 Capstone Clinic Wisconsin
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisites: COSM1100, COSM1101, COSM1102, COSM1103, COSM1104, COSM1105, COSM1106, COSM1107, COSM1108, COSM1109, COSM 1201, COSM1202, COSM1203, COSM1112, COSM1113, COSM1114) (4 Credits: 0 lecture/4 lab)

COSM1221 Clinic Hours
This course provides review of all technical and theoretical units and Minnesota laws and rules in preparation of the students written state examinations and completion of skill certificate. (Prerequisites: none) (1 credit: 0 lecture/1 lab)

COSM1222 Clinic Hours
This course provides review of all technical and theoretical units and Minnesota laws and rules in preparation of the students written state examinations and completion of skill certificate. (Prerequisites: none) (2 credits: 0 lecture/2 lab)

COSM1600 Esthiology Clinic I
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisite: COSM1104) (4 Credits: 0 lecture/4 lab)

COSM1602 Esthiology Clinic II
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisite: COSM1406) (4 Credits: 0 lecture/4 lab)

COSM1604 Esthiology Capstone
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisite: COSM1104) (3 Credits: 0 lecture/3 lab)

COSM1605 Esthiology Clinic III
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisite: COSM1104) (4 Credits: 0 lecture/4 lab)

COSM1701 Nail Clinic I
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisite: COSM1405) (3 Credits: 0 lecture/3 lab)

COSM1702 Nail Clinic II
This course provides students with an opportunity to develop the practical skills necessary for entry-level salon work. (Prerequisite: COSM1405) (4 Credits: 0 lecture/4 lab)

COSM1801 Advanced Esthetics I
This course provides an introduction into advanced esthetics practice, advanced skin physiology, electricity and knowledge of infectious agents, decontamination, and Minnesota laws and rules. (Prerequisite: None) (3 Credits: 3 lecture/0 lab)

COSM1802 Advanced Facials
This course provides an introduction into advanced facial practice, skin disorder treatments, advanced extractions and lymphatic drainage. (hand/machine). Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (1 Credits: 1 lecture/0 lab)

COSM1803 Chemical Peels I
This course provides an introduction into chemical peels with a focus on BHA and AHA formulas. Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (1 Credits: 1 lecture/0 lab)

COSM1804 Chemical Peels II
This course provides an indepth into chemical peels with a focus on peel properties, after care and contraindications. Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (1 Credits: 1 lecture/0 lab)

COSM1805 Machine Exfoliation
This course provides an introduction into diamond bit and conundrum microdermabrasion, dermaplaning and hydroderm. Minnesota laws and rules. (Prerequisite: None) (1 Credits: 1 lecture/0 lab)

COSM1806 Micro-Needling
This course provides an introduction into microneedling. Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (1 Credits: 1 lecture/0 lab)

COSM1807 Advanced Esthetics Clinic I
This course provides students with an opportunity to develop the practical skills necessary for advanced esthiology salon and spa work.Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (3 Credits: 0 lecture/3 lab)

COSM1808 Advanced Esthetics Clinic II
This course provides students with an opportunity to develop the practical skills necessary for advanced esthiology salon and spa work. Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (3 Credits: 0 lecture/3 lab)

COSM1809 Advanced Esthetics Clinic III
This course provides students with an opportunity to develop the practical skills necessary for advanced esthiology salon and spa work. Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (3 Credits: 0 lecture/3 lab)

COSM1810 Advanced Esthetic Clinic IV Capstone
This course provides students with an opportunity to develop the practical skills necessary for advanced esthiology salon and spa work. Includes practice of decontamination, and Minnesota laws and rules. (Prerequisite: None) (3 Credits: 0 lecture/3 lab)

ECED1020 Child Health, Safety, and Nutrition
This course provides guidance for how to establish and maintain a physically and psychologically safe and healthy learning environment for young children. Topics include preventing illness and accidents; handling emergencies; providing health, safety, and nutrition educational experiences; meeting children's basic nutritional needs; child abuse and current health-related issues. This course does not include CPR or first aid certification. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1101, ECED1102) (3 credits: 3 lecture/0 lab)

ECED1102 Orientation to Childcare Licensing
This course will review the Minnesota requirements for orientation to childcare for Minnesota Child Care Rule 2 (Family Childcare) and Rule 3 (Center Childcare). Learners will be guided in completing and/or creating a plan for completion to meet the orientation requirements prior to beginning the Early Childhood Education course sequence. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1101) (1 credits: 1 lecture/0 lab)

ECED1103 Early Childhood Field Experience (part 1)
This is part one of a two-part sequence to fulfill ECED1101. This course requires student experience in a licensed early childhood setting working with children between the ages of 0-8 (documented, licensed experience will be reviewed for advance placement). Students will be required to apply knowledge of child development and developmentally appropriate practice, understanding

of the characteristics of children and families, and demonstrate respect for colleagues, children, and families. Students will observe, plan small group activities, and build relationships with children and classroom adults. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1102) (3 credits: 0 lecture/0 lab/150 OJT hours)

ECED1104 Early Childhood Field Experience (part 2)
This is part two of a two-part sequence to fulfill ECED1101. This course requires student experience in a licensed early childhood setting working with children between the ages of 0-8 (documented, licensed experience will be reviewed for advance placement). Students will be required to apply knowledge of child development and developmentally appropriate practice, understanding of the characteristics of children and families, and demonstrate respect for colleagues, children, and families. Students will observe, plan small group activities, and build relationships with children and classroom adults. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1102) (3 credits: 0 lecture/0 lab/150 OJT hours)

ECED1132 Behavior & Emotional-Social Development of the Young Child
This course helps students explore physical and social environments that promote learning and development for young children. It includes an introduction to basic child guidance techniques for individual and group situations. Emphasis is on problem-prevention and positive guidance strategies including recognition, communication, limit-setting, problem-solving, behavior modification, and visuals. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1101, ECED1102) (3 credits: 3 lecture/0 lab)

ECED1136 Interpersonal Relationships & Diversity in Early Childhood
This course focuses on the role of early childhood staff in developing positive relationships with parents that enhance children's healthy growth and development. Working with children and families of varied racial, ethnic, economic, and cultural backgrounds within diverse communities is emphasized. Students compare child rearing practices and family structure of different cultures, explore parenting styles, family stress, building relationships between family, community, and schools, and identify methods of parent education. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1101, ECED1102) (3 credits: 3 lecture/0 lab)

ECED1150 Child Growth and Development
This course provides an overview of development from prenatal through adolescence, including physical, social, emotional, language, cognitive, and creative development. Emphasis is placed on understanding the needs of the whole child and applying developmentally appropriate practices while reviewing a range of early childhood models and settings. The course will examine variations across cultures and interactions between genetic and environmental factors. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework.

ECED1231 Developmentally Appropriate Environments and Experiences for Young Children
This course provides an overview of applying knowledge to promote child development and learning in early childhood settings. Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective care giving and teaching strategies, and observation methods. Curriculum projects will be designed to incorporate activities for infants, toddlers, preschoolers, and school-age children in large and small groups. Emphasis will integrate the unique abilities of the child while inspiring learning through play, curiosity, and active inquiry. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Prerequisite: ECED1150; Corequisite: ECED1101, ECED1102) (3 credits: 3 lecture/0 lab)

ECED1475 History and Professions in Early Childhood
This course introduces students to the early childhood field including history of and career opportunities. The course also examines job requirements, licensing regulations, characteristics of quality programs, types of early childhood programs, and the current issues in the field. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Corequisite: ECED1101, ECED1102) (3 credits: 3 lecture/0 lab)

ECED2350 Foundations of Language and Literacy
This course explores language arts development from birth through age 8, including reading, writing, listening, speaking and viewing. Learners will explore the process of language development, basic language constructs and appropriate strategies to stimulate and encourage the continuation of oral language and emerging literacy skills. Instructional emphasis is placed upon communication development, phonological awareness, early identification/intervention for struggling readers and matching learner capabilities with appropriate instructional strategies. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Co-requisite: ECED1150) (3 credits: 3 lecture/0 lab)

ECED2440 Intro to Early Childhood Special Education
This course examines the development of children with differing abilities and emphasizes the inclusive classroom. Course content includes early intervention and public policy, comparisons of typical and exceptional development, planning for inclusion, implementing inclusive early childhood programs, and applying legal and ethical educational requirements. Students are required to pass a Minnesota DHS background study and complete field experience hours during ECED coursework. (Prerequisite: ECED1101, ECED1102ECED1230) (3 credits: 3 lecture/0 lab)

ECON1405 Personal Finance
Personal Finance offers a study of economic decisions facing individuals in their personal lives. The course includes such topics as budgeting, using consumer credit, buying or renting a home, providing for medical care, purchasing life insurance, understanding retirement programs, buying and selling stocks, preparing income tax returns, minimizing taxes, and thinking about consumerism. (Prerequisites: none) (MnTC Goals 5 and 9) (3 credits: 3 lecture/0 lab)

ECON2520 Microeconomics
This course focuses on the interactions and decisions between the consumer and the producer. Topics include supply and de-

mand, the price system, demand elasticity; the costs of production including the various factor inputs; the four major market structures (pure competition, monopolistic competition, oligopoly and monopoly); and ways to increase market competition. This course develops a theoretical framework for microeconomic analysis and applies this theory to practical domestic and international economic policy problems. (MnTC Goal 5) (3 credits: 3 lecture/0 lab)

ECON2530 Macroeconomics
This course focuses on the economy as a whole and studies how government can affect the economy. Topics include principles of markets, the price system and supply and demand, national income accounting, business cycles, inflation, unemployment, fiscal policy, monetary policy and the Federal Reserve System, approaches to economic growth, and the foundations of international trade. There will be an emphasis on forces influencing employment and inflation. Current problems of the economy are stressed along with the tools the government has to cope with them. (MnTC Goals 5 and 8) (3 credits: 3 lecture/0 lab)

ELEC1202 Introduction to DC Electricity
This course covers the general information, theory, and problem-solving techniques required for an analysis of DC circuits with emphasis on the meter measurements, current flow, and voltage division. (Prerequisite: Proficient in basic math) (2 credits: 1 lecture/1 lab)

ELEC1204 Introduction to AC Electricity
This course covers the general information, theory, and problem-solving techniques required for an analysis of AC circuits. Topics include: AC waveforms, oscilloscope operation, meter measurements, and AC vs. DC comparisons. (Prerequisites or Concurrent: ELEC1202, proficiency in basic math) (2 credits: 1 lecture/1 lab)

ELEC1209 DC Theory & Circuits
This course covers the study of Ohm's Law, Kirchoff's Law and network theorems, with an emphasis on the theoretical concepts as related to electricity/electronics. The application of DC theory through laboratory experiments are also examined. Instruction in the operation of basic test equipment is used to provide verification of topics and to reinforce the theory. (Prerequisite or Concurrent PHYS1515 or ELEC1202) (2 credits: 1 lecture/1 lab)

ELEC1212 Digital Electronics I
Students will learn what a digital circuit is and how digital circuits are used in electronic equipment, from simple clocks to large computers. Experimentation with digital circuits will aid in the reinforcement of digital concepts. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

ELEC1214 Electronic Fabrication Technology
In this course students will study the proper techniques necessary for placement of components on PCB's, with emphasis on THM and SMT technologies. Proper use of standard and specialized tools and equipment will be demonstrated. Soldering techniques will be critiqued in accordance with IPC-A-610 and J-STD-001 soldering standards. (Prerequisite: None) (2 credits: 1 lecture/1 lab)

ELEC1220 Electronic Communications
This course presents an overview of electronic communication systems and principles. Amplitude Modulation, Frequency Modulation, and Multiplexing Fundamentals. Practical experiments will reinforce many points presented in Electronics Communications. (Prerequisites: ELEC1202, ELEC1204) (2 credits: 1 lecture/1 lab)

ELEC1250 Introduction to Solid State
A theoretical understanding of solid-state devices, which includes diodes, bipolar transistors, field effect transistors, SCR's, triacs, and others, and their operation in both DC and AC circuits will be covered. Analysis of these operations will be demonstrated through the lab exercises and proper use of test equipment. Proper biasing of solid state devices is stressed. (Prerequisites: ELEC1202, ELEC1204) (4 credits: 2 lecture/2 lab)

ELEC1251 Solid State Devices
An in-depth understanding of solid state circuit configurations and operations will be enhanced through both theoretical and experimental exercises. Topics of interest will be Transistor amplifiers, Mosfets, Operational Amplifiers, Solid State switching circuits and Voltage regulators. (Prerequisite or Concurrent: ELEC1250) (4 credits: 2 lecture/2 lab)

ELEC1330 Introduction to Instrumentation & Control
This course is an introduction to sensing, instrumentation and control using National Instruments hardware and software (such as MultiSim, LabView, and the MyDAQ). Pre-built applets will be used to input and output data from digital and analog interfaces, make logical decisions based upon input, and data processing. Devices interfacing with this tool may include, but are not limited to photo-electric sensors, servos, and LEDs. Upon completion, students should have a cursory understanding of how National Instruments hardware and software tools can be used for data acquisition, control, and instrumentation environments. (Prerequisite: none) (2 credits: 1 lecture/1 lab)

ELEC2211 Digital Electronics II
Digital electronics are so widely used that it is almost impossible to think of electronic equipment without them. Digital circuits have greatly improved electronic methods and have given practical electronic equipment amazing capabililty. In this course you will learn what digital electronics is, how they are used to reduce board area, improve reliability and increase performance. (Prerequisite: ELEC1212) (4 credits: 2 lecture/2 lab)

ELEC2221 Programmable Controllers
This course covers the operation of programmable logic controllers. The hardware and software aspects of the controllers will be explored in the lab. The basic ladder diagram, timer, counter and sequencer instructions will be covered. Additionally, advanced operation and programming of programmable logic controllers, including greater depth of programming, HMI development, and I/O through laboratory instruction will also be covered. Communication between the PLC and Human Machine Interface will also be covered in depth. The master control, data manipulation and control instructions will also be explored. NOTE: This course is equivalent to the combined ELEC 2218 and ELEC 2219 course series. (Prerequisites: ELEC1202, ELEC1204, and ELEC1212 or permission of instructor) (3 credits: 2 lecture/1 lab)

ELEC2227 PC Hardware & OS
This course will explore the personal computer. Emphasis will be placed on the managing, monitoring and optimizing of the PC. Basic troubleshooting techniques will be discussed as it relates to the Personal Computer. The use of diagnostic and monitoring software will be emphasized. Topics covered provide a preparation for CompTia A+ certification. (Prerequisite: ELEC1500 Networking I) (4 credits: 3 lecture/1 lab)

ELEC2230 Microcontroller Applications
This course will introduce the student to embedded controllers. The student will configure microcontrollers to read switches and drive output devices. Students will explore the features and benefits of single chip systems. (Prerequisites: ELEC2211 Digital Electronics I I) (5 credits: 3 lecture/2 lab)

ELEC2260 Linear Integrated Circuits
This course covers linear integrated circuits. In this course a wide variety of amplifiers, oscillators and generators will be analyzed, which use the op amp. The op amp is one of the most versatile integrated circuits; it provides high gain and wideband width in a simple configuration. (Prerequisite: ELEC1218) (4 Credits: 2 lecture/2 lab)

ENGL518 Reading & Writing 2
This course emphasizes both reading comprehension and critical reading strategies for college- level reading as well as writing of paragraphs from experience, from observation, and in response to readings and other sources. Students will be expected to read with comprehension, effectively summarize and respond to, and evaluate content from a variety of sources, which may include textbooks, essays, short stories, speeches, news articles, research journals, etc. This is a developmental course and therefore does not count toward a diploma or degree. (Prerequisite: English/Reading Level 2 Placement.) (2 credits: 2 lecture/0 lab)

ENGL528 Reading & Writing 3
This course provides structured opportunities for students to improve writing skills primarily at the paragraph and short essay level. Students will write from experience and from readings and will be introduced to academic documentation conventions, including avoiding plagiarism. Students will also strengthen reading comprehension skills for successful reading of college level texts, articles, research, and other materials. This is a developmental course and therefore does not count toward a diploma or degree. (Prerequisite: English/Reading Level 3 Placement or successful completion of ENGL0518 and FYEX1000) (FYEX1000 is also recommended and advised concurrent if placed directly into ENGL0528) (2 credits: 2 lecture/0 lab)

ENGL1020 College Communications
This course will provide an opportunity to sharpen communication skills, both written and oral, through writing papers and giving presentations. Principles common to both forms of verbal communication--such as focus, support, and organization--will be covered, as will features more particular to writing (e.g. paragraph and essay unity) and to speaking (e.g. speech delivery skills). This is a diploma-level course which does not transfer to two or four-year programs. (Prerequisite: Writing College Level Placement or successful completion of ENGL0528) (2 credits: 2 lecture/0 lab)

ENGL1165 Introduction to Literature
This course will serve to introduce the student to various aspects of literature, including its genres (fiction, poetry, creative nonfiction, and/or drama), its formal aesthetic elements (e.g. plot, metaphor, point of view, etc.), and its communication of ideas as they relate to the human condition. (Meets MnTC goal 6 and 7) (Prerequisite: Reading College Level Placement or successful completion of ENGL0528) (3 credits: 3 lecture/0 lab)

ENGL1215 College Writing I
This course involves expository writing based on experience, direct observation, research and reading with emphasis on critical thinking skills, rhetorical strategies, and style. (Meets MnTC Goal 1) (Prerequisites: Writing College Level Placement or successful completion of ENGL0528) (3 Credits: 3 lecture/0 lab)

ENGL1265 Multicultural Literature
This course will examine the diversity of North American culture through a varied body of literature produced by members of specific minority cultures within North America. The literature may include, but is not limited to, novels, short stories, memoirs, poetry, creative nonfiction, drama, and oral tradition. (Meets MnTC Goal 6 and Goal 7) (Prerequisites: Reading College Level Placement or successful completion of ENGL 0528) (3 credits: 3 lecture/0 lab)

ENGL1410 Technical Writing
This course studies the theory and practice of technical writing emphasizing clarity and conciseness in written communication for practical and professional purposes.(Meets MnTC Goal 1) (Prerequisite: Writing College Level Placement or successful completion of ENGL0528) (3 Credits: 3 lecture/0 lab)

ENGL1445 Introduction to Creative Writing
This course will serve to introduce the student to the practice of creative writing, specifically to the techniques involved in writing poetry and short fiction. In addition to writing their own poems and stories, students will read and discuss a number of contemporary examples in these genres. (Meets MnTC goals 1 & 6) (Prerequisites: Writing College Level Placement or successful completion of ENGL0528) (3 credits: 3 lecture/0 lab)

ENGL2440 Creative Writing: Fiction
This course will serve to develop, at a higher level than that of an introductory creative writing course, students' facility in writing fiction. In addition to sharpening and expanding their individual narrative and fictive technique, students will read and respond critically to a variety of others' fictional works in terms of their craft and may be asked to respond constructively to peers' works. Students will be challenged not only to develop their natural talents in fiction writing, but also to work on their less developed areas. By the end of the course, students will compile a portfolio demonstrating careful revisions of their best work. (Meets MnTC Goals 1 & 6) (Prerequisite: C or higher in ENGL 1445 Introduction to Creative Writing) (3 credits: 3 lecture/0 lab)

ENGL2450 Creative Writing: Nonfiction
This course will serve to develop, at a higher level than that of an introductory creative writing or essay course, students' facility in writing nonfiction. In addition to sharpening and expanding nonfiction prose techniques, students will read and respond critically to a variety of others' nonfictional works in terms of their craft and may be asked to respond constructively to peers' works. Students will be challenged not only to develop their natural talents in nonfiction, but also to work on less developed areas. Forms and genres such as creative nonfiction, the literary essay, prose poetry, the magazine feature article, memoir, and travel and nature writing may be addressed. By the end of the course, students will compile a portfolio demonstrating careful revisions of their best work. (Meets MnTC Goals 1 & 6) (Prerequisite: Writing College Level Placement) (3 credits: 3 lecture/0 lab)

ENGL2460 Creative Writing: Poetry
This course will serve to develop, at a higher level than that of an introductory creative writing course, students' facility in writ-

ing poetry. In addition to sharpening and expanding personal poetic technique, students will read and respond critically to a variety of poetic works by others in terms of their craft and may be asked to respond constructively to peers' works. Students will be challenged not only to develop their natural poetic talents, but also to work on their less developed areas. By the end of the course, students will compile a portfolio demonstrating careful revisions of their best work. (Meets MnTC Goals 1 & 6) (Prerequisite: C or higher in ENGL 1445 Introduction to Creative Writing)

ENGL2470 Creative Writing: The Business of Writing
Creative Writing: The Business of Writing will serve to develop the student's facility in publishing his or her written works. Students will be challenged to identify publishers and editors, organize publishing details such as contact information and submission guidelines, write query letters, submit written work electronically or in paper form, and develop the practice of patience. By the end of the course, the student will compile a publishing portfolio demonstrating the craft of the business of writing. (Prerequisite: Writing College Level or ENGL0528) (1 credit: 0 lecture/1 lab)

ENGL2525 College Writing II
Reading critically and writing persuasively from multiple sources is emphasized. Students will evaluate the stylistic, structural and substantive merits of what they read; they will analyze and synthesize various points of view, develop interpretive skills, and employ various critical stances and techniques. Students must write at least one research paper substantially based on the reading of at least one book-length text (assigned to the whole class by the instructor). The text may be fictional, non-fictional, dramatic, or poetic. Students will write at least three academic essays of analysis and/or synthesis. (MN Transfer Goals 1 and 2) (Prerequisites: "C" or better in ENGL2515 College Writing I, ENGL2545 Introduction to Creative Writing, or equivalent course transfer) (3 credits: 3 lecture/0 lab)

FYEX1000 College Success Strategies
Strategies for success in college and career for lifelong learning, including using learning styles, managing motivation and stress, developing personal, career and financial goals and plans, improving time management and prioritization, applying study, test-taking and critical thinking skills, and exploring college policies, resources, and technologies. (Prerequisite: None) (1 credit: 1 lecture/0 lab)

GEOG1115 World Regional Geography
This course will present an introduction to the physical, economic, political, cultural, and demographic characteristics of world regions. Particular emphasis is placed on spatial (geographic) relationships and principles that impact the formation of economies and cultures, on settlement and land use patterns, population distribution, commerce and industry, language, religion, and political alliances. (MnTC Goals 5 and 8) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

GEOG1210 Physical Geography
An introduction to the significance and aerial distribution of various physical elements of our environment with emphasis on climate, landforms, gradational work of streams, glaciations, and earth-time relationships and their relevance to people and land development. (MnTC goals 5 & 10) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

GTRB1400 Introduction to Tools
This course covers hand tool preparation and use, and power tool safety, set up, adjustment and use. Time is spent on tool preparation and sharpening and some tools are made. Accurate measuring, marking and shaping using hand and power tools is practiced. (Prerequisite: None) (3 credits: 0 lecture/3 lab)

GTRB1405 Guitar Overview
This course covers the identification of guitar parts and materials, adhesives, and abrasives, set up and adjustments diagnosis, some history of the instruments, and a quick overview of other fretted instruments.(Concurrent enrollment in GTRB 1410 and GTRB 1415) (2 credit: 2 lecture/0 lab)

GTRB1411 Acoustic Guitar Work
This class covers the many adjustments on a steel string acoustic guitar to help improve playability and musicality. This includes the proper method of changing strings, making nuts for 6 and 12 string guitars, assessing neck problems, adjusting truss rods, making new saddles, adjusting string height, improving intonation, routing saddle slots, and fitting bridge pins. (Corerequisites: GTRB1400, 1405, 1420, 1425) (3 Credits: 1 lecture/2 lab)

GTRB1412 Electric Guitar Work
This course covers routine maintenance, adjustments and repair work common to electric guitars. Cleaning and care for wood, metal and finish components will be discussed as well as making truss rod, string height and intonation adjustments. Other factors to optimize instrument playability will also studied, measured and evaluated. (Corequisites: GTRB 1400, GTRB 1405, GTRB 1416, GTRB 1425) (3 credits: 1 lecture/2 lab)

GTRB1416 Guitar Electronics
This course covers basic electronic concepts and relates those concepts to the electric guitar. Basic component design and function will be discussed as well as electronic schematics and diagrams common to guitar design, repair work and guitar modifications. (Prerequisite: GTRB1400, concurrent enrollment in GTRB1405 and GTRB1425) (1 credit: 1 lecture/0 lab)

GTRB1417 Electric Guitar Design
In this course the student will plan and blueprint an electric guitar or bass using a bolt-on neck design. (Prerequisite: GTRB 1400 and concurrent enrollment in GTRB 1414, GTRB 1415, GTRB 1425) (1 credit: 1 lect/0 lab)

GTRB1418 Electric Guitar Construction
In this course the student will design, blueprint, make templates and build an electric guitar. (Prerequisite GTRB 1400, GTRB 1405, GTRB 1412, GTRB 1416, GTRB 1425, and concurrent enrollment in GTRB 1450) (4 credits: 1 lecture/3 lab)

GTRB1420 Acoustic Guitar Neck Resets
This course covers diagnosing and performing neck resets on acoustic guitars. (Prerequisites: GTRB 1400) (2 credits: 1 lecture/1 lab)

GTRB1425 Fretwork
This course covers fretting techniques used in guitar repair and building. Students will prepare and radius a fingerboard, prepare and install frets. Fret leveling, crowning and polishing is also studied to complete a fret job. (Prerequisites: GTRB 1400 and concurrent enrollment in GTRB 1414, GTRB 1410, and GTRB 1415) (3 credits: 1 lecture/2 lab)

GTRB1430 Guitar Acoustics
This course will be a study of the elements of the design of an acoustic steel string guitar, concentrating on the design and material choices that affect the sound of the guitar, but also discussing playability and esthetics. The course will include a brief look at some other acoustic string instruments such as classical, and archtop guitars, lutes, and basses. (Prerequisites: concurrent enrollment in GTRB1405) (1 credit: 1 lecture/0 lab)

GTRB1441 Acoustic Construction Lecture
This course will cover the steps in building a steel string flattop guitar. (Prerequisites:GTRB1400, 1405, 1411, 1420, 1425, 1430, and concurrent enrollment in GTRB1445 and GTRB1450) (3 Credits: 3 lecture/0 lab)

GTRB1445 Acoustic Guitar Construction Lab
In this course the student will build an acoustic steel string guitar. (Prerequisites:GTRB1400, 1405, 1411, 1420, 1425, and concurrent enrollment in GTRB1441 and GTRB1450) (6 credits: 0 lect/pres, 6 lab, 0 other)

GTRB1450 Introduction to Finishing
This course covers finish touch-up techniques including burn-ins, padding, brushing and graining techniques. Finish application techniques covered will include: hand applied color, hand applied finishes, sunbursts, french padding as well as sprayed nitrocellulose lacquer & shellac. Color theory and color matching will also be practiced. (Prerequisite: GTRB1400) (Concurrent enrollment in GTRB1441 and GTRB1445) (4 credits: 1 lecture/3 lab)

GTRB1451 Guitar Finish Application
Students will apply a finish on the instrument/s they build, in Acoustic and/or Electric Guitar Construction classes. (Prerequisites:GTRB1400, 1405, 1410, 1420, 1425, 1430, and concurrent enrollment in GTRB1445 and GTRB1450) 1 Credit (0 lecture/1 lab)

GTRB1455 Guitar Repairs
This course covers a variety of repair work including structural crack repair & headstock breaks. General shop repairs will be discussed and students will estimate time and pricing for all repairs on actual instruments. Students will also keep track of time spent on task each class day. Course work will be divided roughly 50/50 between assigned projects and repair work on instruments to achieve the required amount of points. (Prerequisites: GTRB 1400, GTRB 1405, GTRB 1411, GTRB 1412, GTRB 1425) (3 credits: 0 lecture/3 lab)

GTRB1472 Guitar Repair and Building Specialty Lab II
This course content will be determined by the instructor and student together. The content will involve guitar or other fretted instrument repair and or construction. The purpose is to have the student set goals for themselves and follow through with the work required to complete these goals. (Prerequisite GTRB1400) (2 credits: 0 lecture/2 lab)

GTRB2402 Guitar Repair Shop
This course covers more advanced fretted instrument repairs such as neck and headstock crack, top, back, side, and brace crack repairs, splines, patches, fretwork on non-adjustable necks, and neck resets. Bridge plate removal and techniques for flattening acoustic tops will also be discussed. Completing basic set ups and repairs in a timely manner with professional quality, estimating parts, materials and labor will also be practiced. (Prerequisites: GTRB 1441, GTRB 1445, GTRB 1450, GTRB 1455) (4 credits: 1 lecture/3 lab)

GTRB2410 Guitar Special Topics
This class will be a 2-day workshop. It will provide an opportunity for 2nd year students to learn advanced techniques in repair, and or, building from one of the top professionals working in our field today. This will frequently be a past graduate and will also give the students a chance to learn from another source about the realities of going out into the workforce after graduation. (1 credit: 1 lecture/0 lab)

GTRB2412 Guitar Special Topics II
This class will be a 2-day workshop. It will provide an opportunity for 2nd year students to learn advanced techniques in repair, and or, building from one of the top professionals working in our field today. This will frequently be a past graduate and will also give the students a chance to learn from another source about the realities of going out into the workforce after graduation. (1 credit: 1 lecture/0 lab)

GTRB2415 Computer Drafting for Guitar
This course introduces Rhino design software students will use to create 2D and 3D design elements for guitars. Students will complete assignments from the training manual as well as guitar specific design work. In this course, students will establish the headstock, fingerboard and body aesthetics for an instrument to be built in the spring semester. Instrument design elements also included will be inlays, truss rods, control cavities, bridges and anything specific to what they hope to make. 3D modeling will be practiced and rendering of 3D models will be introduced. (Prerequisites: Pre-Math Level 3 Placement Level or GTRB 1441, GTRB 1445, GTRB 1450) (3 credits: 3 lecture/0 lab)

GTRB2417 CNC for Guitar Lecture
This course will focus on the use of RhinoCAM software to program and simulate tool paths for 2D and 3D models created in GTRB 2425. Students will also learn part layout and hold-down basics for operating a 3-axis CNC machine. (Corequisite: GTRB2415) (Prerequisites: GTRB 1441, 1445, 1450) (1 credit: 1 lecture/0 lab)

GTRB2418 CNC for Guitar Lab
This course will focus on 3-axis milling techniques using a CNC router and RhinoCAM software. Students will operate the CNC machine to created parts assigned in GTRB 2417 then design, program and machine templates and molds for instruments to be built in GTRB 2432. Students will also create a 2D blueprint of the instrument they plan to build in GTRB 2432. (Prerequisites: GTRB 1441, 1445, 1450, 2415, 2417) (2 credits: 0 lecture/2 lab)

GTRB2425 Archtop Guitar/Mandolin Construction
In this class the student will make a carved top and back archtop guitar or an A model mandolin. (Prerequisites: GTRB1441, 1445, & 1450, concurrent enrollment in GTRB 2415, GTRB 2417 & GTRB 2418) (6 Cr: 2 lect, 4 lab)

GTRB2432 Advanced Construction Project
In this course the student will build the guitar they have designed and made templates and molds for in GTRB 2410, 2415, 2417 & 2418. Time management and problem solving will be crucial skills used and developed in this course. (Prerequisites: GTRB 1441, GTRB 1445, GTRB 1450, GTRB 2402, GTRB 2415, GTRB 2417, GTRB 2418; Concurrent enrollment in GTRB 2435) (9 credits: 2 lecture/7 lab)

GTRB2435 Advanced Guitar Finishing
This course covers the use of new technology coatings such as waterborne, two-component and UV conversion finishes. Additional techniques using nitrocellulose lacquer will also be covered. Metallic finishes will also be used for applying gold top and colored metallic finishes. Touch up techniques will be practiced. Final sanding and polishing all types of film finishes will be practiced. Refinishing methods and materials will also be discussed. (Prerequisites: GTRB 1450, GTRB 2415, GTRB 2417, GTRB 2418, GTRB 2425; Concurrent enrollment in GTRB 2432) (3 credits: 1 lecture/2 lab)

GTRB2445 Archtop/Mandolin Construction II
This is the Spring Semester continuation of GTRB2425. (Prerequisites: GTRB2425) (5 credits: 1 lecture/4 lab)

HEAL1701 Practical Nurse 1
This course is conceptually designed to identify and implement basic theoretical principles for the purpose of students to meet the end of program student learning outcomes: nursing judgement/evidence-based care, patient/relationship centered care, safety and teamwork/collaboration. Concepts included in this course prepare students to plan care for patients across the lifespan with a variety of healthcare needs across multiple healthcare settings. Upon completion of this course, students will identify and implement basic theoretical concepts associated with practical nursing skills and clinical judgment for diverse patients across the life span. (7 credits: 7 lecture/0 lab/clinical)

HEAL1702 Practical Nurse 1 Clinical/Lab
This course is conceptually designed to introduce basic theoretical principles for the purpose of students to meet the end of program student learning outcomes: informatics/technology, managing care, nursing judgment/evidence-based care, patient centered care, professional identify/ethical behavior, quality improvement, safety and teamwork/collaboration. Experiences in the nursing laboratory and clinical setting provide students with basic knowledge to demonstrate implementation of the nursing plan of care designed to promote, maintain, and restore optimal health in a caring for patients with chronic stable health care needs. Upon completion, students will apply introductory theoretical concepts to practical nursing skills and clinical judgment for diverse patients throughout the life span. (5 credits: 0 lecture/5 lab/clinical)

HEAL1801 Practical Nurse 2
This course is conceptually designed to integrate complex theoretical principles for the purpose of students to meet the end of program student learning outcomes: managing care, nursing judgment/evidence-based care, professional identity/ethical behavior, and quality improvement. Concepts included in this course prepare students to manage care for patients across the lifespan with a variety of healthcare needs across multiple healthcare settings. Upon completion of this course, students will apply and integrate complex theoretical concepts associated with practical nursing skills and clinical judgment for diverse patients across the life span. (7 credits: 7 lecture/0 lab/clinica\

HEAL1802 Practical Nurse 2 Clinical/Lab
This course is designed to integrate complex theoretical principles for the purpose of students to meet the end of program student learning outcomes: informatics/technology, managing care, nursing judgment/evidence-based care, and patient centered care, professional identity/ethical behavior, quality improvement, safety and teamwork/collaboration in the lab and clinical settings. Experiences in the nursing laboratory and clinical setting provide students advanced knowledge to demonstrate implementation of the nursing plan of care designed to promote, maintain, and restore optimal health for acute and/or chronic patients with basic to complex health care needs in a variety of settings. Upon completion, students will integrate complex theoretical concepts with practical nursing skills and clinical judgment for diverse patients throughout the life span to provide individualized, entry-level practical nursing care. (5 credits: 0 lecture/5 lab)

HIST1108 U.S. History to 1865
HIST 1108 is a history of the political, social, economic, and cultural history of the United States to 1865. This class will discuss the development of the United States and the interactions of different peoples and groups. Even more importantly, this course will offer historical perspectives into the formation of today's society as we discuss how political, social, economic, cultural, and technological changes have impacted both the past and the present. (Meets MnTC Goals 5 & 7). (Prerequisites: none) (3 credits: 3 lecture/0 lab)

HIST1110 U.S. History: 1865 to Present
The objectives for this course will be to give the student a broader and deeper understanding of American history from the end of the Civil War in 1865 to the present day. Even more importantly, this course will offer historical perspectives into the formation of todays society as we discuss how political, social, economic, cultural, and technological changes have impacted both the past and the present. (MnTC goals 5 & 7) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

HIST1228 World Civilization to 1500
HIST1228 is a history of the political, social, economic, and cultural history of the world to 1500 C.E. This class will discuss the development of the world's civilizations and the interactions of different peoples and societies. (Meets MnTC Goals 5 & 8) (Prerequisites: none) (3 credits: 3 lecture/0 lab)

HIST1230 World Civilization: 1500 CE - Present
HIST1230 presents a history of political, social, economic, and cultural history of the world from 1500 to present. This class will discuss the development of the worlds civilizations and the interactions of different peoples and societies. The class will look at how the worlds history has shaped not only our own history but also how the world has moved toward a more interdependent present. (Meets MnTC Goals 5 & 8) (Prerequisites: none) (3 credits: 3 lecture/0 lab)

HIST2525 Minnesota History
This course is a survey of Minnesota's historical development from the pre-Columbian period to the present. It focuses on the historic importance of Minnesota's geography and natural resources, American Indian-white relations, the development of Minnesota's unique political tradition, and the emergence of Minnesota's diverse society and economy. (MnTC Goal 5 & 10) (Prerequisites: None) (3 credits: 3 lecture/0 lab)

HIST2535 History of the American Indian
This course will investigate the inhabitants of continental America before, during, and after the arrival of Europeans. An in-depth analysis of different Indian societies and how they were affected by their environment, social, economic, and political realities of their time. Students will look at their own pre-knowledge of Indian societies and will check it for misconceptions or

generalizations that may or may not be true. Students will also learn to research and investigate historical topics related to American Indians through the use of historical research techniques. (Meets MnTC Goals 5 & 10) (Prerequisties: None) (3 credits: 3 lecture/0 lab)

HLTH1098 Nursing Assistant
This 80-hour, 3 credit course develops skills, attitudes and knowledge essential for direct and supportive care in long-term care facilities. Class meets OBRA requirements and MN Board of Nursing standards. Skills are demonstrated in supervised laboratory setting. This is a prerequisite for incoming PN students. Note: Dependent on which location you choose, the labs will be done at that campus. The 80-hour MN Nursing Assistant class and being placed on the MN Registry does not qualify Nurse Aides to work in WI. (Prerequisites: none) (3 credits: 1 lecture/2 lab)

HLTH1105 Personal Health & Fitness I
This course studies physical fitness, personal nutritional health and stress as they relate to a healthy lifestyle. Through testing and self-assessments, the student's current status is analyzed. The student will then develop a plan that would facilitate a personal healthy lifestyle. The course will introduce a variety of subjects including cardiovascular disease, cancer risk reduction, aging and health, stress management, behavior modification and addictive behaviors. (Prerequisites: none) (1 credit: 1 lecture/0 lab)

HLTH1225 Stress Management
This course will explore the many ways that stress affects us both physically and emotionally. Students will learn to identify personal stressors and learn holistic methods to reduce the impact of stress in their lives. Topics will include stress response, impact of stress, coping and managing, and techniques for relaxation and wellness. Students will learn about awareness, implement relaxation exercises, create personal inventories and design personal plans. (Prerequisite: none) (2 credits: 2 lecture/0 lab)

HUMA1125 Moral Problems
An introduction to ethical principles as applied to the moral issues and challenges individuals encounter in everyday life. Emphasis will be given to the analysis and development of ethical views and decision making. A broad variety of topics will be explored, including personal moral character, medical, religious, racial, and cultural issues. (Fulfills MnTC Goals 6 & 9) (Prerequisite: None) (3 credits: 3 lecture/0 lab)

HUMA1220 Film Studies
The course will serve to introduce the student to the study of film (analysis, comprehension and evaluation), including its history, directorial and production techniques, genres, formal elements, key figures, its relationship with other art forms, and its communication of ideas as they relate to the human condition. (MnTC Goal 6 and 7) (Prerequisite: none) (3 credits: 2 lecture/1 lab)

HUMA1430 Exploring World Cultures
This course provides an overview of various world cultures through aspects such as communication styles, religions, and family relationships. The arts of each selected country will be highlighted and related to their cultural traits and history. Students will learn some basic culture definitions (high/low context, power distance, gender roles) in order to look at their own culture as outsiders, appreciate the differences in other cultures, and gain some perspective on globalization. During the course, students will be encouraged to bring the information into their daily lives through personal experiences, news stories, and discussions. (MnTC Goals 6 and 8) (Prerequisite: none) (3 credits: 3 lecture)

HUMA1435 Multicultural America
In this course students will study, analyze, and discuss literary, cinematic, and other artistic or cultural works about multicultural American experience. Students will have opportunities to explore the historical context in which these works were produced, as well as the literary, cinematic or artistic aspects of their style, theme, language, and structure. (MnTC Goals 6 & 7) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

HUMA1450 World Religions
This course is an introduction to the major world religious traditions and creates a framework for understanding the diverse beliefs found in the modern world. Major religious traditions and their scriptures, practices, and beliefs will be examined, such as: Hinduism, Buddhism, Confucianism, Taoism, Judaism, Islam, and Christianity. Special attention will be paid to how these beliefs impact worldviews and ethics, which subsequently, affect political, social, and economic decision-making. (MnTC Goals 6 & 9) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

INSP1525 Career and Educational Planning
Students will work individually and collaboratively to create a personal career plan for successful college completion: transfer, diploma, or degree. (Prerequisite: None) (1 credit: 1 lecture/0 lab)

MACH1601 Introduction to Precision Machining
This course covers the fundamental elements of basic machine shop theory that would be applied to shop applications. Students taking the course will be able to apply skills learned in the classroom to the lab where they will have hands on experience on basic machine shop equipment. Topics of study include safety, measuring parts to print, proper set up, speeds & feeds, and cutting tool usage. (Prereq: None) (4 Credits: 2 lecture/2 lab)

MACH1605 Engineering Drawings 1
This course covers the fundamentals of basic blueprint reading. The student will learn skills to interpret blueprint and sketches that would be used in industry. Topics of study will be sketching, dimensioning, line interpretation, section views, tolerance, and working drawings. (Prerequisites: None) (2 Credits: 2 lecture/0 lab)

MACH1610 Precision Measuring and Gauging
This course will provide the theory, technique, and care of typical measuring tools used in the Machining profession. Students will learn various measuring techniques used in the manufacture of machined parts. (Prerequisites: None) (2 Credits: 2 lecture)

MACH1615 Precision Machining Processes
This course will familiarize the student with what can be done with both manual machine tools and computer aided machine tools used in the manufacturing process. The student will have hands on experience with manual and computer type machines. Topics of study include setup, operation, and troubleshooting on both machine types. Safety, measuring parts to print, proper set up, speeds & feeds, and cutting tool usage, manual programming of CNC machines will also be covered. (Prerequisites: MACH1601 [or taken concurrently]) (3 Credits: 0 lecture/3 lab)

MACH1625 Engineering Drawings 2
This course covers the fundamentals of intermediate/advanced blueprint reading. The student will learn skills to interpret drawings and sketches that would be used in industry. Topics of study will be sketching, dimensioning, geometric tolerancing, section views, working drawings, and cad styles. (Prerequisites: MACH1605) (2 Credits: 2 lecture/0 lab)

MACH1630 Introduction to CNC Theory
This course will familiarize the student with the theory of CNC machining and set up. Students will write programs and examine programs on the various machines on the shop floor. Students will learn about all facets of programming mills, wire edm, and turning type machine tools. (Prerequisites: MACH1601, MACH1605, MACH1610, MACH1625, MACH1625, CPMT1632, CPMT1640 or equivalent) (3 Credits: 3 lecture/0 lab)

MACH1642 CNC Operations 1
This course will familiarize the student with CNC machining and set up. Students will set up and run programs on a CNC lathe and a CNC mill. (Prerequisite: None) (2 Credits: 0 lecture/2 lab)

MACH1643 CNC Operations 2
This course will familiarize the student with CNC machining and set up. Students will write programs and run programs on the various machines on the shop floor. (Prerequisite: None)(2 Credits: 0 lecture/2 lab)

MACH1650 Introduction to EDM
This course will familiarize the student with operating Electrical Discharge Machining. Both sinker and wire type EDM machines will be covered in the course. (Prerequisites: MACH1601, MACH1605, MACH1610, MACH1615 or equivalent) (2 Credits: 1 lecture/1 lab)

MACH1662 Introduction to CAD/CAM + 3D Printing
This course will familiarize the student with computer aided drafting, computer aided machining and 3D printing. Students will learn the design drafting process of the CAD computer program. Students will learn the Computer Aided Machining (CAM) process of the software to produce Machining Tool paths and to write G-code programs. Students will learn how to import CAD models into 3D printing slicing software and how to print the model. This course can be taken as an elective to other programs, or as a mid-year start for the CNC Machine Tool program. (Prerequisite: none) (3 Credits: 2 lecture/1 lab)

MACH2633 CNC Precision Machining Mill
This course will focus on CNC Machining Center operations used to support metal stamping die making, injection mold making, & Production Machining projects. Each student will manufacture several example parts in this course. The student will be responsible for the programming, machine set-up, machining, production & inspection. The finished project must produce an accurate part according to the print tolerances. (Prerequisites: CMAE1510, MACH1601, MACH1610, MACH1615, MACH1625, MACH1630, MACH1642, MACH1643, MACH1650, and MACH1661 or MACH 1662 or equivalent. (4 Credits: 1 lecture/3

MACH2635 CNC Precision Machining Lathe
This course will focus on CNC Lathe operations used to support manufacturing and tool making. Each student will manufacture several project parts from a lathe in this course. The student will be responsible for the proper set-up and operation of the Lathe and all cutting tools. The finished project must produce an accurate part according to the Tolerances applied in the part print. The student will inspect their own parts, and submit the part and the inspection report to the Instructor. (Prerequisites: MACH1601, MACH1605 or CMAE1510, MACH1610, MACH1615, MACH1625, MACH1630, MACH1642, MACH1643, MACH1650, and MACH1661 or MACH1662 or equivalent) (4 Credits: 1 lecture/3 lab)

MACH2637 CAM Programming and Toolmaking Application I
This course will familiarize the student with the manufacturing of individual parts, and Tooling components using Precision Manual Machining, CNC Lathe, CNC Mill, & EDM Set-up and Operation. The Instructor will give each student several Machining Projects. Each student will manufacture the components to specifications, and complete inspection reports on all components. (Prerequisites: MACH1601, MACH1605 or CMAE1510, MACH1610, MACH1615, MACH1625, MACH1630, MACH1642, MACH1643, MACH1650, & MACH1661 or MACH1662 or equivalent) (3 Credits: 1 lecture/2 lab)

MACH2639 CAM Programming and Toolmaking Application 2
This course will provide: This course will familiarize the student with the manufacturing methods using CNC machines to support manufacturing processes and Tool Making. The Instructor will give each student a design for a special project, or multiple projects. Each student will manufacture the project components to specifications, and complete inspection reports on all components.(Prerequisites: MACH1601, MACH1605 or CMAE1510, MACH1610, MACH1615, MACH1625, MACH1630, MACH1642, MACH1643 MACH1650, MACH1661 or MACH1662, MACH2633, MACH2635, MACH2637, & MACH2660, or equivalent) (3 Credits: 0 lecture/3 lab)

MACH2640 CNC Precision Machining Capstone
This capstone project represents an opportunity for students to explore, in detail, a particular Machining topic of interest to them. It is designed to be an original, creative investigation leading to new insights, conclusions, skill enhancement, and demonstrate the student's skill development. It also serves to provide experience in designing a project, carrying out such an investigation, and presenting a formal technical report describing the processes and results. ¿ Students will write a Capstone Summary Report that includes a Power Point slide show, Design prints, Process Plan, Set-up procedures, and CNC Programming details, supported by Digital pictures. ¿ The student is required to present the finished project to a Review committee. The presentation will include the Written Report, the Project work piece display, and a Power Point slide show. (Prerequisites: MACH1601, MACH1605 or CMAE1510, MACH1610, MACH1615, MACH1630, MACH1642, MACH1643, MACH1650, MACH1661 or MACH1662, MACH2633, MACH2635, MACH2637 and MACH2660 or equivalent) (5 Credits: 1 lecture/4 lab)

MACH2642 CNC Precision Machining Application
This course will focus on CNC Machining using all Computer Numerical Control Machines available in the shop, including Electrical Discharge Machines, Mills, and Lathes. Presentation & Lecture time will discuss Work holding & Fixture theory, and Methods of writing CNC programs. The student will be responsible for the programming, set-up and safe operation of all machines. Projects will be assigned by the Instructor for each

type of machining. (Prerequisites: MACH1601, MACH1605 or CMAE1510, MACH1610, MACH1615, MACH1625, MACH1630, MACH1642, MACH1643, MACH1650, MACH1661 or MACH1662, MACH2633, MACH2635, MACH2637 or equivalent) (4 C/ 1 pres/lect, 3 lab, 0 other)

MACH2660 Advanced CAD/CAM I
This course will familiarize the student with advanced computer aided drafting and computer aided machining in support of Manufacturing and Tool Making using CNC Mills, CNC Lathes, and EDM machines. Students will design, and manufacture projects using the Master CAM software computer program to communicate with Computer Numerical Control machine tools. Students will work with Surface Tool paths in 2D, and 3D-solid geometry types. (Prerequisites: CMAE1510, MACH1601, MACH1610, MACH1615, MACH1630, MACH1642, MACH1643, MACH1650 & MACH1662 or equivalent) (3 Credits: 2 lecture/1 lab)

MATH511 Pre-Special Topics Math
This course covers U.S. Customary Measurements and Metric measurements; real numbers and variable expressions; first degree equations and inequalities; the rectangular coordinate graphing system; and solving literal equations. Related practical application problems will be introduced. This course is developmental and not intended for transfer. (No prerequisites or Accuplacer testing required for entry into course.) (2 credits: 2 lecture/0 lab)

MATH522 Pre-College Math - 2 credit
This course covers real numbers, variable expressions, general and literal equations, solve and graph linear equations in two variables, graph and evaluate functions, sets, solving and graphing inequalities and solving systems of equations. Related practical application problems are explored. (Prerequisite: Math Level 2 Placement) (2 credits: 2 lecture/0 lab)

MATH533 Pre-College Math - 3 credit
This course covers real numbers, variable expressions, general and literal equations, solve and graph linear equations in two variables, graph and evaluate functions, sets, solving and graphing inequalities and solving systems of equations. Related practical application problems are explored. (Prerequisites: Pre-Math Level 3 Placement) (3 credits: 3 lecture/0 lab)

MATH544 Pre-College Math - 4 credit
This course covers real numbers, variable expressions, general and literal equations, solve and graph linear equations in two variables, graph and evaluate functions, sets, solving and graphing inequalities and solving systems of equations. Related practical application problems are explored. (4 credits: 4 lecture/0 lab)

MATH1015 Geometry
This course presents algebra, geometry and trigonometry concepts. In addition, related practical application problems will be introduced. This course is not intended for transfer but satisfies the diploma level option. (Prerequisite: Pre-College Math and FYEX1000 or Elementary Algebra Accuplacer Score of 86 or Higher) (2 credits: 2lecture/0 lab)

MATH1020 Special Topics in Mathematics
This course covers measurement systems, English and metric conversions, general and literal equations, applications involving equations, personal finance applications, and fundamental concepts of statistics and probability. Related practical application problems are explored. This course will satisfy diploma level option. (Prerequisites: MAT0511 Pre-Special Topics and FYEX1000 or Math Level 2 Placement) (2 credits: 2 lecture/0 lab)

MATH1025 Algebra
This course covers inequalities, rational expressions, exponents and radicals. Students develop skills in the solution of absolute value, quadratic and radical equations. Graphing and evaluation of functions are also covered. This course is not intended for transfer. This is a diploma level course. (Prerequisite: Pre- College Math or Math Level 1 Placement) (2 credits: 2 lecture/0 lab)

MATH1220 College Algebra
This course covers functions, graphs, exponents and logarithms, inequalities, application problems, matrices and determinants, sequences and series, and the binomial theorem. (Fulfills MnTC Goal 4) (Prerequisite: MATH1025 Algebra or Algebra College Level Placement) (3 credits: 3 lecture/0 lab)

MATH1225 Pre-Calculus
Pre-calculus is designed to increase students' knowledge about mathematical and logical modes of thinking and will provide students the skills necessary for the successful completion of calculus. Topics include polymonials and rational functions; exponential and logarithmic functions; trigonometric functions of real numbers and angles; analytical trigonometry; polar coordinates and vectors; and sequences and series. Pre-calculus is a Minnesota Transfer Level Course. (Meets MnTC Goal 4) (Prerequisite: MATH1025 Algebra or Algebra College Level Placement) (3 credits: 3 lecture/0 lab)

MATH1230 Introduction to Statistics
This course emphasizes the concepts and methods of statistics. Statistics is the study of how to collect, organize, analyze, and interpret numerical information from data. Statistical methods will be presented with a focus on understanding both the suitability of the method and the meaning of the result. Statistical methods and measurements will be studied in the context of a broad range of practical applications that require decision making. (MnTC Goal 4) (Prerequisite: MATH1025 or MATH1020 or MATH1015 or Algebra College Level Placement or Statistics College Level Placement) (3 credits: 3 lecture/0 lab)

MATH2440 Calculus I
Differential and integral calculus of functions of a single variable. (Meets MnTC Goal 4) (Prerequisite: MATH 1225 Pre-Calculus or MATH1220 College Algebra) (4 credits: 4 lecture/0 lab)

MCOM1100 Introduction to Mass Communications
This introductory course in mass communication offers students an exploration of the multifaceted world of media and its impact on society. Through a combination of theory, historical context, and hands-on analysis, students will develop a comprehensive understanding of the role of mass communication in the modern world. (Meets MnTC Goal 5 and Goal 9) (Prerequisite: None) (3 credits: 3 lecture/0 lab)

MDAD1204 Autocad
AutoCAD is the most common computer aided drafting software. This course will cover AutoCAD functions as used in engineering drawing. Basic and advanced commands will be used to complete assignments. An introduction to 3-D CAD will be included. (Prerequisite: none) (3 credits: 1 lecture/2 lab)

MDAD1206 Geometric Tolerances
This course covers the application and implementation of Geometric Tolerancing ASME Y14.5M-1994. Topics include: fundamentals, form, orientation, runout, datums, location, and position tolerances. The course will follow the text. (Prerequisite: MDAD1250 or instructor approval) (3 credits: 3 lecture/0 lab)

MDAD1216 Mechanisms
This course is an exploration of the inner workings of machines, namely mechanisms. This includes cams, linkages, belt and chain drives, gears, bearings and speed reducers. Also included will be a section on fluid power. (Prerequisites: MDAD1204 and MDAD1250, or MDAD1241 and MDAD1250, or MDAD1250 and MDAD1252) (Concurrent: MDAD 1241 if not already taken) (3 credits: 1 lecture/2 lab)

MDAD1241 Solidworks
This course covers the fundamentals of Solidworks parametric drawing and design. The student will use Solidworks to create 3D parametric models as well as use these models to create engineering drawings and documentation. (Prerequisite: none) (3 credits: 1 lecture/2 lab)

MDAD1250 Print Reading for CAD Design
This is essentially a blueprint reading course that focuses on drafting essentials. Content will include 2d view projection, line types, dimensions, tolerances, sections, auxiliary views, and all the other basics required to understand a basic engineering drawing. This course lays the building blocks for the remainder of the Drafting and Design courses. Special Note: The student will be required to either scan and send in assignment sheets or send them through the mail to arrive on or prior to the posted due dates. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

MDAD1251 Manufacturing Processes for CAD Design
This course covers manufacturing methods and materials. It includes plastics, steels, machining, casting, molding, material selections, etc. This course also covers material handling, JIT, inventory reductions, etc. Attention will be given to understanding the characteristics of manufacturing processes and systems. This will help the student in fitting into today's and tomorrow's manufacturing climate. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

MDAD1252 Working Drawings 1 for CAD Design
This course will provide the student with a solid understanding of what is required of industrial technical drawings. This course covers assemblies, sectioning, machine parts, tolerancing, sheet metal developments, fasteners, and weldments. Special note: The student is required to purchase a student version of Solidworks, Inventor, or equivalent 3d software. (Prerequisites: MDAD1204 and MDAD1250, or MDAD1241 and MDAD1250, or MDAD1255 and MDAD1250.) Concurrent enrollment in MDAD1241 Solidworks is required if Solidworks has not been completed.) (3 credits: 3 lecture/0 lab)

MDAD1253 Working Drawings 2 for CAD Design
The course will provide the student with a more advanced understanding of what is required of mechanical technical drawings. It is a project related course that will enhance skills gained in Working Drawings I. The projects will be diverse ranging from tool drawings to production assemblies. Special note: The student is required to purchase a student version of Solidworks, Inventor, or equivalent 3 d software. (Prerequisites: MDAD1252) (3 credits: 3 lecture/0 lab)

MDAD1254 Mold Design for CAD Design
The course will provide the student with a basic knowledge of mold design. This course covers the use of 3d parametric software to create plastic injection molds. The student will create two molds. Special note: The student is required to purchase a student version of Solidworks, Inventor, or equivalent 3d software. (Prerequisites: MDAD1252) (3 credits: 3 credits/0 lab)

MDAD1255 CAD Drawing Using Free Software
This course will cover CAD functions used by professionals, as well as those with no experience, in the CAD drafting field. Using a hands-on approach with scanned photos, students will recreate them in a 3D environment using Google Sketchup or similar free software available from the internet. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

MDAD1256 Design Project 1 for CAD Design
This course is a design class that will focus on the design process. The student will gain confidence in his or her ability to apply sound product design parameters based on design considerations. A holistic approach will be used to incorporate the many functions of a designer in a company. The content goals of the course will change with the individual student's design. The course can be taken in conjunction with Design Project II or alone. (Prerequisite: MDAD1253) (3 credits: 3 lecture/0 lab

MDAD1257 Design Project 2 for CAD Design
This course is a design class that will focus on the design process. It can be an extension of Design Project I or it can be taken as a separate Design Project class. The student will gain confidence in his or her ability to apply sound product design paraments based on design considerations. A holistic approach will be used to incorporate the many functions of a designer in a company. The content goals of the course will change with the individual student's design. (Prerequisites: MDAD1253) (3 credits: 3 lecture/0 lab)

MECH1000 Intro to Mechatronics
In this course, students will learn of the varying skills a Mechatronic Technician will utilize across multiple sectors of Industry. Students will be provided with several broad industry overviews, research local companies, discuss and discover day to day operations, and then compare and contrast those ideas after a tour. The course is focused on exploring less advertised company positions in the maintenance sector, preparing for interviews, creating a resume, and becoming comfortable with the interview process. (Prerequisite: None) (1 Credit: 0 Lec/1 lab)

MECH1010 Problem Solving
In this course, students will learn how a well-rounded Mechatronics Technician is able to solve a wide variety of manufacturing problems using a combination of today¿s classroom learning, critical listening, and what to look for in tomorrows on the job training. This course is only the start of a lifelong learning process and the basis for information retention where we will discover the basic needs to become an effective manufacturing problem solver. The course covers a variety of soft skills, industrial maintenance applications, and standardized problem-solving techniques found within industry. (Prerequisite: none) (3 Credits: 3 lecture/0 lab)

MECH1202 DC Electricity
This course covers the general information, theory, and problem-solving techniques required for an analysis of DC circuits with emphasis on taking meter measurements, current flow, voltage division, and troubleshooting failed parts. (Prerequisite: None) (2 Credits: 1 lecture/1 lab)

MECH1204 AC Electricity
In this course, students will gain general information, theory, and problem-solving techniques required for an analysis of AC circuits with an explicit focus on how AC functions within Industry. Topics include: AC waveforms, oscilloscope operation, meter measurements, AC vs. DC comparisons, 3 phase electricity for delta and wye circuits, step-up and step-down transformers as well as their specific application. (Prerequisite or Concurrent: MECH 1202) (2 Credits: 1 lecture/1 lab)

MECH1212 Digital Electronics
In this course, students will learn what a digital circuit is and how digital circuits are used in electronic equipment. This course will focus on the digital aspects within a PLC including necessary number systems, conversions, Boolean equations, gates, bits, bytes, and words. (Prerequisite: None) (1 Credit: 1 Lec/0 Lab)

MECH1610 Basic Industrial Controls
This course introduces students to industrial control components and systems. Digital industrial electrical devices such as switches, sensors, relays and motor starters are used in hands on labs. 3Ø motors and Variable Frequency Drives (VFDs) are also covered. Ladder diagrams will be a focus of this course and students will use equipment manuals and diagrams to build industrial electrical circuits. Students will also be introduced to residential electrical wiring. Prerequisite: None) (Corequisite: MECH1202) (3 Credits: 1 lecture/2 lab)

MECH1620 Programmable Controllers
This course covers the operation of Programmable Logic Controllers (PLC). The hardware and software aspects of the PLC will be explored. Basic communication between the PC, PLC and Human Machine Interface (HMI) will be covered. Ladder logic instructions including; bit instructions, timers, counters, bit shifting, and sequencer instructions will be covered. Additionally, discrete and modular I/O integration will be applied to basic programs. HMI development and basic HMI applications will be developed and demonstrated. (Prerequisite: MECH1610 Basic Industrial Controls) (3 Credits: 1 lecture/2 lab)

MECH1700 Mechanical Power Transmission
This course will introduce students to various types of mechanical power transmission systems. As the student is introduced to the various systems, they will study the design, operation and maintenance of these systems. The students will perform labs that will demonstrate their ability to install and troubleshoot mechanical transmission systems including belts, gears, shafts and couplings. Motor mounting and alignment including the alignment of system components are an emphasis of this course. (2 Credits: 1 lecture/1 lab)

MECH1710 Fluid Power
This course introduces students to industrial fluid power. Students will complete labs where they identify and utilize basic components. Students will assemble and troubleshoot fluid power systems up to and including electrical control. (2 Credits: 1 lecture/1 lab)

MECH1710 Introduction to Hydraulics & Pneumatics
This course introduces students to industrial hydraulic and pneumatic systems. Students will complete labs where they identify and utilize basic components. Students will assemble and troubleshoot fluid power systems up to and including electrical control. (2 Credits: 1 lecture/1 lab)

MECH1720 Machining for Maintenance
This course covers the fundamental elements of basic machine shop theory that would be applied to shop applications. Students taking the course will be able to apply skills learned in the classroom to the lab where they will have hands on experience on basic machine shop equipment. Topics of study include safety, measuring parts to print, proper set up, speeds & feeds, and cutting tool usage. (Prereq: None) (3 Credits: 1 lecture/2 lab)

MECH1730 Robotics
This course is designed to present the fundamentals of robotics development as a systems engineering problem. Teams will work together to develop robotic solutions to a given application. Requirements development, hardware/software design, device programming, system maintenance/diagnostics, and electro-mechanical applications will be explored. By the end of the class, students will have built a functional robot. (Prerequisites: none) (3 credits: 2 lecture/1 lab)

MECH1800 Mechatronics Capstone
Students will devise capstone projects integrating their coursework in electronics, programming, automation, robotics, and system integration. Projects will be vetted through their academic advisor and will be presented to the class at the end of the semester. The course will require specification of design requirements, outline integration of technical solutions, and map how the project relates to both industry and their program curriculum. Prerequisites: MECH1640 and MECH1720 (3 credits: 1 lecture, 2 lab)

MECH2020 Mechatronic Graphics and Design
This course covers the fundamentals of the engineering design process, and visualization and design communication. Students will use SolidWorks to create engineering drawings, and documentation, sectional views, auxiliary views, dimensioning, tolerancing, and reading of drawings. (Prerequisite: none) (2 Credits: 1 lecture/1 lab)

MECH2630 Advanced PLC Programming
This course introduces students to Studio 5000 software and Controllers. Students will utilize tag based programming to create ladder logic program for industrial programming. Function block programming and structured text programming will also be introduced and applied. (Prerequisite: MECH1620) (3 Credits: 2 lecture/1 lab)

MECH2631 Motors & Drives
This course adds to student's knowledge of motors and motor control systems. VFDs will be introduced and applied for control of a three-phase motor. Positioning systems using both stepper and servo drives are explored. Application of industrial equipment is emphasized, and students are required to use and interpret equipment manuals to control and integrate the equipment. Control of DC and single-phase motors are also introduced. (Prerequisite: MECH1610) (3 Credits: 2 lecture/1 lab)

MECH2632 Process Control Systems
This course introduces students to the concept of automatic process control on the technician level. Students will be introduced to controller functions and effects such as proportional, integral and derivative and how different combinations of each cause controller outputs and inputs to respond in open and closed loops. Practices digital controller configuration and loop tuning for level, pressure, flow, and temperature. (Prerequisite: MECH1620) (Corequisite: MECH2630) (3 Credits: 2 lecture/1 lab)

MECH2640 Integrated Industrial Systems
This course introduces students to integrated industrial control components and systems. Students will utilize a PLC to control multiple machine control systems. Starting with that plc the student will add modular IO and remote IO for field devices. Adding a HMI Students will simulate a machine system that also includes a VFD and servo drive. With all of these devices in the same system the student will develop an understanding of machine control structures, addressing and control. (Corequisite: MECH2630) (Prerequisite: None) (3 Credits: 2 lecture/1 lab)

MECH2730 Robotics
This course is designed to present the fundamentals of robotics. Students will develop skills in basic programming techniques beginning with the pendent and jogging motions. The course will then move on to pendant utilization, motion types and program manipulation. We will then utilize IO applications to produce basic Material handling programs. We will then manipulate those programs by saving them, editing them, deleting them and modifying them. Frames offsets and other IO topics will be addressed. We will utilize Industrial robots from multiple manufacturers in this course. (Prerequisites: none) (Corequisite: MECH2630) (3 credits: 2 lecture/1 lab)

MECH2800 Mechatronics Capstone
Students will devise capstone projects integrating their coursework in electronics, programming, automation, robotics, and system integration. Projects will be vetted through their academic advisor and will be presented to the class and advisory committee at the end of the semester. The course will require specification of design requirements, outline integration of technical solutions, and map how the project relates to both industry and their program curriculum. (Prerequisites: MECH1700, MECH1710, MECH1720, MECH2630, MECH2631, and MECH2632) (Corequisite: MECH2640) (3 credits: 1 lecture, 2 lab)

MEDS1210 Medical Terminology This course covers word analysis by the study of word roots, prefixes, suffixes, and abbreviations common to the medical profession. Comprehension is expected concerning combining word parts, recognizing the meaning of the new term, understanding and writing anatomical, diagnostic, radiologic, surgical, and therapeutic terms. (Prerequisite: None) (4 credits: 4 lecture/0 lab)

NURS1400 Nursing Fundamentals and Community Health
This course will provide the student an introduction to nursing and roles of the nurse in various community health care settings. Emphasis is placed on the knowledge and skills needed to provide safe, quality, patient-centered care. The student is provided the opportunity to practice assessment skills and demonstrate nursing skills for populations across the lifespan in selected community settings. Adherence to ethical and legal standards in promoting a patient's physical, cognitive, and mental health is emphasized. Concepts of patient education are introduced and an introduction to the nursing process provides a decision-making framework to assist students in developing effective clinical judgment skills. (4 credits: 3 lecture/1 lab)

NURS1410 Nursing Fundamentals Skills Lab
This course will provide the student the theoretical foundation for fundamental nursing skills related to patient care and medication administration. Students have the opportunity to practice select skills within the RN scope of practice in the lab setting. Patient-centered care, safety, and evidence-based practice are the framework for the application of nursing and medication administration skills. Documentation related to select skills is emphasized. (2 credits: 0 lecture/2 lab)

NURS1420 Pharmacology in Nursing
This course will provide the student the opportunity to examine pharmacotherapeutic agents, including homeopathic and complementary therapies, used in the treatment of illness and the promotion, maintenance, and restoration of wellness in diverse individuals. It focuses on drug classification, concepts, and principles of pharmacology, with special consideration for the nursing role in developing a comprehensive approach to the clinical application of drug therapy through the use of the nursing process. Nursing implications relative to the utilization of drug therapy are examined. Safety, ethical, legal implications of drug administration are discussed. (3 credits: 3 lecture/0 lab)

NURS1430 Transition to the Professional Nurse Role
This course will provide the Licensed Practical Nurse (LPN) student with concepts regarding transition to the professional Registered Nurse (RN) role. Theories and practices related to quality, safety, and evidence-based patient-centered care will be emphasized. The LPN will develop professional identity as an RN by expanding nursing knowledge and skills while promoting health and wellness across the lifespan. Concepts of patient education are introduced and an introduction to the nursing process provides a decision-making framework to assist students in developing effective clinical judgment skills. Lab experiences will include nursing skills, medication administration, and documentation. (4 credits: 3 lecture/1 lab)

NURS1440 Medical/Surgical Nursing I
This course will provide the student focus on the care of adult clients with health alterations that require medical and/or surgical intervention. Concepts of patient-centered care, cultural sensitivity, informatics, safe practice, priority-setting, and professionalism are integrated throughout the course. Clinical experiences provide the student an opportunity to apply theoretical concepts and implement collaborative, safe patient care to adults in a variety of settings. Emphasis is also placed on the management of patients facing emotional and psychological stressors, as well as the promotion and maintenance of the mental health of individuals and families. (5 credits: 3 lecture/2 lab)

NURS1450 Med/Surg Skills Lab
This course will provide the student the theoretical foundation for advanced nursing skills related to patient care and medication administration. Students have the opportunity to practice select skills within the RN scope of practice in the lab setting. Patient-centered care, safety, and evidence-based practice are the framework for the application of nursing and medication administration skills. Documentation related to select skills is emphasized. Prerequisites: NURS 1400, NURS 1410, and NURS 1420, NURS 1460, and NURS 1430 for LPNs. (1 credits: 0 lecture/1lab)

NURS1460 Health Assessment
This course will provide the student the framework for preparing students to perform a holistic comprehensive health assessment on clients across the lifespan. Emphasis is placed on taking a thorough nursing history, performing physiological, developmental, psychological, sociological, cultural, and spiritual assessments, as well as identifying stressors and health risks. Students are provided the opportunity to document subjective findings from the health history as well as objective assessment findings. Laboratory experiences provide an opportunity to practice assessment skills. Prerequisites: BIOL1200 OR BIOL2515 (1 credit: 0 lecture/1 lab)

NURS2400 Medical/Surgical Nursing II
This course will provide the student to continue to build on Medical/Surgical Nursing I with a focus on patients experiencing more complex medical/surgical health alterations that require medical and/or surgical intervention. Concepts of evidence-based practice, informatics, priority-setting, clinical judgment, quality improvement, and teamwork and collaboration will be emphasized throughout the course. Clinical experiences provide the student an opportunity to apply theoretical concepts and implement safe, patient-centered care to patients in a variety of settings. Emphasis is also placed on the management of patients facing emotional and psychological stressors, as well as the promotion and maintenance of the mental health of individuals and families. Prerequisites: NURS1400, NURS1410, NURS1420, NURS1460, NURS1440, NURS1450, NURS2410, AND NURS1430 if LPN, BIOL 1226, COMM 1228 (5 credits: 2.5 lecture/2.5 lab)

NURS2410 Family Nursing
This course will provide the student an integrative, family-centered approach to the care of mothers, newborns, and children. Emphasis is placed on normal and abnormal conditions of pregnancy, normal growth and development, family structure and function, family dynamics, health and illness states of children, and the promotion of safe, healthy behaviors in the growing family. Clinical experiences provide the student an opportunity to apply theoretical concepts and implement collaborative, safe patient care to mothers, newborns, and children in select settings. Emphasis is also placed on the management of growing families facing emotional and psychological stressors, as well as the promotion and maintenance of the mental health of individuals and families. Prerequisites: NURS1400, NURS1410, NURS1420, NURS1460, and NURS1430 if LPN (3 credits: 2 lecture/1 lab)

NURS2420 Complex Care and Leadership Concepts
This course will provide the student transition of the student to the role of the professional registered nurse is a focus of this course. The course also builds on Medical/Surgical II with a focus on patients experiencing complex, multisystem alterations in health that require integration of medical/surgical concepts of nursing care. Emphasis is placed on implementing time management and organizational skills, while managing the care of patients with multiple needs and collaborating with the interprofessional team. Complex clinical skills, as well as priority setting, clinical judgment, and legal and ethical practice, are integrated throughout the course. Emphasis is also placed on the management of patients facing emotional and psychological stressors, as well as the promotion and maintenance of the mental health of individuals and families. Contemporary issues and management concepts are a focus, as well as the development of the skills of delegation, conflict management, and leadership. Healthcare policy, standards of practice, legal issues, and ethical issues are analyzed, with a focus on personal accountability and responsibility in relation to state regulations. Prerequisites: NURS1400, NURS1410, NURS1420, NURS1440, NURS1450, NURS1460, NURS2410, and NURS1430 if LPN (5 credits: 2.5 lecture/2.5 lab)

NWAT1601 Windows Workstation I
This course will explore the MS workstation networking client. The students will learn how to plan, install and configure a MS workstation in a single and multi-domain environment. Emphasis will be placed on the managing, monitoring and optimizing of network resources. Basic troubleshooting techniques will be discussed as it relates to the Microsoft networking environment. The use of diagnostic and monitoring software will be emphasized. (Prerequisite: None) (2 credits: 1 lecture/1 lab)

NWAT1602 Windows Workstation II
This course will explore the Microsoft Workstation desktop operating system environment. Students will learn how to plan, install, and configure a Microsoft workstation in a standalone and domain environment. Various system management topics will be discussed including system utilities, managing disks, file systems, users, and security. Troubleshooting techniques will be discussed as they relate to Microsoft networking environment. (Prerequisite: NWAT1601) (1 credits: 1 lecture/0 lab)

NWAT1607 IT Fundamentals
Students will learn how to install, configure, and troubleshoot PC computer equipment, mobile devices, and various peripherals. A variety of hardware, software, and cybersecurity methods will be covered such as taking a computer apart, motherboards, processors, memory, power, storage devices, I/O devices, introduction to networks, supporting mobile devices, virtualization, cloud computing, and customer support. This curriculum is aligned with CompTIA A+ industry certification and students will be prepared to take the exam upon completion of this course. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

NWAT1641 Networking Fundamentals
This course will provide students with the technical skills necessary to securely establish, maintain, and troubleshoot networks that businesses rely on. Students will gain experience with networking fundamentals, network implementations, network operations, network security, and network troubleshooting. This curriculum is aligned with CompTIA Network+ industry certification and students will be prepared to take the exam upon completion of this course. (Prereq: None) (3 credits: 2 lect/1 lab)

NWAT1649 Windows Server I
This course will provide students with an introduction to the Microsoft Windows Server operating system and basic administration tasks. Students will gain experience with key features including active directory, creating and managing user accounts, printing, installing a network operating system, performance monitoring, and backups. (Prerequisite: NWAT1601, NWAT1602) (3 credits: 2 lecture/1 lab)

NWAT1650 Cybersecurity Fundamentals
This course will provide students with a basic understanding of cybersecurity fundamentals. Students will gain experience with attacks, threats, vulnerabilities, architecture, design, implementation, operations, incident response, and risk compliance. This curriculum is aligned with CompTIA Security+ industry certification and students will be prepared to take the exam upon completion of this course. (Prereq: None)(3 credits:2 lecture/1 lab)

NWAT1800 Scripting Fundamentals
This course will provide students with the basic ability to create simple scripts and programs to automate and perform simple operations, and to provide students with the skills necessary to implement algorithms using programming languages to solve problems. This includes basic security practices in developing scripts and programs. (Prerequisite: NWAT1649) (3 credits: 2 lecture/1 lab)

NWAT2100 Cisco Networking I
Begin preparing for a networking career with this introduction to how networks operate. This course introduces network architectures, models, protocols, and networking elements. You get a chance to build a simple local area network (LAN), develop a working knowledge of IP addressing schemes, foundational network security, and you will perform basic configurations for routers and switches. This is one of three CCNA courses that will help you prepare for the Cisco CCNA certification. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

NWAT2110 Cloud Computing
This course introduces students to the skills they need to deploy and automate secure cloud environments that support the high availability of business systems and data. You will learn important concepts including cloud architecture & design, cloud security, cloud deployment, operations & support, and troubleshooting. This curriculum is aligned with CompTIA Cloud+ industry certification and helps students prepare for the exam upon completion of this course. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

NWAT2120 Network Security I
This foundational course provides an overview of the cybersecurity field and explores the characteristics of and tactics used by cyber criminals. It then delves into the technologies, products, and procedures cybersecurity professionals use to combat cybercrime. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

NWAT2125 Server Virtualization
This course introduces students to the skills they need to deploy and manage virtual server environments that can be used to create IT environments that are flexible, scalable, and highly available to support the needs of today's business systems. Students will get hands on experience with various server virtualization products including VMware and Microsoft Hyper-V. (Prerequisite: NWAT1649) (3 credits: 2 lecture/1 lab)

NWAT2200 Cisco Networking II
This course is the second course in the CCNA curriculum and focuses on switching technologies and router operations that support small to medium sized business networks. It includes wireless local area networks and security concepts. Students learn key switching and routing concepts. They can perform basic network configuration and troubleshooting, identify and mitigate LAN security threats, and configure a secure and basic WLAN. (Prerequisite: NWAT2100) (3 credits: 2 lecture/1 lab)

NWAT2300 Cisco Networking III
This course is the third course in the CCNA curriculum. This course describes the architectures and considerations related to designing, securing, operating, and troubleshooting enterprise networks. This course covers wide area network (WAN) technologies and quality of service (QoS) mechanisms used for secure remote access. It also introduces software-defined networking, virtualization, and automation concepts that support the digitalization of networks. Students gain skills to configure and troubleshoot enterprise networks and learn to identify and protect against cybersecurity threats. They are introduced to network management tools and learn key concepts of software-defined networking, including controller-based architectures and how application programming interfaces (APIs) enable network automation. (Prerequisite: NWAT2200) (3 credits: 2 lecture/1 lab)

NWAT2669 Windows Server II
This course prepares students for more advanced Microsoft Windows Server operating system administration experience. Students will gain experience with key features including advanced TCP/IP configuration, DNS, DHCP, remote access, network policies, and other advanced networking solutions. (Prerequisites: NWAT1649) (3 credits: 2 lecture/1 lab)

NWAT2673 Linux Operating Systems
This course will provide students with an introduction to the Linux operating system and basic administration tasks so they can manage everything from cars and smartphones to servers and supercomputers as a vast number of everyday technology runs on the Linux operating system. Students will gain experience with key features including hardware & software configuration, system operation & maintenance, security, troubleshooting, and automation. This course aligns with CompTIA Linux+ industry certification and will help prepare students to take the exam after completing the course. (Prerequisites: NWAT1601, NWAT1602) (3 credits: 2 lecture/1 lab)

NWAT2676 Wireless Communications
This course provides a survey of techniques and procedures followed in the development of business computer information systems. Topics include structured approaches to needs assessment, specification, design, system development, documentation development and implementation of new systems. Students will be introduced to various CASE tools and their uses in system analysis and design. The student will use these tools to plan and create systems based on different network scenarios. (Prerequisites: NWAT1641, NWAT1649) (3 credits: 2 lecture/1 lab)

NWAT2683 Security Threats & Countermeasures
Students will gain knowledge and skills to protect networks using the tools and techniques of an ethical hacker. This course will examine new security resources, emerging vulnerabilities, innovative methods to protect networks, and mobile security.(Prerequisites: NWAT1650) (3 credits: 2 lecture/1 lab)

NWAT2684 Windows Server & Desktop Security
This course prepares students to manage a Microsoft Windows network in the enterprise. Students will gain experience with key features including Active Directory, configuring group policies, domain controllers, certificate services, and other advanced active directory concepts. (Prerequisites: NWAT1649) (3 credits: 2 lecture/1 lab)

NWAT2689 Computer Forensic Investigation
This course introduces students to the digital forensics field. Students will learn about the tools, standards, and best practices used by law enforcement, system administrators, and others who routinely perform digital forensic investigations. (Prerequisites: None) (3 credits: 2 lecture/1 lab)

NWAT2692 Electronic Devices Forensics
The Electronic Devices Forensics course provides an introduction to mobile device forensics including practical approaches

and best practices involved in performing mobile forensics. Students will examine the internals of popular mobile devices including their operating systems, hardware, and security concepts. Students will gain an understanding of the tools available to perform mobile forensic tasks including data acquisitions, data recovery, and industry best practices. (Prerequisites: NWAT1601, NWAT1602, NWAT1641, NWAT1649, NWAT2681, and NWAT2689) (3 credits: 3 lecture/0 lab)

NWAT2900 Cybersecurity Operations
This course provides students with skills to develop practical, relevant, and job-ready knowledge and skills required of cybersecurity analysts employed in a Security Operations Center (SOC). In this course, candidates will learn how to detect and respond to security threats using the latest technology. This course aligns to the CCNA CyberOps certification which demonstrates that the student has the skills and knowledge needed to begin a career in cybersecurity operations, addressing cybersecurity threats that enterprises are faced with on a daily basis. (Prerequisite: NWAT2220) (3 credits: 2 lecture/1 lab)

NWAT2950 Network & Server Administration Capstone
This course provides students with skills that will prepare them for a rewarding career in the IT field. Topics covered will be advanced troubleshooting lab projects, industry certifications, and job searching skills. Upon completion of this course a student will have an actionable plan to begin job searching and obtaining industry certifications. (Prerequisite: None) (3 credits: 2 lecture/1 lab)

PHIL1410 Technology Ethics
This course examines ethics in relation to technology in the modern society. Students will analyze the foundations of ethics, and how they are applied to use of technology as well as investigate ways in which technology may improve the world for our families, workplaces, and society. Students will examine the ethical implications associated with securing digital information. Lastly, students will be exposed to how emerging technologies have an effect on our health and on the environment. MnTC Goals 6 & 9.

PHYS1215 College Physics I
This non-calculus based course introduces the basic principles of physics through applications, problems, and experiments. Newtonian motion and conservation laws for linear and circular motion will be covered including speed, velocity, and acceleration for linear and projectile motion. Oscillatory motion will be covered including mechanical, light, sound and energy waves. Thermodynamics will be introduced including the first and second law of thermodynamics. (Meets MnTC Goal 3) (Prerequisite: Algebra College Level Placement or successful completion of MATH1025 Algebra) (4 credits: 3 lecture/1 lab)

POLS1101 Introduction to Political Science
An introduction to the basic terms, concepts, principles, and structures of modern political systems worldwide. Problems and issues arising from various political systems, such as democracy, communism, socialism, and totalitarianism will also be studied. (Fulfills MnTC Goals 5 & 9) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

POLS1120 American Government
A survey of the basic structure and operation of the American National Government, with emphasis on the core ideas and values that underlie it. Topics will include citizen participation, political parties, interest groups, the Presidency, Congress, and Federal Courts. (Fulfills MN Transfer Curriculum Goals 5 & 9) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

PSWK2510 Introduction to Social Work
An introduction to the social work profession, institutions, and social welfare issues. Topics include the history and philosophical roots of social work, theories and methods used in the field, the populations served, and the ethical guidelines for effective social work practice. (Prerequisites: none) (3 credits: 3 lecture/0 lab)

PSWK2525 Pre-Social Work Field Experience
This component of the Pre-Social Work Program provides the student with an opportunity to explore and enhance their educational and career objectives through practical work experiences in a social work-related setting. Students will demonstrate their knowledge learned while gaining applied first-hand experiences in the profession of social work. Prior approval and coordination of the Internship/Field Experience with the instructor is mandatory. (Prerequisite: PSWK2510) (3 credits: 0 lecture/0 lab/3 OJT)

PSYC1110 Introduction to Psychology
Psychology applies to everyone's personal and workplace daily life. In this course, you will be introduced to the history of psychology, consciousness, learning theories, memory, problem-solving, intelligence, motivation, life-span development, personality, abnormal psychology and therapy. (Fulfills MnTC Goal 5 & 7) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

PSYC1115 Lifespan Psychology
Students will explore theories of human development to understand the connections and relationships of stages of growth from conception to late adulthood. Genetics; prenatal development and birth; physical, cognitive and psychosocial development from birth through late adulthood; and dying, death, and bereavement will be examined. (Fulfills MnTC Goals 5 and 7) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

PSYC1223 Psychology of Death and Dying
This course examines death and dying in terms of current and historical viewpoints and the effect of individual and cultural attitudes and rituals. Medicolegal movements and issues, and factors such as age, culture, spirituality, and manner of death will be investigated and how those issues shape end-of-life and grief experiences. (Fulfills MnTC Goals 5 and 9) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

PSYC2520 Psychology of Human Sexuality
Psychology of Human Sexuality is an overview of theories, research and contemporary issues in human sexual behavior. Topics include psychosexual development, gender roles, sexual orientation, sexual anatomy, alternate methods of reproduction, pregnancy/birth, contraception, sexually transmitted diseases, sex education, sexism, love and attraction, sexual abuse, sexual dysfunctions, sex therapy, paraphilia, and sexuality through the life cycle. (Meets MnTC Goals 2 & 5) (Prerequisite: None) (3 credits: 3 lecture/0 lab)

PSYC2522 Positive Psychology
This course explores theories and research on positive human qualities and strengths, and how to utilize these for personal and community well-being. The interaction of psychological, sociological, and biological factors that shape well-being are

discussed. The information in this course will be applied toward life areas such as work, leisure, relationships, health, and society. (MnTC Goals 5 and 9) (Prerequisite: PSYC1110 General Psychology) (3 credits: 3 lecture/0 lab)

PSYC2526 Abnormal Psychology
Abnormal Psychology explores in greater depth the psychological disorders that are introduced in General Psychology. Students will examine diagnostic criteria, etiology, prevalence rates, age of onset, and treatments for psychological disorders included in the DSM-V. Social, ethical, cultural, and legal issues that are relevant to the mental health field will also be discussed. (Meets MnTC Goals 5 & 7) (Prerequisite: PSYC1110 Introduction to Psychology) (3 credits: 3 lecture/0 lab)

PSYC2531 Social Psychology
This course provides learners with an introduction to the scientific study of how a person's emotions, thoughts, and behaviors are influenced by other people. Students will become familiar with theories, research methods, and applications of social psychology to their own lives. Among the issues to be addressed are group processes, aggression, conformity, attraction, attitude change, and prejudice. Findings regarding gender, racial, and cultural similarities and differences will be covered as well. (Fulfills MnTC Goals 5 and 7) (Prerequisite: PSYC1110 Introduction to Psychology or SOCS1110 Introduction to Sociology) (3 credits: 3 lecture/0 lab)

RADT2601 Introduction to Radiologic Sciences
This course introduces students to the role of radiography in healthcare. The first section provides the student with an overview of radiography and the health-care systems. Topics include professional organizations, the ARRT Code of Ethics and Standard Practices, Ethics and medico-legal issues that enable the student to understand parameters of professional practice and major areas of responsibility. The second section provides the student with the basic concepts of patient care, including consideration for the physical and psychological needs of the patient and their family. Communication skills, routine emergency patient procedures and infection control procedures using standard precautions are explored. Special and basic fluoroscopy procedures will be introduced along with pharmacology and contrast media, drug administration and venipuncture. Fluoroscopy, mobile and surgical equipment will be introduced. In addition, an on-line medical terminology component will be included in this course. (Prerequisite: Admission to the radiography program) (Prerequisite or concurrent: RADT2605, RADT2611) (4 credits: 3 lecture/1 lab)

RADT2605 Radiographic Imaging 1
This introductory course provides the student with the basic elements of radiation physics. Topics include units of measurement, atomic structure, nature and characteristics of radiation, x-ray properties, x-ray machine components, x-ray tube and the production of x-rays. Introductory principles of radiographic exposure will also be presented to include the prime factors, image appearance standards of image exposure, contrast, recorded detail, and distortion, grids, AEC, beam limitation and scatter radiation. (Prerequisites: MATH1220, ENGL1215, BIOL2515) (Prerequisite or concurrent: RADT2601, RADT2611) (3 credits: 2 lecture/1 lab)

RADT2611 Radiographic Positioning and Procedures 1
For this first procedures course students will be introduced to the terminology of positioning, equipment used and basic radiographic and technical factors that affect the exposure. Introductory and general anatomy will be presented and specific procedures of the chest, abdomen, and pelvis, upper extremity from hand through shoulder girdle and lower extremity from foot through hip will be covered. Pediatric radiographic positioning will be explored. Labs will enable the student to become familiar with positioning using the x-ray machine. Mobile, trauma and surgical radiographic positioning will be presented. Principles of radiation safety and emphasis on protection of the technologist and patient will be stressed. Radiographic images will be evaluated for anatomy and positioning. The student will also be oriented to the clinical practice setting. (Prerequisite: Admission to the radiography program) (Prerequisite or Concurrent: RADT2601, RADT2605) (5 credits: 2 lecture/3 lab)

RADT2617 Clinical Practicum 1
For this course, the student will be assigned to a hospital or clinic 36 hours per week for 12 weeks. The assignment will be day shifts only, and at the same clinical site for the entire semester. During this assignment the student will learn clinical radiography on patients of all ages and complete competencies in radiography of the chest, abdomen, upper limb, shoulder girdle, lower limb proximal femur, pelvic girdle, the alimentary canal, urinary system, and general fluoroscopy procedures. The student will practice manipulating technical factors and producing digital images and will provide direct patient care to include radiation protection for the patient and self. The student may be assigned to rotations in trauma, surgery, and fluoroscopy. The student will be supervised directly by the program assigned clinical instructor and indirectly by the programs clinical coordinator. (Prerequisites: RADT2601, RADT2605, RADT2611) (9 Credits: 0 lecture/0 lab/9 OJT)

RADT2620 Equipment Operation and Maintenance
This course introduces radiography students to the principles and application of x-ray technology. Students analyze x-ray machine circuitry, automatic exposure control and factors related to image formation. Specific topics to be covered include: electricity, electromagnetism, operation and maintenance of radiographic equipment that includes fluoroscopy, mobile, conventional and digital imaging systems. (Prerequisites: RADT2605, RADT2617, RADT2630, RADT2642) (Prerequisite or concurrent: RADT 2650, RADT 2653) (2 credits: 2 lecture/0 lab)

RADT2625 Radiographic Positioning and Procedures 2
This is the second procedures course. In this course the student will be introduced to positioning of the vertebral column to include the sacrum and coccyx, and the bony thorax. Students will also learn fundamental positioning of the skull, facial bones and paranasal sinuses. Labs will enable the student to become familiar with positioning using the x-ray machine. The student will explore in greater detail; pediatric radiographic positioning. Principles of radiation safety with emphasis on protection of the technologist and patient will be stressed. Radiographic images will be evaluated for anatomy and positioning. (Prerequisites: RADT2601, RADT2611, RADT2617) (3 credits: 1 lecture/2 lab)

RADT2631 Radiographic Imaging 2
This course will present fluoroscopy technology, and digital radiography to the student. This will include digital systems, digital image processing, image quality, and image storage and management. This course will introduce the student to the higher level principles of radiographic exposure and setting appropriate technical factors. Students acquire knowledge of quality management in radiology and apply quality control tests to determine

the causes of image problems including equipment malfunctions and procedural errors. Included also are aspects of quality control to external x-ray beam evaluation, repeat rates and protective apparel. Laboratory exercises will emphasize the theories learned. (Prerequisites: RADT2601, RADT2605, RADT2611, RADT2617) (Co-requisite: RADT2625) (3 credits: 2 lecture/1 lab)

RADT2635 Radiographic Pathology
This online course introduces the radiography student to disease processes and their effect on the human body. Radiographic pathologic correlation is emphasized. All of the major body systems are presented. Researching and writing a paper is a requirement for this class. (Prerequisites: RADT2601, RADT2605, RADT2611, RADT2617, RADT2625) (1 credit: 1 lecture/0 lab)

RADT2642 Clinical Practicum 2
For this practicum, students will be assigned 36 hrs/wk to a hospital/clinic. Assignments will be mainly days but may include 2 weeks of evenings and 2 weekend shifts. Student will learn clinical radiography and complete competencies of complete vertebral column, bony thorax, skull, facial bones, and sinuses and continue to learn digital imaging and provide direct patient care. Students may be assigned rotations in general diagnostic radiology, mobile, trauma, surgery, and fluoroscopy. Students will continue to practice and improve all positioning skills. Learning procedures on geriatric and pediatric patients, understanding and operating radiographic image acquisition and processing equipment in terms of department protocol, using critical-thinking skills associated with patient care and radiation protection will be emphasized. Students will be supervised directly by clinical instructor and indirectly by program faculty.(Prerequisites: RADT2617) (12 credits: 0 lecture/0 lab/12 OJT)

RADT2650 Radiographic Protection and Biology
This course presents the principles of radiation protection and radiobiology. Topics include an overview of radiation physics, units of measure, radiosensitivity and response, and understanding the radiographers role in utilizing safe radiation practices for patients, personnel, and the public. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, and health care organizations will also be addressed. Specific topics: cell biology in terms of early and late radiation effects; principles of radiation interaction with living systems; radiation effects on biological molecules and organisms; factors affecting biological response; and acute and chronic effects of radiation. (Prerequisites: RADT2541, RADT2635) (2 credits: 2 lecture/0 lab)

RADT2660 Computed Tomography
This elective online course introduces the basic principles of computed tomography (CT) imaging and sectional anatomy. History of CT, current equipment and practices, radiation protection specific to CT, and anatomic appearance of various structures in a cross-sectional reference will be discussed. Specific emphasis will be on methods of dose reduction to support the Image Gently campaign. Images from various modalities will be used to demonstrate radiographic cross-sectional appearance. This course will be a basic CT course with emphasis on CT registry exam content. (Prerequisites or concurrent: BIOL2512, RADT 2601, RADT2605, RADT2611 or graduate of associate degree or certificate program in medical imaging/therapy or radiography - official transcript or current ARRT credential review required.) (2 credits: 2 lecture/0 lab)

RADT2663 Modalities
This online course introduces radiography students to imaging modalities beyond diagnostic radiology. There will be an emphasis of computed tomography (CT) and cross-sectional anatomy. Other modalities include MRI, mammography, ultrasonography, radiation therapy, nuclear medicine, bone densitometry, and cardiac/vascular interventional radiology. During completion of this course, students will be able to observe/participate in these special areas during clinical practicum if it does not interfere with diagnostic radiology experiences or on non-scheduled days. (Prerequisites: RADT2601, RADT2605, RADT2611) (Prerequisite or concurrent: RADT2617) (2 credits: 1 lecture/1 lab)

RADT2673 Clinical Practicum 3
For this practicum, students will be assigned 36 hrs/week to a hospital or clinic the last 4 weeks of the semester. Assignment will include days, evenings or weekends if the mandatory 2 weeks of evenings and 2 weekends have not been completed. Students will continue to perfect their practice in digital imaging and provide direct patient care to include radiation protection. Student may be assigned to rotations in general, mobile, trauma, surgery, and fluoroscopy. Optional experience in CT, MRI, or other modalities may be used if available. Improvement in affective skills, radiographic processing, patient care, radiation protection, will be emphasized. Students will be supervised directly by clinical instructor on site and indirectly by program clinical coordinator. Preparation for the national certification exam offered by the American Registry of Radiologic Technologists (ARRT) will be continued in this course. (Prerequisites: RADT2617, RADT2641) (3 credits: 0 lecture/0 lab/3 OJT)

RADT2680 Introduction to Mammography
This special modality course will cover patient education and assessment, anatomy, physiology, pathology, positioning and compression of the breast. Emphasis will be on the screening projections. A second component of the course is presentation of the physical principles of mammography to include unique aspects of the machine, image processing, dose issues, mammography technique, image evaluation, breast imaging procedures (including implant imaging) and quality control/ assurance techniques. Both analog and digital film acquisition will be applied. The Mammography Quality Standards Act will be discussed. (Prerequisite: RADT 2635) (Prerequisite or Concurrent: Graduate of associate degree or certificate program in medical imaging/therapy or radiography [official transcript or current ARRT credential review required]) (2 credits: 2 lecture/0 lab)

RADT2686 Sectional Anatomy
This is an elective course for students and/or technologists with an interest in CT, MRI, or ultrasonography. This course familiarizes the student with cross sectional anatomy and pathologic conditions of the human body. Images will be evaluated by physiologic systems in various imaging planes. It is imperative for those working in medical imaging to be able to identify anatomy in cross-section. (Prerequisite or concurrent: BIOL2511, BIOL2512, RADT2601, RADT2617, RADT2663 and/or a graduate of associate degree or certificate program in radiography; official transcript review required or credentialed in Radiography, Nuclear Medicine Technology; registration with NMTCB is also accepted; Sonography or Radiation Therapy or Radiography program director approval.) (3 Credits: 3 lecture/0 lab)

SMGT1200 Skills to Pay the Bills
This is a course for PSEO students or an elective for any major. This course concentrates on employability skills for success in the workplace. The curriculum was developed by the US Department of Labor and has been in use in high schools and colleges since its inception. It incorporates video examples, case studies and practical exercises for building competency in soft skills. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT1207 Budgeting & Financial Analysis for Managers
This primary goal of this course is to provide ¿user¿ managers with a sufficient set of management planning and control concepts and methods to: properly understand business transactions; develop and analyze balance sheets, income statements, and cash flow statements; create a workable budget; understand financial terms; create the first workable and saleable version of your business concept (MVP ¿ minimum viable product); determine & analyze IRR, ROI, and other financial milestones; conduct profitability analysis; and understand product life cycles/ end of product life. 3 credits (3 Lec/ 0 Lab)

SMGT1210 Supervision Principles
This course covers an overview of the supervisory field. The course introduces aspects of the supervisor's job that are developed in depth on other courses throughout the program. Topics to be covered include: Basic skills required of managers, fundamentals of planning, organizing, delegating, communication skills, selecting and training new employees, appraising and compensating employees, discipline and exercising control, and controlling productivity, quality and safety. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT1212 Managing for Quality
This course covers the Total Quality Management Philosophy put forth by a variety of Quality Gurus around the world. It includes a step-by-step process to put a quality program to work in an organization, including shortcuts and how to avoid pitfalls. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT1214 Practical Problem Solving
This course will provide participant with the skills and resources to solve organizational problems and make better decisions. The opportunity will be provided to practice various problem solving techniques and tools, including the seven quality tools. Participants will learn methods for thinking about problems more creatively. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT1216 Leadership Development
This course is an introduction to the concept of leadership. In addition to mechanics and styles of leadership, the moral and ethical considerations of leadership will also be stressed. Topics to be discussed will include: managing change, vision statements, power and its use and abuse, communicating like a leader, empowering employees, setting an example, recognizing others, and celebrating successes. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT1749 Project Management
The need for business leaders and managers to manage programs and projects is evident today. Technology managers and all managers will find much higher competency in the workplace with an understanding of methods of completing projects on schedule and on budget. This course presents the specific concepts, techniques, and tools for managing projects effectively. The role of the project manager as team leader is examined, together with important techniques for controlling cost, schedules, and performance parameters. Through readings, class discussions, and interactive exercises, learners gain an understanding of both the technical and human aspects of project management. (Prerequisite: none) (3 credits: 3 lecture/0 lab)

SMGT2210 Human Resource Issues for Managers
This course covers a variety of personnel issues that affect managers and supervisors in most organizations. Human Resource issues from hiring to firing, documentation, as well as potential legal ramifications will be covered. Laws regarding sexual harassment, all types of discrimination, Family Medical Leave Act, Americans with Disabilities Act and any new legislation that could impact area managers will be researched. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT2214 Teambuilding
The purpose of this course is to educate managers, supervisors, and other interested employees about the concept of work-teams. The topics covered are stages of team development, building trust within the team, consensus decision making, running effective team meetings, and symptoms of a dysfunctional team. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT2216 Coaching & Productivity Enhancement
This course covers a variety of techniques to use when coaching employees. Topics to be included are counseling, mentoring, training, correcting and how to use employee appraisal systems to improve productivity of employees. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT2218 Service Management
This course covers how businesses are increasing profitability through a process of assessment of customer needs and changing expectations. Learn critical elements of how to train others to deliver service excellence. "Internal" and "External" customers are included in all aspects of discussion of effective customer service. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT2220 Management Theories and Organizational Studies
Effective management of organizational dynamics requires an understanding of both theory and practice. Three characteristics common to all organizations are explored: behavior, structure, and processes. How these characteristics interrelate and are influenced by actions of managers is the main focus of the class. (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SMGT2225 Measuring Management

SOCS1110 Introduction to Sociology
The purpose of this course is to develop in students an understanding of basic sociological issues, concepts, terminology, and applications of these understandings with current societal events. Students will become conscious of societal influences in relationship to human and cultural dynamics in our world. This course will call for the development of reflective and critical thinking skills. (MnTC Goal 5) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

SOCS1205 Sociology of the Family
The purpose of this course is to offer a comprehensive study of the forces external to and within the contemporary Western social institution that we call 'the family'. Current sociological theories and research will be used to study American family struc-

ture and functions. Cross-cultural comparisons; family dynamics; disorganization; and change will be included. The course will provide a forum to expose the students to the vast changes that have taken and continue to take place in marriages and family enabling them to make choices in a diverse society. (MnTC Goals 5 & 7) (Prerequisite: none) (3 credits: 3 lecture/0 lab)

SOCS2545 Diversity and Social Change
This course empowers exploration and understanding of areas of diversity, including individual, institutional, and societal racism, sexism, classism, heterosexism, and others. Topics include development of skills in combating these forms of oppression and in effecting social change for a just society, as well as skills in forming respectful relationships across group differences. (MnTC Goals 5 & 7) (Prerequisite: none) (3 credits: 3 lecture/0 lab**)**

SPAN1230 Introduction to Hispanic Cultures
Taught in English, Intro to Hispanic Cultures will acquaint the students with the concepts of culture and cultural identity, and bring them an awareness of the skills necessary to achieve successful cross-cultural communication, especially as it pertains to work with Hispanic clients. Students will compare and contrast their own culture with that of Spanish-speaking peoples. The course will also look at the "high" culture and civilization of Spanish-speaking countries, examining the arts, history, architecture, and literature. (MnTC Goals 6 & 8) (Prerequisite: None) (3 credits: 3 lecture/0 lab)

SPAN1240 Beginning Spanish I
Beginning Spanish is for students with little or no prior training, or for those wishing to refresh other skills in Spanish. Instruction in speaking, listening, reading, writing, and culture will occur through practice in and out of the class session. (Meets MnTC Goal 8) (Prerequisite: None) (4 credits: 4 lecture/0 lab)

SPAN1342 Beginning Spanish II
Beginning Spanish II is for students who have completed Beginning Spanish I and wish to continue practicing and refining their skills in Spanish. Instruction in speaking, listening, reading, writing, and culture will occur through practice in and out of the class session. (Meets MnTC Goal 8) (Prerequisite: SPAN1240 Beginning Spanish I or permission of instructor) (4 credits: 4 lecture/0 lab)

TRDR1300 Straight Truck Proficiency
The Class "B" license can put you in the driver's seat of a dump truck, a delivery truck, or a van! If you are 18 years of age or older here is an opportunity to operate a straight truck with a gross vehicle weight (GVW) if 26,000 pounds or more. This hands-on course is designed to give you actual driving experience. In the final class, you take the test for your CDL Class B license. Students must have a Class B permit with air brakes to start the class. Students from Wisconsin need a Department of Transportation (DOT) physical before the start of the class. Arrangements can be made to take the Wisconsin test for an additional fee. Enroll early, class size is limited. (2 credits: 1 lecture/1 lab) (Prerequisite: CDL Class B Permit Required)

TRDR1400 Safe Driving Fundamentals
This course introduces students to the world of transportation (trucking), through lecture. It allows the student to develop an understanding of the needs and rewards of the trucking industry. It enables the student to understand the workings of driving and it prepares them for range and road operation of a tractor-trailer combination vehicle. (Prerequisite: None) (4 credits: 4 lecture/0 lab)

TRDR1405 Proficiency Development
This course covers all aspects of operating a tractor-trailer in a confined area (Driving Range) (Backing Range). With supervised instruction, students will practice the skills learned in TRDR 1400 to the point of proficiency. The intent of this course is to prepare the student driver for solo operation. (Prerequisite: TRDR1400) (4 credits: 0 lecture/4 lab)

TRDR1410 Advanced Driving
This course covers all areas of advanced driving including grade driving, city driving, highway and expressway driving. This class will be the final preparation for student drivers to actively seek employment in the transportation field. For the student to be eligible for a certificate he or she must pass a CDL road test to obtain their Class A license. (Prerequistes: TRDR 1400, 1405) (4 credits: 0 lecture/4 lab)

TRDR1415 Employment Skills
This course is the gateway to employment in the trucking industry. It deals with money management, professional attitude and requirements as well as physical well-being. (Prerequisites: TRDR1400, 1405, 1410) (2 credits: 2 lecture/0 lab)

TRDR1420 Internship
Under the supervision of a company trainer, this course will enable the student to apply the training he/she received at MSCST with the trucking company of his/her choice. The student will earn a salary during this internship(OJT). The successful completion of this course will enable the student to drive solo with the company of his/her choice. (Prerequisites: TRDR1400, 1405, 1410, 1415) (6 Credits: 0 lec/0 lab/6 OJT)

VLNR1315 Violin History
The important violin makers of the past and present are the subject of this class. Italian, French, English, German, and American makers are covered, including stylistic differences and comparative values. (Prerequisite: None) (2 credits: 2 lecture/0 lab)

VLNR1351 Bridges and Soundposts
Soundposts and bridges are critical to the sound and playability of an instrument. Students learn where and how to fit the soundpost and bridge to each individual instrument and how to carve the bridge for optimum sound and aesthetic appeal. Students will fit at least 12 violin/viola soundposts and bridges, five cello soundposts and bridges and one bass soundpost and bridge. (Prerequisites: VLNR1301, VLNR1305, VLNR1321) (8 credits: 2 lecture/6 lab**)**

VLNR1361 Violin Repairing
This course covers basic violin family repair work. (Prerequisites: VLNR1301, VLNR1305, VLNR1327, VLNR1341) (8 credits: 2 lecture/6 lab**)**

VLNR1371 Violin Construction II
This is the Spring Semester continuation of VLNR1370. (Prerequisites: VLNR1372 and VLNR1373, or VLNR1370) (6 credits: 2 lecture/4 lab)

WELD1405 Safety, Theory, Blueprints, & Processes
Students will be introduced to theory of the welding trade. This course covers fusion, proper heat penetration, heat distortion and its effects on parent metal, how electrical currents get from

filler metal to work piece, and differences in polarity used while welding. A major component will introduce students to safe practices in welding. Students will learn the importance of personal safety equipment and apparel and how to protect against short and long term injury. Students will learn to identify dangers, how to eliminate problems through examination and to make minor repair to welding equipment and tools as expected in the trade. Students will be given an overview of blueprint reading including proper nomenclature for lines and views, reading of notes and specifications as well as identification of weld symbols. An overview of welding processes will be introduced from the fast moving production shop to the iron worker in the field. (Prerequisite: None) (4 credits: 4 lecture/0 lab)

WELD1410 SMAW - Principles of Stick Welding
This course is designed to give the student the fundamentals of stick welding in an application setting. The student will learn the basics of machine set up, proper nomenclature, and rod choices as well as the art of striking an arc, controlling the arc and creating a controlled puddle. The student will perform various weld joints with different metal thicknesses and be able to identify the differences between an acceptable and unacceptable weld. (Prerequisite: None) (3 credits: 0 lecture/3 lab)

WELD1415 Oxy-fuel Weld, Cutting & Brazing
This course is designed to show the student the safety of welding tank storage and handling. The proper way to open, close, and maintain tanks, their gauges and flow meters. How to set-up and create the proper flames and demonstrate its importance in each phase. Welding, cutting, and brazing will be performed in the flat position with various joint set-ups. (Prerequisite: None) (1 credit: 0 lecture/1 lab)

WELD1420 GMAW - MIG Wire Feed I
In this course the student will learn the proper machine set-up from turning on the power switch to performing various weld joints in the flat position. The student will learn the identification of the different MIG machine parts as well as demonstrate how to set the machine for various thicknesses of metal and different types of wire (filler metal) when used during the different welding processes. The student will also examine and identify the differences between good welds and bad welds such as welds that are too cold, too hot, or have other variables or inconsistencies. (Prerequisite: None) (3 credits: 0 lecture/3 lab)

WELD1425 GMAW-MIG Wire Feed II
This course is a continuation of WELD1420 (GMAW-MIG Wire Feed I)and will expand the student's knowledge and practice to include more welding positions. All the welding will take place in the vertical up position and/or the overhead position. The student will also learn the differences in machine set-up to accommodate these other positions. (Prerequisite: WELD1420) (3 credits: 0 lecture/3 lab)

WELD1430 GTAW-Tungsten Inert Gas Weld I
This course will teach and demonstrate the differences of Tungsten Inert Gas(TIG) welding to that of the stick welding and the MIG welding. The student will learn the proper machine set-up, proper selection of gases for different processes, proper selection and types of tungsten electrodes and the proper polarity to use when welding. The student will demonstrate puddle control, bead layout and various joint welds with aluminum alloy. (Prerequisite: None) (3 credits: 0 lecture/3 lab)

WELD1435 GTAW - Tungsten Inert Gas Welding II
This course is a continuation of WELD1430 (GTAW-TIG 1) and will expand the student's knowledge and practice to include stainless steel welding. The student will learn to interpret the material specific processes for aluminum and stainless steel as well as practice the proper tungsten preparation and polarity. (Prerequisite: WELD1430) (3 credits: 0 lecture/3 lab)

WELD1440 Workplace Projects & Fabrication Capstone
The student will be introduced to fabrication practices and techniques. The student will demonstrate project fabrication from concept and drawings, through building techniques to completion. Projects will consist of smaller personal projects and/or a larger class project. All projects must be approved by the instructor and will be supervised from concept on through completion of the project. Demonstration of welding techniques learned from the other courses will be practiced so this must be taken as one of the last classes in the program. (Prerequisites: HLTH1515, MATH0520, WELD1420, WELD1430, this course may be taken concurrently with WELD1425 and WELD1435) (3 credits: 0 lecture/3 lab)

WELD1442 Individualized Welding Skills Lab
This course is a hand-on, open laboratory time available to both the skilled and unskilled welder for the opportunity to improve or develop his/her welding application skills. Students will have access to SMAW (stick), GMAW (MIG), FCAW (flux-cored), and GTAW (TIG) welding processes. Enhancement and/or introduction of all 1G, 2G, 3G, and 4G welding positions will also be encouraged to help broaden the welder's abilities. (Prerequisite: Instructor interview and approval required) (2 credits: 0 lecture/2 lab) (4 hour lab session)

WELD1443 Welding Fabrication Project
This course is an elective course for the Welding program. The student will complete a personal or class welding fabrication project. All projects must be approved by the instructor and will be supervised from concept on through completion of the project. The student will demonstrate proper welding techniques and fabrication concepts while working on the project. The student will be liable for all the expenses for any personal project that they complete. (Prerequisites: HLTH1515, MATH0520, WELD1420, WELD1430, this course may be taken concurrently with WELD1425 and WELD1435) (3 credits: 0 lecture/3 lab)

WELD1450 Welding Internship
This course is designed around a student attaining an internship in a business. The student internship may be paid or unpaid as agreed to between the student and the business. The student will need to demonstrate welding competencies as designed by the instructor and the business. A person from the business will monitor the student's work and will be the judge as to whether or not the student is passing the course or not passing the course. The student will need to demonstrate professionalism and proper welding techniques to pass the course. This course is a PASS or NO CREDIT course. The instructor will maintain bi-weekly contact with the business to discuss the student progress reviews. (Prerequisites: WELD1420, WELD1430, this course may be taken concurrently with WELD1425 and WELD1435) (3 credits: 0 lecture/0 lab/3 OJT)

WELD1455 Trades Enhancement Welding
Students will be introduced to different welding and cutting processes. Covered in this course will be proper weld fusion, heat distortion, penetration, and their effects to the parent material. Students will learn the basics of proper welding and cutting machine set up from turning the machine on and off and identification of machine parts to demonstrating and identifying the differences between good quality welds and poor quality welds. Students will be introduced to and demonstrate weld shop safety and practice, and proper compressed cylinder transport and storage. (3 credits: 2 lecture/1 lab)

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