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Northwestern Michigan College

www.nmc.edu

Mission

Northwestern Michigan College provides lifelong learning opportunities to our communities.

Institutional Accreditation

Accredited by the Higher Learning Commission
and a member of the North Central Association.
30 N. LaSalle, Suite 2400
Chicago, IL 60602
(800) 621-7440
www.ncahigherlearningcommission.org

Program Accreditations

- Accreditation Commission for Education in Nursing
- American Culinary Federation
- American Dental Association Commission on Dental Accreditation
- Bureau of Automotive Regulation–State of Michigan
- Federal Aviation Administration/Federal Aviation Regulation Part 141 approved
- International Accreditation by United States Coast Guard
- International Accreditation by the United States Maritime Administration
- Michigan Board of Nursing
- Michigan Commission on Law Enforcement Standards

Northwestern Michigan College

Main Campus
1701 East Front Street
Traverse City, Michigan 49686
(231) 995-1000 or
(231) 995-1038 TDD
(Telecommunications Device for the Deaf)
Call toll-free (800) 748-0566
www.nmc.edu

Non-Discrimination Policy

Northwestern Michigan College does not discriminate in admission, campus activities, education, employment, housing, public accommodation or public service on the basis of age, color, creed, disability, handicap, height, marital or familial status, national origin, political affiliation, race, religion, sex, sexual orientation, service in the military, veteran's status, weight, or any other legally protected status under federal, state, or local law. No act of retaliation shall occur to any person making a charge, filing a complaint, testifying or participating in any discrimination investigation or proceeding.

This catalog is in effect starting Fall Semester 2019 through Summer Semester 2020. The contents of this catalog are accurate at the time of publishing, March 2019. For the most current information, consult the website: www.nmc.edu. The NMC Board of Trustees reserves the right to make changes without notice.

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2019-2020 Academic Calendar

FALL SEMESTER 2019	
Registration Begins	March 13, 2019
Tuition Payment Due	July 30
Classes Begin	August 24
No Classes (Labor Day holiday observed)	August 31- Sept 2
No Classes	October 8
No Classes (Thanksgiving holiday observed)	Nov. 27 (after 5 p.m.) - Dec 1
Classes End	Dec. 14
Grades Entered	Dec. 18
College Closed (combined winter holidays observed)	Dec. 24-25 Dec 31 (noon)- Jan 1, 2020

SPRING SEMESTER 2020	
Registration Begins	Oct. 23, 2019
Tuition Payment Due	December 5, 2019
Classes Begin	January 10
Spring Break (No Classes)	March 30-April 5
No Classes (Spring Holiday observed)	April 10-12
Honors Convocation	May 1
Commencement	May 2
Classes End	May 2
Grades Entered	May 6

SUMMER SESSION 2020	
Registration Begins	Oct. 23, 2019
Tuition Payment Due	April 21, 2020
Classes Begin	May 9
NMC BBQ	May 17
No Classes (Memorial Day holiday observed)	May 23-25
College Closed (Independence Day holiday observed)	July 3
Classes End	August 6
Grades Entered	August 11

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NMC.
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Welcome to NMC

NMC is a unique community college, offering programs to meet the needs of our local, regional and worldwide learners. Our outstanding faculty and staff care about your success, whether you are seeking transfer credits or specialized training.

We have many things to be proud of at NMC:

- 2nd in the nation "Best for Vets" community college
- 10th in the nation out of top 15 Best Drone Training Colleges
- 16th in the nation for short-term study abroad programs
- One of the Top 30 "Best Choice Schools for Culinary" nationwide
- Only ADCI Certified ROV Pilot Technician Training Program in the world
- Over $800,000 awarded in scholarships each year
- First community college baccalaureate in Michigan
- Great Lakes Maritime Academy—one of seven (7) federally chartered maritime academies
- Dennos Museum Center—which hosts artists from around the world

NMC was built on a culture of innovation. Throughout our history we have developed systems that support this way of learning and we are dedicated to continue to lead in this area into the future. Everyone at Northwestern Michigan College is committed to preparing you for success in a global economy and society both today and throughout your lifelong educational journey. Work hard today while building toward your future and know we at Northwestern Michigan College will be doing the same.

"NMC's faculty and staff take pride in seeing students achieve their goals. Whatever you're looking for, we are dedicated to helping make sure you find it here."

Timothy J. Nelson, *President*

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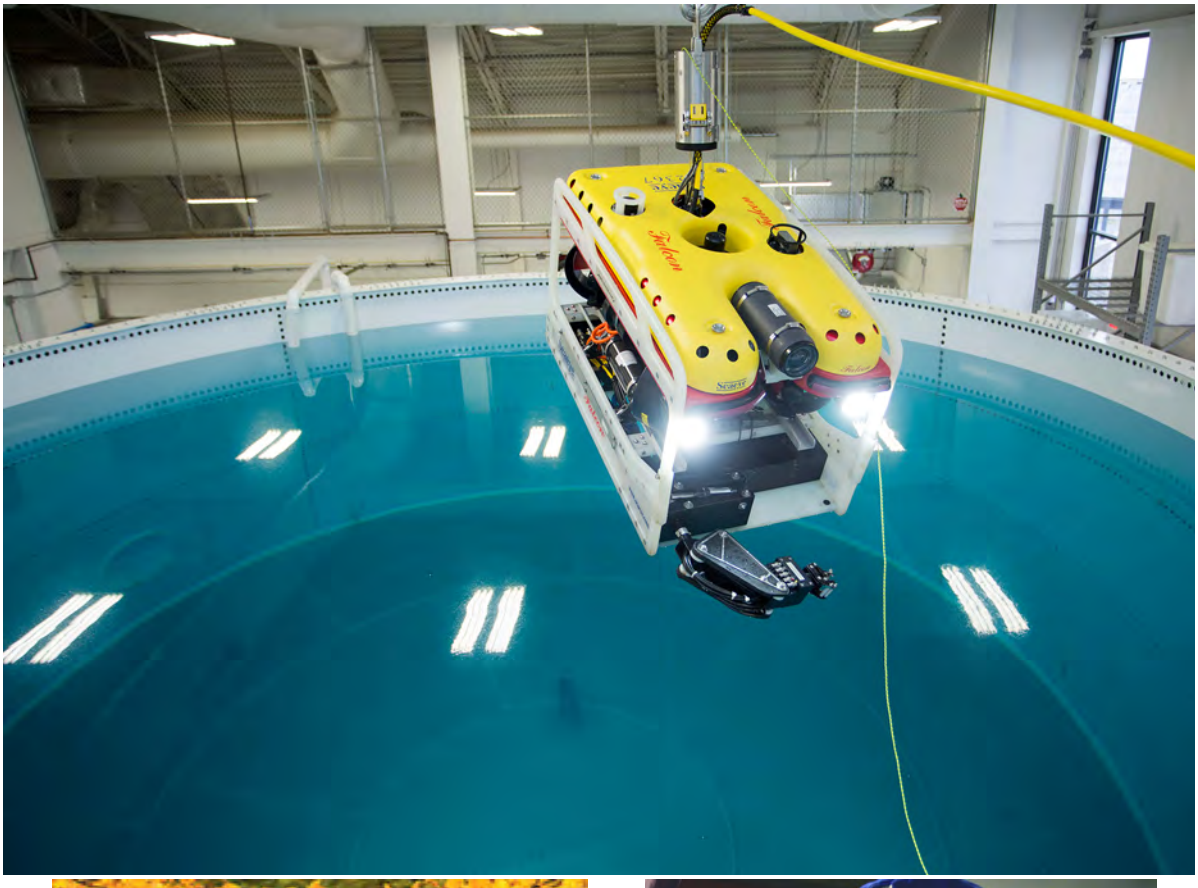

Program Information

General Education

Philosophy

General Education at Northwestern Michigan College promotes the acquisition of knowledge, skills, and attitudes needed to function effectively in a changing world. This fosters intellectual curiosity, essential to lifelong learning.

Outcomes

To ensure students experience the benefits of our philosophy of general education, the faculty of NMC commits to instilling these practices throughout the curriculum.

COMMUNICATION: Students will practice effective communication with an awareness of audience and sense of purpose.

CRITICAL THINKING: Students will skillfully conceptualize, apply, analyze, synthesize, and evaluate information gathered from observation, experience, reflection, reasoning, or communication.

QUANTITATIVE REASONING: Students will accurately use numbers, symbols, measurements, properties, and the relationships of quantities to make sound decisions, judgments, and/or predictions.

Assessment

General Education outcomes are measured in several ways:

- Each year faculty members assess student achievement of the General Education Outcomes their courses support.
- The Office of Research, Planning & Effectiveness aggregates institutional data so that faculty and departments can assess the level of achievement represented by the student work.
- Graduates are surveyed annually and are asked to provide their perceptions of achieving the General Education Outcomes.
- The faculty and teaching staff are charged with using the results of assessment to make curricular improvements.

Degrees & Certificates

NMC students may select from several educational options. Associate degrees, bachelor degrees, and certificates are awarded to those students who complete a prescribed set of courses in specific areas of study. Many programs, especially in occupational areas, also lead to additional career licenses or certifications. Maritime programs require four years of full-time study, including summer sessions, and result in a bachelor's degree at NMC. Associate degree programs generally take two years of full-time study to complete. Certificate programs range 16-59 credits.

NMC offers the following degree and certificate options:

- Certificate of Achievement Programs
- Associate in Applied Science (AAS)
- Associate Degree in Nursing (ADN)
- Associate in General Studies (AGS)
- Associate in Science and Arts (ASA)
- Bachelor of Science (BS)

Earning a Second Associate Degree

Students may earn additional degrees at NMC. A minimum of 15 earned hours (credits) shall be earned from NMC in addition to the required credits for the previous degree.

Students seeking an additional associate degree shall be governed by the following stipulations:

- Students may earn only one Associate in Science and Arts degree
- Students may earn the Associate in General Studies degree only as their first associate degree with the exception of students who are enrolled in the AGS/Pre-ADN, AGS/Pre-PN, AGS/Pre-Dental or AGS/Pre-Surgical Tech program
- Program requirements for the additional degree will be based on the catalog that is in effect when the student officially switches to the new program
- Previous credits will be evaluated by the Records Office for transfer to the additional degree as applicable
- This policy does not apply to certificates

Reverse Transfer

A transfer student may complete an associate's degree concurrent with his or her pursuit of a bachelor's degree. This process is called reverse transfer. It enables NMC students who transfer to a four-year institution before completing an associate's degree to use coursework and credits earned at the transfer school to fulfill degree requirements at NMC.

Students enrolled at one of NMC's Reverse Transfer partners should submit the appropriate Reverse Transfer Release form to the partner school's Office of the Registrar. Students enrolled at non-partner schools may also reverse transfer credits. To begin the process, submit a transcript from the four-year institution to NMC. After review, NMC will inform students of their successful degree completion, or whether they have unsatisfied degree requirements remaining.

For more information, go to **www.nmc.edu/student-services/records-registration/reverse-transfer.html**

Cultural Perspective/Diversity

Students will evaluate connections between worldviews, power structures, and experiences of multiple cultures historically or in contemporary contexts.

In order for NMC graduates to engage as educated and informed citizens of a diverse society, students pursuing the ASA, AGS, and BS degrees are required to take one Cultural Perspective/Diversity course. Courses are listed on pages 13-14 and are marked with an asterisk (*).

Certificate Requirements

Certificate Programs typically include specialty courses and may include some general education requirements. In most cases, they are designed for concentrated proficiency in specialized areas. Certificates may range from 16 to 59 credit hours as established by individual program areas and/or the Curriculum Committee. Many certificate courses may apply toward an associate degree.

Certificate Program requirements include:

1. A specified group of credit hours in an area of specialization, as determined by the appropriate NMC academic area. These three levels are possible:
   - Level I: A minimum of 16 credits in a specialty area;
   - Level II: A minimum of 30 credits in a specialty area;
   - Level III: A minimum of 45 credits in a specialty area.
2. A minimum cumulative grade point average of 2.0. Higher GPA standards may be required for specific courses within individual academic areas.
3. Level I and II certificate programs require that a minimum of eight credit hours be completed at NMC (this may be waived in extenuating circumstances; contact the registrar). Level III certificate programs require that a minimum of 12 credit hours be completed at NMC (this may be waived in extenuating circumstances; contact the registrar).
4. Competency testing by the responsible academic area if the course work was not completed at NMC.

   **Competency credit: Students with competency in a specific area should consult with their program coordinator for possible testing and/or credit.*

Certificate programs are listed in the Occupational Programs section of this catalog.

Group 1 & 2 Courses

Group 1 General Education courses are designed to enhance skills and knowledge for students to succeed in academic, career and life goals. Students pursuing a two-year degree will need to fulfill specific general education requirements by selecting courses from Group 1 based on the degree requirements listed on the following pages. The Group 1 courses are listed on pages 13-14 of this catalog.

Group 2 courses are all remaining 100-level courses or above, which may fulfill occupational specialty program requirements, major area requirements, and elective requirements for degree and certificate programs.

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Degree Requirements

Associate in Science & Arts Degree (ASA)

The Associate in Science and Arts degree is generally pursued by students who are planning to transfer to a four-year college or university to complete a baccalaureate degree. Students who want to explore the curriculum also frequently pursue the ASA degree.

General Education Requirements	
Minimum 30 Group 1 credits with at least a 2.0 grade for each course	
Communications	**6 credits minimum**
ENG 111 and ENG 112 English Composition	
Humanities	**6 credits minimum**
Two **Group 1** classes from different departments: art, history, humanities, literature, music, philosophy, second-year foreign language	
Mathematics	**3 credits minimum**
One **Group 1** mathematics class, MTH 120 or higher	
Science	**6 credits minimum**
Two **Group 1** classes from different departments: astronomy, biology, chemistry, environmental science, physics. One class must include a lecture/lab	
Social Science	**6 credits minimum**
Two **Group 1** classes from different departments: anthropology, economics, geography, political science, psychology, sociology	

Electives:
A combination of credits from **Group 1 or Group 2** to equal the minimum earned credits for the degree.

A list of courses in Group 1 and 2 begins on page 13.

Total Degree Credits: Minimum of 60 earned semester credits

Completing the General Education Requirements of 30 credits will qualify for the Michigan Transfer Agreement (MTA). See page 15 for further information.

OTHER REQUIREMENTS

- Complete a minimum of 60 credit hours with a 2.0 or higher cumulative grade point average.
- Complete one course designated as Cultural Perspective/Diversity. Courses are listed on pages 13-14 and are marked with an asterisk (*).
- Complete a minimum 15 of the 60 credits through NMC classes.

NOTES

- A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.
- Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be pre-requisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.
- For elective courses to count toward graduation, a course must be completed with a grade of 1.0 or higher.
- To receive the MTA with the ASA, a minimum grade of 2.0 is required for all General Education Requirements.

Associate in General Studies Degree (AGS)

The Associate in General Studies Degree is designed for students interested in obtaining a degree that can be customized based on varying areas of interest.

Note: This degree is not designed to meet the needs of the transfer student. Consult an advisor to discuss your educational goals and determine if this degree is right for you.

Communications — **6-8 credits**

ENG 111 English Composition
and either BUS 231, ENG 112, or ENG 220.

Humanities — **3 credits**

3 credits of a **Group 1** Humanities course.

Science — **3-4 credits**

3-4 credits of a **Group 1** Science lecture/lab course.

Social Science — **3 credits**

3 credits of a **Group 1** Social Science course.

Electives:
Additional credit courses in the college curriculum for a combined total of no less than 60 earned semester hours.

Math Competency required.*

A list of courses in Group 1 and 2 begins on page 13.

Total Degree Credits: Minimum of 60

MATH COMPETENCY

*Math Competency may be fulfilled in one of two ways:

- Placement scores into MTH 111 or higher, or
- Successful completion of MTH 23 with a grade of 2.0 or higher.

OTHER REQUIREMENTS

- Complete at least 60 credit hours with a 2.0 or higher cumulative grade point average.
- Complete one course designated as Cultural Perspective/Diversity. Courses are listed on pages 13-14 and are marked with an asterisk (*).
- Complete a minimum of 15 of the 60 credits through NMC classes.

NOTES

- A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.
- Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.
- To count toward graduation, a course must be completed with a grade of 1.0 or higher, unless otherwise stated.

Associate in Applied Science Degree (AAS)

The Associate in Applied Science degree is generally pursued by those students who plan to enter the workforce following graduation from NMC. A career specialty emphasis is the dominant characteristic of the Applied Science Degree. View the list of specialty programs on pages 20-58. Although some students pursuing the AAS degree may transfer to a four-year college or university to pursue a baccalaureate degree, many AAS courses are not granted transfer equivalency credit at Michigan universities. Students considering the AAS degree who may wish to transfer should see an advisor.

Communications — **6-8 credits**

ENG 111 English Composition
and either BUS 231, ENG 112 or ENG 220.
(Program of Study may specify.)

Humanities — **3 credits**

3 credits of a **Group 1** Humanities course.
(Program of Study may specify.)

Science — **3-4 credits**

3-4 credits of a **Group 1** Science lecture/lab course.
(Program of Study may specify.)

Social Science — **3 credits**

3 credits of a **Group 1** Social Science course.
(Program of Study may specify.)

Major Area Requirements
27 or more earned occupational specialty semester credits. See specific Programs of Study beginning on page 20.

Math Competency required.*

A list of courses in Group 1 and 2 begins on page 13.

Total Degree Credits: Minimum of 60

MATH COMPETENCY

*Math Competency may be fulfilled in one of two ways:

- Placement scores into MTH 111 or higher, or
- Successful completion of MTH 23 with a grade of 2.0 or higher.

Note: Program of Study may specify a higher level of math.

OTHER REQUIREMENTS

- Complete at least 60 credit hours with a 2.0 or higher cumulative grade point average.
- Complete a minimum of 15 of the 60 credits through NMC classes.

NOTES

- A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.
- Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.
- To count toward graduation, a course must be completed with a grade of 1.0 or higher, unless otherwise stated.

Associate Degree in Nursing (ADN)

The Associate Degree in Nursing program is generally pursued by those students who plan to enter the nursing workforce following graduation. After successful completion of this program, graduates take the National Council Licensure Examination (NCLEX-RN). With passing scores, graduates are awarded licensure as a Registered Nurse.

Some students pursuing the ADN degree may decide to transfer to a four-year college or university to pursue a baccalaureate degree. Students considering the ADN degree who may wish to transfer should see an advisor.

Communications — **6-8 credits** ENG 111 English Composition and ENG 112 English Composition.	**Major Area Requirements** 44 semester credit hours in HNR and HAH courses as listed in the Associate Degree in Nursing Program requirements. Math Competency required.* **Admission requirements are on page 48 of this catalog.**
Humanities — **3 credits** 3 credits of a **Group 1** Humanities course.	
Science — **8 credits** BIO 227-228 Human Anatomy and Physiology I and II	
Social Science — **3 credits** PSY 101 Introduction to Psychology.	
Total Degree Credits: Minimum of 64-70	

MATH COMPETENCY

*Math Competency may be fulfilled in one of two ways:

- Placement scores into MTH 121 or higher, or
- Successful completion of MTH 111 with a grade of 2.0 or higher. If required, completion of MTH 111 will add 4 additional credits/contacts to the program.

OTHER REQUIREMENTS

- Complete a minimum of 64 credit hours with a cumulative grade point average of 2.0.
- Complete each nursing course at 2.5 or higher.
- Complete a minimum of 16 degree credits through NMC classes.

NOTES

- A maximum of two physical education credits, two professional development seminar credits, and four Academic Service Learning Internship credits may be used toward a degree.
- Courses with numbers below 100 level do not count toward graduation, but the grades do count toward your cumulative GPA. They may be prerequisites for other courses needed to complete degree or certificate requirements and may add to the total number of credits taken. Review course prerequisites carefully.
- To count toward graduation, a course must be completed with a grade of 1.0 or higher. Grades of 2.0 or higher are required for ENG 111 and PSY 101. Grades of 2.5 or higher are required for each of the courses in the Anatomy and Physiology sequence (BIO 227, BIO 228).

Bachelor of Science (BS)

The Bachelor of Science (BS) is for students whose goal is to pursue a select professional field of study at the baccalaureate level. The program requirements for Maritime Deck Officer, Maritime Engineering Officer, Maritime Power System and Marine Technology are listed on pages 45-47.

General Education Requirements

Minimum 30 **Group 1** credits with at least a 2.0 grade for each course

Communications — **6-8 credits**

ENG 111 English Composition
and either ENG 112 or ENG 220.
(Program of Study will specify.)

Humanities — **3 credits**

3 credits of a **Group 1** Humanities course.
(Program of Study will specify.)

Science — **4 credits**

4 credits of a **Group 1** Science lecture/lab course.
(Program of Study will specify.)

Social Science — **3 credits**

3 credits of a **Group 1** Social Science course.
(Program of Study will specify.)

Major Area Requirements
See pages 45-47.

Math Competency required.*

Total Degree Credits: Minimum of 120

MATH COMPETENCY

*Math Competency may be fulfilled in one of two ways:

- Placement scores into MTH 121, or higher, or
- Successful completion of MTH 111 with a grade of 2.0 or higher.

OTHER REQUIREMENTS

- Complete a minimum of 120 credit hours with a minimum grade of 2.0 or higher in all required courses.
- Complete one course designated as Cultural Perspective/Diversity, see program of study requirements. Courses are listed on pages 13-14 and are marked with an asterisk (*).
- Complete a minimum 30 of the 120 credits through NMC courses.

Group 1 Courses

Excess credits may be applied toward Group 2 requirements.

Communications

ENGLISH DEPT.		Credits
ENG 111	English Composition	4
ENG 112	English Composition	4

Humanities

ART DEPT.

ART 100	Art Appreciation	3
ART 111*	History of Western Art I	4
ART 112*	History of Western Art II	4
ART 213	Modern Art History	3

HISTORY DEPT.

HST 101*	Western Civilization to 1500	4
HST 102*	Western Civilization from 1500	4
HST 111*	US History to 1865	4
HST 112*	US History Since 1865	4
HST 211*	Native American History	3
HST 212*	African-American History	3
HST 213*	American Women's History	3
HST 225	American Civil War	3
HST 228	The Vietnam War	3
HST 230	A History of Michigan	3
HST 235	20th Century Europe	3

HUMANITIES DEPT.

HUM 101*	Introduction to Humanities	3
HUM 102*	Introduction to Humanities	3
HUM 116*	World Cultures	4

LITERATURE DEPT.

ENG 210*	Children's Literature	3
ENG 240	Introduction to Literature	3
ENG 241*	World Mythology	3
ENG 242*	Introduction to Women Writers	3
ENG 246*	British Literature I	3
ENG 247*	British Literature II	3
ENG 254	Shakespeare	3
ENG 256	Environmental Literature	3
ENG 262	American Literature	3
ENG 263*	World Literature	3
ENG 265	Science Fiction and Fantasy	3
ENG 266	Popular Culture	3
ENG 267	Film as Literature	3
ENG 271*	Adolescent Literature	3

MUSIC DEPT.

MUS 110	Music Appreciation Standard Literature	3
MUS 111	Music Appreciation Jazz	3
MUS 129	History of Rock & Roll	3
MUS 201	Theory of Music	3
MUS 202	Theory of Music	3

Humanities *(continued)*

PHILOSOPHY/RELIGION DEPT.

PHL 101*	Introduction to Philosophy	3
PHL 105*	Critical Thinking	3
PHL 121*	Western Religions	4
PHL 122*	Eastern Religions	4
PHL 201*	Ethics	3
PHL 202*	Contemporary Ethical Dilemmas	3
PHL 203*	Environmental Ethics	3

WORLD LANGUAGE (INTERMEDIATE LEVEL) DEPT.

FRN 201*	Intermediate French I	4
FRN 202*	Intermediate French II	4
GRM201*	Intermediate German I	4
GRM202*	Intermediate German II	4
SPN 201*	Intermediate Spanish I	4
SPN 202*	Intermediate Spanish II	4
SPN 227A*	Spanish for Environmental Mgmt	3

Note: *Not all four-year schools will accept second year World Language courses as Humanities Distribution credits.*

Mathematics

MATHEMATICS DEPT.

MTH 120	Mathematical Explorations	3
MTH 121	College Algebra	4
MTH 122	Trigonometry	3
MTH 131	Intro to Probability and Statistics	3
MTH 141	Calculus I	5
MTH 142	Calculus II	5
MTH 241	Calculus III	5
MTH 251	Differential Equations	4

Natural Science

ASTRONOMY DEPT.

AST 109 - AST 109L	Planetary Astronomy	4
AST 119 - AST 119L	Astronomy	4

BIOLOGY DEPT.

BIO 106 - BIO 106L	Human Biology	4
BIO 108 - BIO 108L	Plant Biology	4
BIO 110 - BIO 110L	Essential Biology	4
BIO 115 - BIO 115L	Cell, Plant and Ecosystem Biology	4
BIO 116 - BIO 116L	Genetic, Evolution and Animal Bio	4
BIO 208 - BIO 208L	Microbiology	4
BIO 215	Genetics (no lab)	3
BIO 227 - BIO 227L	Human Anatomy and Physiology I	4
BIO 228 - BIO 228L	Human Anatomy and Physiology II	4
BIO 255	Pathophysiology (no lab)	4
BIO 268	Biochemistry (no lab)	3

CHEMISTRY DEPT.

CHM 101 - CHM 101L	Introductory Chemistry	4
CHM 150 - CHM 150L - 150R	General Chemistry I	5
CHM 151 - CHM 151L - 151R	General Chemistry II	5
CHM 201 - CHM 201L	Intro to Organic Chemistry	5

Natural Science *(continued)*

CHM 250 - CHM 250L Organic Chemistry I 5
CHM 251 - CHM 251L Organic Chemistry II 5

ENVIRONMENTAL SCIENCE DEPT.

ENV 103 - ENV 103L Earth Science 4
ENV 104 - ENV 104L Life of the Past 4
ENV 111 - ENV 111L Physical Geology 4
ENV 112 - ENV 112L Historical Geology 4
ENV 117 - ENV 117L Meteorology and Climatology 4
ENV 131 - ENV 131L Oceanography 4
ENV 140 - ENV 140L Watershed Science 4
ENV 270A Michigan Basin Geology (lab only) 2
ENV 270B Field Mapping Techniques (lab only) 2
ENV 270C Precambrian Geology of MI (lab only) 2

PHYSICS DEPT.

PHY 105 - PHY 105L Physics of the World Around Us 4
PHY 121 - PHY 121L General Physics I 4
PHY 122 - PHY 122L General Physics II 4
PHY 221 - PHY 221L - 221R Prob & Prin of Physics I 5
PHY 222 - PHY 222L - 222R Prob & Prin of Physics II 5

Social Science

ANTHROPOLOGY DEPT.

ANT 113* Introduction to Cultural Anthropology 3

ECONOMICS DEPT.

ECO 201 Principles of Macroeconomics 3
ECO 202 Principles of Microeconomics 3

GEOGRAPHY DEPT.

GEO 101* Introduction to Geography 3
GEO 105 - GEO 105L Physical Geography 4
GEO 108 Geography of U.S. and Canada 3
GEO 109* World Regional Geography 3
GEO 115 Introduction to GIS 3

POLITICAL SCIENCE DEPT.

PLS 101* Intro to American Politics 3
PLS 132* Comparative Politics 3
PLS 211* International Relations 3
PLS 222 Intro to Political Theory 3
PLS 233* U.S. Foreign Policy 3

PSYCHOLOGY DEPT.

PSY 101 Introduction to Psychology 3
PSY 211 Developmental Psychology 3
PSY 221 Psychology of Personality 3
PSY 223 Intro to Social Psychology 3
PSY 225 Human Sexuality 3
PSY 231 Psychology of Adjustment 3
PSY 250 Abnormal Psychology 3

SOCIOLOGY DEPT.

SOC 101* Introduction to Sociology 3
SOC 201 Modern Social Problems 3
SOC 211* Marriage and the Family 3
SOC 220* Gender and Society 3
SOC 231* Deviance and Criminal Behavior 3

***Cultural Perspective/Diversity**

One Cultural Perspective/Diversity course is required for the ASA, AGS, and BS degrees. To meet this requirement, choose any course marked with an asterisk (*) or a 100-level French, German, or Spanish course.

Group 2 Courses

All 100-level or higher courses not listed in the Group 1 section are Group 2 courses.

NMC.
Find it here.

Course Learning Options

Work-Based Learning

NMC provides various work-based learning options.

Internships

Internship opportunities are offered for students who wish to integrate academics with professional work experience. Students can earn college credit while working in positions related to their academic and career goals. Contact the Office Manager in the academic area where you would like to pursue your internship.

Service Learning (For credit or non-credit)

Service Learning is an initiative to instill a sense of civic responsibility in students. It's volunteerism with a learning twist, centered on the benefits students receive while providing services to their community and/or college. It is an opportunity for students to explore career or interest areas, apply classroom theory to a real situation, and gain practical experience for resume building. Up to four service learning elective credits can be applied to graduation. Students may also do non-credit volunteering using the same process. Information: (231) 995-2524.

International Services

www.nmc.edu/student-services/international-services/
(231) 995-2524

Seeking to prepare students with a foundation to create a broader understanding of the world in which we live, International Services includes:

Global Endorsement

NMC offers a Global Endorsement on the college transcript for students who have acquired a minimum of 100 Global Endorsement points prior to graduation. Depending on one's degree, points may be earned in a variety of ways, but must be made up of a minimum number in each of the three following categories: academic coursework, on- and off-campus global experiences, and international events. Visit the International Services web page for complete details on the requirements needed to complete the endorsement. For a list of qualifying courses please visit www.nmc.edu/international-services.

Study Abroad

NMC offers short-term opportunities to multiple destinations affiliated with various academic programs. Check online for current opportunities.

Global Events on Campus

International Affairs Forum lectures, Dennos Museum Center concerts and exhibits and more. Current events are posted online.

Michigan Transfer Agreement (MTA)

In an effort to improve the transferability of college courses between Michigan public community colleges and universities, MTA took effect beginning the fall of 2014. Students who began prior to fall of 2014 will be able to complete the existing MACRAO agreement until the end of summer 2019. If a student already has the MACRAO agreement stamp on their transcript it is expected that the receiving institution will still honor it.

To fulfill the Michigan Transfer Agreement (MTA) students must successfully complete at least 30 Group 1 semester credit hours. Students must earn a grade of 2.0 or higher in each MTA course in order for it to count toward the minimum MTA requirements. Credits are distributed as follows:

- English Composition: Two courses - 6 credits.
- Humanities: Two Group 1 courses - 6 credits taken from two different departments excluding studio and performance classes.
- Mathematics: One Group 1 course – 3 credits – MTH 120 or higher.
- Natural Sciences: Two Group 1 courses - 6 credits from two different departments. One course must include a lecture/lab.
- Social Sciences: Two Group 1 courses - 6 credits from two different departments.

Students are required to complete at least one for-credit course at NMC before requesting the MTA Satisfied endorsement. It must be a college level course but need not be from the areas represented in the MTA. When students have completed the MTA requirements, they should notify the NMC Records Office so their transcripts will be noted "MTA SATISFIED." Students are not required to complete an associate degree in order to satisfy the MTA.

Some students select a course of study that requires a four-year degree of which two years may be completed at NMC through completion of the Associate in Science and Arts degree (ASA). Students completing the ASA will also complete the MTA. See page 8 for ASA degree requirements. Visit www.nmc.edu/student-services/records-registration/policies/michigan-transfer-agreement for additional information.

Accounting

NMC Code 733

The Accounting Program contains a blend of specialized classes and liberal arts studies to prepare students for today's competitive, complex, and changing business world. Students who plan to pursue a bachelor's degree should refer to NMC's degree requirements for the Associate in Science and Arts (ASA) degree. Also, transfer students should familiarize themselves with the requirements of the school where they plan to complete their bachelor's degree. Students interested in a bachelor's degree may also elect to stay in Traverse City and transfer to the University Center.

Anthropology

Anthropology is the study of humanity. Archaeology is the study of the material humans leave behind. Students planning to pursue degrees in anthropology or archaeology at four-year colleges or universities should take these courses. Introduction to Cultural Anthropology (ANT 113) is a required course for many areas of study.

NMC offers specialty courses in Nautical and Underwater Archaeology that may not be found at larger institutions. The Nautical Archaeology Society courses that are taught at NMC offer an internationally recognized certificate in nautical archaeology. This area of study can include fieldwork and research activities in northwestern Michigan, as well as application of advanced technologies. Students planning careers in the following field may find these courses useful: offshore oil and gas industry, underwater search and recovery (such as police divers), maritime and naval, university research, homeland security, commercial surveying, remote sensing (applied water-related technologies), cultural heritage development and management. Contact Mark Holley for more information at mholley@nmc.edu. See course descriptions beginning with ANT at www.nmc.edu/programs/course-descriptions/

Art/Fine Arts

NMC Code 711

The Fine Arts and Visual Communications courses are designed for students who plan to transfer to a four-year college or university for a Bachelor's or Master's degree in Fine Arts (BFA or MFA). Careers for students specializing in Fine Arts include education, museum/gallery management, commercial illustration, animation and character development, film and graphic arts.

Students specializing in Fine Arts while completing an Associate in Science and Arts degree at NMC will pursue a program of study which includes Drawing, 2-D Design and 3-D Design while offering tracks in Fine Studio Arts and Ceramics, Illustration, Photo, Animation/Character Design, Photography, Visual Communications, Painting and Art History. Students are urged to discuss course selection early with transfer schools since portfolio requirements for admission vary. See page 8 for Associate in Science and Arts degree requirements.

Astronomy

NMC Code 717

NMC offers courses that focus on Observational, Planetary, and Stellar Astronomy. Students planning on transferring to pursue a bachelor's degree in this area should also take coursework in Mathematics and Physics. See course descriptions at www.nmc.edu/programs/course-descriptions/

Biology

NMC Code 702

Individuals planning to pursue a bachelor's degree in Biology should select from courses beginning with BIO at www.nmc.edu/programs/course-descriptions/. In addition, students should select courses in Math, Chemistry and Physics.

Business Administration

NMC Code 734

Students planning to pursue a four-year degree in Business Administration should follow NMC's degree requirements for the ASA and familiarize themselves with the requirements of the school of choice for their bachelor's degree.

Chemistry

NMC Code 727

Students planning to pursue a bachelor's degree in Chemistry will choose coursework that includes credits selected from courses beginning with CHM at www.nmc.edu/programs/course-descriptions/. In addition to taking Chemistry courses, students with an emphasis in Chemistry gain a solid background in Math and Physics.

Communications

NMC Code 704

Communications as a separate field of study may include a variety of careers and specialties, ranging from media and public relations to technical writing. It is also an important component of other programs of study or careers, including computer science, human services, health occupations and art therapy.

Criminal Justice

NMC Code 706

Students can complete an Associate in Science and Arts degree from Northwestern Michigan College (NMC) with a focus in Criminal Justice. Students will take 24 credits in criminal justice related courses and gain career opportunities at the local, state and national level in criminal justice; the profession is turning to college educated personnel. It is recommended that students wishing to transfer to a four-year college review the transfer guides for the college of choice since transfer requirements might differ between institutions.

NMC and Ferris State University (FSU) have partnered to offer the Bachelor of Science degree in Criminal Justice where students complete 85 credits at NMC and 35 credits at FSU, which can be completed at the University Center in Traverse City.

NMC also offers a Criminal Justice program in collaboration with other colleges through the Michigan Colleges Online. Visit www.nmc.edu/online for current information on the status of this program, the courses, program requirements, or articulation agreements.

Dance *NMC Code 707*

Students wishing to pursue an interest in the field of dance should take courses beginning with DNC at www.nmc.edu/programs/course-descriptions/ and consult with an advisor and the dance faculty member before their first semester at NMC.

Early Childhood Education *NMC Code 722*

Early Childhood Education courses are designed to prepare students to work with children and their families in early care and education settings. Students may seek a career as the director of a child care program, a paraprofessional/teacher's aide in the school system, a lead teacher in a daycare/preschool setting, a daycare teacher's aide, or preparing for a bachelor's degree in Early Childhood Education. If you are pursuing elementary education, please consult the Elementary Education transfer guide from the transfer school or see an advisor.

Economics *NMC Code 732*

The most basic and enduring strength of economics is that it provides a logical and orderly way of analyzing contemporary economic issues. It draws upon geography, history, philosophy, and mathematics to address topics ranging from how an individual, household or firm, can make rational decisions regarding spending, saving, investment and profits to how a society can make optimal decisions regarding economic growth, inflation, unemployment, trade, and environment. As a result, economics is widely recognized as a solid background for many jobs and professions in the private and public sectors. Students interested in this field of study will select courses beginning with ECO at www.nmc.edu/programs/course-descriptions/

Education *NMC Code 708*

NMC offers two introductory courses related to the field of elementary and secondary education. The Introduction to Teaching course serves as a primer to teaching as a career, and the Educating the Exceptional Child course is designed to address the complexity of understanding and teaching the exceptional child (one with special needs, disabilities and differing abilities including the gifted and talented). Both courses prepare students for further study in education at transfer institutions. Transfer requirements may vary. Go to www.nmc.edu/advising to view NMC transfer guides.

Engineering

The NMC engineering curriculum parallels engineering programs offered during the first two years at other colleges and universities. Traditionally, these first two years emphasize the tools and theories that provide background for all engineering fields. Completion of the following program requirements will prepare most students for transfer to a four-year engineering program.

Engineering Certificate *NMC Code 079*

REQUIREMENTS **Credits: 43-58**

Chemistry*: CHM 150 5
Mathematics**: MTH 141, 142, 241, ***and*** 251 19
Physics: PHY 221 ***and*** 222 10
Engineering: EGR 101, 113, 201 7
EGR 131, 202, 203, 220 ***and/or*** 232 based on program choice 2-17

*More chemistry may be required depending on the area of specialization.
**Students not prepared to begin with Calculus must start at an appropriate level of mathematics determined by placement test scores, or placement by the mathematics department faculty.

Engineering ASA *NMC Code 709*

General Education Credits as required for ASA 30-32
Plus completion of Engineering certificate requirements

English *NMC Code 710*

Students wishing to concentrate their studies in the field of English may be preparing for careers in writing or teaching. English is also crucial to many other careers since writing and reading are high-demand skills in most professions. Students planning to transfer to complete a bachelor's degree in English should pursue an Associate in Science and Arts degree program that includes credits selected from among the courses beginning with ENG at www.nmc.edu/programs/course-descriptions/

Environmental Science *NMC Code 717*

The study of Environmental Science includes courses in Geology, Biology, Meteorology, Chemistry, Soils, Oceanography and Watershed Science. Students planning on transferring to pursue a bachelor's degree in any of these areas will choose a program of study which includes courses selected from those beginning with ENV at www.nmc.edu/programs/course-descriptions/. Students are encouraged to contact a faculty member in the Science department to learn more about employment opportunities and for assistance with class scheduling.

Freshwater Studies *NMC Code 590*

Students planning to transfer to complete a bachelor's degree in Freshwater Studies should follow NMC's degree requirements for the ASA degree on page 8. Students are strongly encouraged to consult a Freshwater Studies advisor for scheduling guidelines and degree selection.

Geography *NMC Code 726*

NMC offers coursework in Physical Geography and Introduction to Geography. Regional courses are also offered that focus on the United States and Canada and the world. In addition, a tools course concentrating on Geographic Information Systems (GIS) is offered. Students planning on pursuing a rewarding career in Geography are encouraged to meet with the Geography Department Head for help in course selection. Course descriptions for GEO courses are available at www.nmc.edu/programs/course-descriptions/

Geology *NMC Code 717*

Students interested in pursuing a career as a Geologist will take Environmental Studies courses, including Physical and Historical Geology. In addition, students will complete coursework in Chemistry, Physics, and Math.

History *NMC Code 730*

As a separate field of study within the humanities, history will prepare students to enter secondary education, journalism, the archival and museum professions, and a variety of public history positions upon completion of at least a bachelor's degree. It will also prepare students for entering professional and graduate schools in law and in fields that will enable graduates to teach and do research in institutions of higher learning.

Liberal Arts/Science *NMC Code 712*

Students interested in transferring to pursue a bachelor's degree should enroll in the General Liberal Arts/Science area of study if they are undecided. Students planning on pursuing this avenue will select at least 30 credits of Group 1 courses from the course list beginning on page 13.

Mathematics *NMC Code 715*

Students planning on transferring to complete a bachelor's degree in Mathematics will pursue coursework that includes MTH 141, MTH 142, MTH 241, and MTH 251. Other suggested courses include PHY 221 and PHY 222.

Music *NMC Code 716*

Professional opportunities for a skilled musician are endless in that music, in some way, touches our lives every day in many ways. The study of music offers a vast variety of career options including: music education, instrumental music, vocal performance, conducting, composing, music for worship, music business, instrument making and repair, music publishing, music communications, recording industry, and in the TV and radio industry.

NMC offers students the opportunity to complete the first two years of music-major coursework in a creative and supportive environment. Students receive individualized instruction from our dynamic faculty in classes designed for students' success. Standard music-major coursework includes: Music Theory, Sight Singing and Ear Training, Group Piano Instruction, Applied Instruction (private lessons), and participation in NMC Music Ensembles. Upon successful completion of the two-year program, students will have earned an Associate in Science and the Arts degree that is transferable to most four-year institutions of higher learning.

NMC also offers many opportunities for those students pursuing non-music degree paths, but interested in continuing their participation in a music program. Any NMC student (music-major or not) may enroll for Applied Instruction and may participate in any of our NMC Music Ensembles: NMC Chamber Singers, NMC Grand Traverse Chorale, NMC Concert Band, NMC Jazz Ensemble, and the NMC Vocal Jazz Ensemble. Other opportunities (chamber groups, percussion ensembles, jazz combos, etc.) are also available for interested NMC students.

Philosophy and Religion *NMC Code 729*

Careers in the fields of philosophy and religion include college teaching and research, secondary education, as well as positions as ministers, priests, or rabbis. Other potential careers for those who specialize in religion are pastoral administration, religious education, church office management, and church mission work. The fields of clinical medicine and medical research as well as commercial business fields like accounting are employing ethicists, a specialized branch of philosophy.

Students planning to transfer to a four-year college or university to major in philosophy or religion may complete basic coursework while at NMC. That coursework will include credits selected from those courses that begin with PHL at www.nmc.edu/programs/course-descriptions/

Physics *NMC Code 717*

Students planning to transfer to complete a bachelor's degree in physics will pursue coursework, which includes Physics 221 & 222, with Calculus I, II, & III, Differential Equations, and General Chemistry I & II.

Plant Science, Applied

Fruit and Vegetable Crop Management *NMC Code 581*
Landscape Management *NMC Code 582*
Viticulture *NMC Code 580*

Students planning to transfer to complete a four-year degree in Horticulture should follow a general education curriculum with courses in science, including Chemistry and Biology. In addition, students may take technical courses in soils, plants and plant diseases from Michigan State University, and can do so here at NMC. See page 54 for course requirements.

Political Science *NMC Code 725*

Political science as a field includes the study of American politics, comparative politics, international relations, political theory, and political economy. Undergraduate courses in political science are an important component of any liberal arts education as students gain important knowledge concerning the political structures that shape our world. Courses in political science are especially useful for students pursing careers or advanced degrees in public policy, law, business, economics, social work, education, history, and, of course, politics. Bachelor's and graduate degrees in political science and public policy offer career opportunities in a variety of areas such as education, policy research, law, and international business. Students interested in political science courses select courses that begin with PLS at www.nmc.edu/programs/course-descriptions/

Pre-Law *NMC Code 718*

Pre-Law is a major often selected by students interested in pursuing careers in government or law.

Pre-Med, Pre-Dental, Pre-Vet *NMC Code 713*

The Pre-Professional program prepares the student for continuing study in a number of medical professional fields, including Pre-PA, Pre-Vet, Pre-Dental, and Pre-Med. While there is no Pre-Professional degree, students interested in the medical profession will typically major in Biology, Chemistry or Psychology.

Psychology *NMC Code 724*

Students interested in the following fields of psychology, such as counseling, social work, research or teaching, may select from courses such as Introduction to Psychology, Introduction to Social Psychology, Developmental Psychology, Human Sexuality, Abnormal Psychology, Psychology of Personality and Psychology of Adjustment.

Social Work *NMC Code 723*

The social work courses are designed to transfer to other four-year schools with certified social work programs. It is specifically designed to fit into the Ferris State University Social Work Program at the University Center in Traverse City and on the Ferris main campus in Big Rapids. When choosing this program of study, it is highly recommended to meet with the social work coordinator; call (231) 995-1294. This will assist you in building a program that will transfer smoothly. Social work is a rapidly growing field that employs people in many different areas of work and requires very specific training and coursework. Students interested in this field of study will select courses from among those beginning with SWK at www.nmc.edu/programs/course-descriptions/

Sociology *NMC Code 720*

Sociology is the study of the social context of human behavior. It includes the study of social change; socialization of group attributes such as social class, race, gender and age; and the workings of our social institutions. Courses in sociology are an important component of any liberal arts education, especially involving critical thinking and an understanding of diversity. It is also a major study for those interested in a wide variety of careers including teaching, social work, public policy, criminal justice, law, non-profit organizations, and social research. Students interested in sociology courses select courses that begin with SOC at www.nmc.edu/programs/course-descriptions/

World Languages *NMC Code 731*

World Languages as a field of study at NMC includes specialization in American Sign Language, French, German, and Spanish. In a world of international telecommunications and interdependent economies, language specialization is an important component for those planning careers in business, communication, or teaching.

NMC.
Find it here.

Occupational programs and certificate programs prepare students to enter the workforce through development of technical specialties and related skills appropriate to the chosen occupational area. See the following program listings for specific program requirements.

Each occupational program has specific learning outcomes that are assessed each year. Specific outcomes are available on the course syllabus. Students who would like to know how a specific academic area meets those outcomes should contact the instructor.

Accounting

Associate in Applied Science Degree - General *NMC Code 103*

This program will prepare students to begin a career in accounting. Graduates will be prepared to work as bookkeepers and entry-level accountants in accounts receivable, accounts payable, payroll, and other entry-level areas of accounting. Students considering transfer should see an advisor.

General Education Requirements Credits: 17-18

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112*.....7-8
Humanities: PHL 105 ***or*** PHL 201 ***or*** PHL 202.....3
Math competency: Placement into MTH 111*** ***or*** higher, ***or*** completion of MTH 23**** with a 2.0 or higher
Science: Any Group 1 course with a lab 4
Social Sciences: ECO 201 3

Occupational Specialty Requirements 32

ACC	121	Accounting Principles I** 4
ACC	123	Accounting Principles II.....4
ACC	221	Intermediate Accounting I.....4
ACC	222	Intermediate Accounting II 4
ACC	223	Cost Accounting 4
BUS	101	Introduction to Business 3
BUS	261	Business Law I.....3
CIT	210	Microsoft Office - Excel 3
CIT	216	Computerized Accounting Systems 3

Concentration Requirements 12

ACC	199	Accounting Practicum 3
BUS	105	Business Math** 3
BUS	155	Interpersonal Communications 3

Directed Elective 3

Directed Electives

ACC	231	Federal Income Tax Problems.....3
ACC	241	Principles Fraud Examination.....3
ACC	290	Accounting Internship.....3
ECO	202	Principles of Microeconomics.....3
MGT	241	Principles of Management 3
MKT	201	Principles of Marketing 3
MTH	131	Intro to Probability and Statistics 3

Program Requirements 61-62

Accounting - Fraud Investigation

Associate in Applied Science Degree *NMC Code 133*

An exclusive partnership between Northwestern Michigan College and Davenport University allows us to offer students interested in forensic accounting the ability to earn an AAS in Fraud Investigation, which leads to further coursework at Davenport University before completing a Bachelor of Business Administration degree in Accounting Fraud Investigation. You will gain experience in communication, teamwork and leadership, as well as the skills necessary for criminal investigation techniques needed by the fraud investigation professional.

General Education Requirements Credits: 17-18

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112*.....7-8
Humanities: PHL 105 ***or*** PHL 201 ***or*** PHL 202.....3
Math competency: Placement into MTH 111*** ***or*** higher, ***or*** completion of MTH 23**** with a 2.0 or higher
Science: Any Group 1 course with a lab 4
Social Sciences: ECO 201 3

Occupational Specialty Requirements 32

ACC	121	Accounting Principles I** 4
ACC	123	Accounting Principles II.....4
ACC	221	Intermediate Accounting I.....4
ACC	222	Intermediate Accounting II 4
ACC	223	Cost Accounting 4
BUS	101	Introduction to Business 3
BUS	261	Business Law I.....3
CIT	210	Microsoft Office - Excel 3
CIT	216	Computerized Accounting Systems 3

Concentration Requirements.....15

ACC	231	Federal Income Tax Problems.....3
ACC	241	Principles Fraud Examination.....3
CJ	211	Criminal Law.....3
ECO	202	Prinicples of Microeconomics.....3
SOC	231	Deviance and Criminal Behavior.....3

Program Requirements 64-65

* *Transfer students will want to take ENG 112 to complete the ENG 111/112 sequence.*
** *It is recommended that BUS 105 be taken before or concurrently with ACC 121.*
*** *Or a higher level math course, excluding MTH 116.*
**** *These credits do not count toward the degree requirements.*

Accounting

Certificate of Achievement (Level II) *NMC Code 073*

The accounting certificate helps meet demand for qualified and knowledgeable people in today's workplace. It helps students acquire the necessary skills to begin entry-level positions in accounting. Students may elect to continue their education and obtain their Associate in Applied Science degree in accounting.

Level II Certificate Requirements **Credits: 32**

ACC	121	Accounting Principles I 4
ACC	123	Accounting Principles II 4
ACC	199	Accounting Practicum 3
BUS	101	Introduction to Business 3
BUS	105	Business Math** 3
BUS	155	Interpersonal Communications ***or***
BUS	231	Professional Communications 3
CIT	210	Microsoft Office - Excel 3
CIT	216	Computerizing Accounting Systems 3
PHL	105	Critical Thinking ***or***
PHL	201	Ethics ***or***
PHL	202	Contemporary Ethical Dilemmas 3

Directed Electives **3**

ACC	231	Federal Income Tax Problems..... 3
ACC	241	Principles Fraud Examination..... 3
ACC	290	Accounting Internship..... 3
ECO	201	Principles of Macroeconomics 3
MGT	241	Principles of Management 3
MKT	201	Principles of Marketing 3

*** It is recommended that BUS 105 be taken before or concurrently with ACC 121.*

Audio Technology

Associate in Applied Science Degree *NMC Code 451*

The NMC Audio Tech program will help prepare students for a career in the audio technology field. Careers in the audio technology field include: Sound Engineer, Recording Engineer, Sound Designer, Live and Theater Sound Engineer, Composer, Mixing Engineer, Mastering Engineer, Archivist, Audio and Visual Equipment Technician, Producer, Broadcast Technician, Pro Tools Operator, Audio Editor, and Audio Post Production.

At NMC, we believe our Audio Tech students will be better prepared for the workforce and the ever-changing music industry by combining aspects of a traditional music education, hands-on training on the newest technology, and opportunities to learn in a variety of environments and experiences – the studio, the stage, and the classroom. Students will have the opportunity to learn, and work with, industry-standard hardware and software recording platforms including: Pro Logic, Studio One, and Pro Tools. Students will also have practical real-world experience in studio and live recording, sound design, composing, mixing, and mastering. The NMC Audio Technology Program is designed to be completed in four semesters. While completing coursework in the Audio Technology Program, students will have the opportunity to earn platform-specific certification, professional credentials of value, and an Associate in Applied Science degree.

General Education Requirements **Credits: 17-18**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112	7-8
Humanities: MUS 110, MUS 111 or MUS 129	3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23	
Science: Any Group 1 course with lab	4
Social Sciences: Any Group 1 course	3

Occupational Specialty Requirements **44**

AUD	100	Applied Music - Audio Tech 2
AUD	101	Theory for Studio Engineers 2
AUD	110	Sound Recording I 2
AUD	111	Sound Recording II 2
AUD	120	Digital Audio I 2
AUD	121	Digital Audio II 2
AUD	130	Live Sound I 2
AUD	131	Live Sound II 2
AUD	210	Sound Recording III 2
AUD	220	Digital Audio III 2
AUD	230	Live Sound III 2
AUD	250	Audio Tech Practicum 2
AUD	260	Audio Tech Internship 3
AUD	270	Audio Tech Final Project 3
MUS	101	Theory of Music ***or***
MUS	100A	Intro to Music Theory I** 3
MUS	102	Theory of Music ***or***
MUS	100B	Intro to Music Theory II** 3
MUS	103	Sight Singing and Ear Training ***or***
MUS	105A	Intro to Ear Training I** 1
MUS	104	Sight Singing and Ear Training ***or***
MUS	105B	Intro to Ear Training II** 1
MUS	106	Class Piano I 2
MUS	107	Class Piano II 2
MUS	112	Class Guitar I 2

** *Students will take a Music Theory Placement Test at the start of the semester.*

Program Requirements **61-62**

Audio Technology

Certificate of Achievement (Level I) *NMC Code 045*

The Audio Technology field is a dynamic industry offering a variety of career opportunities. Upon successful completion of the core Audio Technology coursework, students may earn the Audio Technology Level I Certificate of Achievement.

Certificate Requirements			**Credits: 16**
AUD	100	Applied Music - Audio Tech	2
AUD	101	Theory for Studio Engineers	2
AUD	110	Sound Recording I	2
AUD	111	Sound Recording II	2
AUD	120	Digital Audio I	2
AUD	121	Digital Audio II	2
AUD	130	Live Sound I	2
AUD	131	Live Sound II	2

Audio Technology

Certificate of Achievement (Level II) *NMC Code 046*

The Audio Technology field is a dynamic industry with new technologies being introduced at a rapid pace. To stay abreast of the latest tools and trends, students may enroll in advanced Audio Technology coursework and earn the Audio Technology Level II Certificate of Achievement.

The Audio Technology Level II Certificate of Achievement builds upon the skills learned in the Level I Certificate of Achievement.

Level I Certificate Requirements **Credits: 16**

Level II Certificate Requirements **16**

Prerequisites: Completion of Audio Technology Level I Certificate

AUD	210	Sound Recording III	2
AUD	220	Digital Audio III	2
AUD	230	Live Sound III	2
AUD	250	Audio Tech Practicum	2
AUD	260	Audio Tech Internship	3
AUD	270	Audio Tech Final Project	3
MUS	106	Class Piano I ***or***	
MUS	112	Class Guitar I	2

Total Level II Certificate Requirements **32**

Automotive - Automotive Service Technology

Associate in Applied Science Degree *NMC Code 560*

This program is designed for either the person with little or no prior experience or the skilled technician who needs to keep pace with current technology. Students may take the classes they need to update skills, pursue an Associate in Applied Science degree, which combines automotive technician classes with courses in the liberal arts and sciences, or work toward a Master Technician Certificate, which qualifies graduates to enter the workplace as entry-level state-certified technicians. Students may also choose from three specialized certificates: Hybrid Technology, Under Car Specialist or Electrical and Drivability Specialist. The certificates are explained in more detail in the proceeding pages. All eight state or ASE certifications must be passed to be awarded the AAS degree or Master Technician Certificate.

Day and evening classes allow technicians at every level to develop new skills at convenient times. The program is a series of modules, each designed to teach an individual system. This flexibility allows the more experienced technician to learn a specific system while the beginning technician can combine the modules for a complete course in automotive technology.

General Education Requirements	**Credits: 17-18**
Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 ***or*** ENG 220	7-8
Humanities: Any Group 1 course	3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23 with a 2.0 or higher	
Science: Any Group 1 course with lab	4
Social Sciences: Any Group 1 course	3

		Occupational Specialty Requirements	**59**
AT	100	Automotive Service Basics**	2
AT	110	Automotive Brake Systems	5
AT	120	Automotive Electrical I**	5
AT	130	Engine Performance I	5
AT	140	Suspension and Steering	4
AT	150	Automatic Transmissions	6
AT	160	Engine Repair	6
AT	170	Heating and Air Conditioning	4
AT	180	Manual Drivetrain and Axles	6
AT	200	Service Department Management	2
AT	210	Hybrid Technology	5
AT	220	Automotive Electrical II	5
AT	230	Engine Performance II	4

All eight state or ASE certifications must be passed to be awarded the AAS degree or Master Technician Certificate.

*** May be waived with appropriate work experience or education.*

Program Requirements **76-77**

Automotive - Electrical & Drivability Specialist

Certificate of Achievement (Level II) *NMC Code 031*

This certificate is designed to train students in the automotive systems related to the operation of the engine and its control systems. Emphasis is placed on the automotive electrical and electronic control systems. For students to be awarded this Electrical and Drivability Specialist certificate, they must pass the related State of Michigan exams or ASE test for all five of the required automotive courses.

Foundation Requirements

For successful completion of AT courses, placement into ENG 111 and completion of MTH 08 or placement into MTH 23 is recommended.

Certificate Requirements — Credits: 32

AT	100	Automotive Service Basics*	2
AT	120	Automotive Electrical I	5
AT	130	Engine Performance I	5
AT	160	Engine Repair	6
AT	220	Automotive Electrical II	5
AT	230	Engine Performance II	4
Elective course(s)			5

** May be waived with appropriate work experience or education.*

Program Completion Requirements

A minimum of 32 AT credit hours are required to receive this certificate. Students must choose elective courses from the Automotive Program course list to reach the required credit level.

Must pass the related State of Michigan or ASE test for all of the required automotive courses.

Automotive - Hybrid Technology Specialist

Certificate of Achievement (Level II) *NMC Code 034*

Hybrid electric vehicles are a fast-growing section of the market. This certificate is the direct result of local automotive repair companies requesting NMC provide hybrid technician training. For current students, the certificate is an additional credential opportunity that will expand employment options.

Foundation Requirements

For successful completion of AT courses, placement into ENG 111 and completion of MTH 08 or placement into MTH 23 is recommended.

Certificate Requirements — Credits: 32-34

AT	100	Automotive Service Basics*	2
AT	120	Automotive Electrical I	5
AT	130	Engine Performance I	5
AT	150	Automatic Transmissions ***or***	
AT	230	Engine Performance II	4-6
AT	160	Engine Repair	6
AT	210	Hybrid Technology	5
AT	220	Automotive Electrical II	5

** May be waived with appropriate work experience or education.*

Program Completion Requirements

A minimum of 32 AT credit hours are required to receive this certificate. Students must choose elective courses from the Automotive Program course list to reach the required credit level.

Must pass the related State of Michigan or ASE test for all of the required automotive courses.

Automotive - Master Automotive Technician

Certificate of Achievement (Level III) *NMC Code 001*

From bumper to bumper, under the hood to under the hoist, you'll get your hands on every part of a car in NMC's Automotive – Master Automotive Technician program. This comprehensive certificate includes classes in brakes, electrical, engine performance and repair, suspension and steering, automatic transmissions, heating and air conditioning, manual drivetrain and axles. Classes are offered both days and evenings to fit your schedule. You'll use the latest technology and diagnostic equipment to work on real cars for real customers in NMC's 13 bay auto shop. In-house testing for state certification completes the program.

State and federal levels of certification are offered.

Foundation Requirements

For successful completion of AT courses, placement into ENG 111 and completion of MTH 08 or placement into MTH 23 is recommended.

Certificate Requirements — Credits: 59

AT	100	Automotive Service Basics*	2
AT	110	Automotive Brake Systems	5
AT	120	Automotive Electrical I*	5
AT	130	Engine Performance I	5
AT	140	Suspension and Steering	4
AT	150	Automatic Transmissions	6
AT	160	Engine Repair	6
AT	170	Heating and Air Conditioning	4
AT	180	Manual Drivetrain and Axles	6
AT	200	Service Department Management	2
AT	210	Hybrid Technology	5
AT	220	Automotive Electrical II	5
AT	230	Engine Performance II	4

Must pass all eight (8) State or ASE certification tests to be awarded this certificate.

** May be waived with appropriate work experience or education.*

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Automotive - Under Car Specialist

Certificate of Achievement (Level II) *NMC Code 032*

This certificate is designed to train students in the systems underneath the automobile, including brakes, suspension, and drivetrain. For students to be awarded this Under Car Specialist certificate, they must pass the related State of Michigan or ASE test for all five of the required automotive courses.

Foundation Requirements

For successful completion of AT courses, placement into ENG 111 and completion of MTH 08 or placement into MTH 23 is recommended.

Certificate Requirements — Credits: 32

AT	100	Automotive Service Basics*	2
AT	110	Automotive Brake Systems	5
AT	120	Automotive Electrical I	5
AT	140	Suspension and Steering	4
AT	150	Automatic Transmissions	6
AT	180	Manual Drivetrain and Axles	6
Elective course			4

** May be waived with appropriate work experience or education.*

Program Completion Requirements

A minimum of 32 AT credit hours are required to receive this certificate. Students must choose elective courses from the Automotive Program course list to reach the required credit level.

Students must pass the related State of Michigan or ASE test for all of the required automotive courses.

Aviation

Associate in Applied Science Degree *NMC Code 562*

Admission Required

A special application for Aviation is required. ENG 111 with a 2.0 grade is strongly recommended. Contact program advisor for details.

General Education Requirements Credits: 17-18

Communications: ENG 111 ***and either*** ENG 112 ***or*** ENG 220 ***or*** BUS 231 7-8
Humanities: Any Group 1 Course 3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23
Science: Any Group 1 Course with lab 4
Social Sciences: Any Group 1 course 3

Occupational Specialty Requirements 24

AVF	111	Private Flight	5
AVF	132	Instrument Flight	4
AVG	101	Private Ground School	5
AVG	161	Mechanics for Pilots ***or***	
AVG	190	Aviation Weather	3
AVG	202	Advanced Aircraft Systems	3
AVG	252	Instrument Ground School	4

Directed Electives

Choose at least 23 credits from the following list: **23**

AVF	141	Remote Pilot Flight	3
AVF	211	Commercial Drone Operations	4
AVF	230	Commercial Flight I	2
AVF	232	Commercial Flight II	3
AVF	234	Commercial Flight III	2
AVF	241	Advanced Drone Operations	3
AVF	242	Multi Engine Instuctor	2
AVF	271	Multi-Engine Flight	1
AVF	274	Tailwheel Flight	1
AVF	275	Seaplane Flight	2
AVF	283	Upset Maneuver Training	1
AVF	284	Instrument Flight Instructor	2
AVF	382	Flight Instructor Rating	4
AVG	142	Remote Pilot Ground	3
AVG	161	Mechanics for Pilots	3
AVG	190	Aviation Weather	3
AVG	201	International Aviation	3
AVG	204	Airline Aircraft Ground School	3
AVG	231	Aviation Law	3
AVG	240	Corporate Aviation Ground	3
AVG	251	Commercial Ground School	4
AVG	285	Crew Resource Management	3
AVG	381	Instructor Ground School	5

Students seeking an AAS Degree in Aviation from NMC shall earn the required aviation credits listed for their degree or a combination of three methods:

1. Aviation courses listed in the NMC catalog;
2. Approved transfer credit;
3. NMC competency testing - maximum of 17 aviation credits may be obtained through competency testing, not including AVF 271, AVF 284, AVF 382 and AVG 381. Testing allowed only with director's approval.

To obtain the AAS Degree, students must complete a minimum of three flight courses listed in this catalog through the normal process for obtaining credit. All AVF and AVG courses must be completed with a 2.0 grade or higher. Please consult an aviation advisor for scheduling guidelines.

Independent study and specialty courses are also available. Examples: Airline Transport Pilot (ATP), Unmanned Systems, and Advanced Aviation topics.

Before beginning flight training, students must obtain a medical certificate from an FAA-approved doctor. Visit **www.flightphysical.com** or **www.faa.gov** for a list of FAA-approved doctors. Students must be cleared to fly by the TSA before receiving flight instruction.

Program Requirements 64-65

Aviation - Unmanned Aircraft Systems

Certificate of Achievement (Level I) *NMC Code 050*

Drones have become more of an everyday tool used in industry and are less of a novelty than ever before. Learn about this new industry and be prepared for the future.

This certificate is designed to provide a concentrated study for students who plan to enter the UAS (drone) industry. NMC UAS certificate students receive practical training in all aspects of commercial UAS operations and applications. The program includes hands-on courses that will provide the student with the essential and fundamental skills needed to be successful in this new and exciting industry. Students will earn a Remote Pilot certificate from the FAA that is required for the commercial operation of a drone system. In addition, the student will be guided from entry level skills and knowledge to the operation of commercial grade systems. Students will also learn how to use drones in commercial applications such as land survey, agriculture, and industrial inspections.

Certificate Requirements **Credits: 16-17**

AVF	141	Remote Pilot Flight	3
AVF	211	Commercial Drone Operations	4
AVF	241	Advanced Drone Operations	3
AVG	142	Remote Pilot Ground	3

Directed Electives

Choose any 3 or 4 credit course from the following list. **3-4**

ART	174	Digital Photography I	3
AVF	261	Aerosonde UAS Flight Training	3
AVG	260	Aerosonde UAS Ground Training	4
BUS	101	Introduction to Business	3
CMT	107	Construction Supervision	4
EET	103	Electrical Studies I	3
EGY	101	Principles of Renewable Energy	3
GEO	115	Introduction to GIS	3
LWE	102	Police Operations	4
RAM	155	Microcontroller Programming	3
WSI	200	GL Research Technologies	3
WSI	240	ROV Systems and Operations	3

Business Administration

Associate in Applied Science Degree *NMC Code 105*

This program prepares students for the challenges of the ever-changing world of business. Specialized courses and liberal arts studies provide students with a foundation needed to pursue careers characterized by technology, constant change, and increasing competition.

The order in which courses are taken is not critical except where prerequisites are involved. Course substitutions may be made only with the approval of the program coordinator or the academic area chair.

Students planning to pursue a four-year degree in Business Administration should follow NMC's degree requirements for the ASA degree and familiarize themselves with the requirements of the school of choice for their bachelor's degree.

Students planning to enter the business world upon completion of a two-year degree should pursue an AAS degree in Business Administration.

General Education Requirements **Credits: 17**

Communications: ENG 111 ***and*** BUS 231	7
Humanities: PHL 201 ***or*** PHL 202 ***or*** PHL 203	3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23 with a 2.0 or higher	
Science: Science Group 1 course with a lab	4
Social Sciences: ECO 201	3

Occupational Specialty Requirements **38**

ACC	121	Accounting Principles I	4
ACC	123	Accounting Principles II	4
BUS	101	Introduction to Business	3
BUS	105	Business Math	3
BUS	155	Interpersonal Communications	3
BUS	261	Business Law I	3
BUS	290	Business Administration Internship	3
CIT	100	Computers in Business-An Intro	3
CIT	210	Microsoft Office - Excel	3
MGT	241	Principles of Management	3
MGT	251	Human Resources Management	3
MKT	201	Principles of Marketing	3

Directed Electives

Choose any combination of at least 5 credits from the following list. Students intending to transfer to another college should take ENG 112. **5**

ACC	223	Cost Accounting	4
ACC	231	Federal Income Tax Problems	3
ACC	241	Principles Fraud Examination	3
CIT	119	Microsoft Office - Word	3
CIT	122A	Computer & Internet Basics I	1
CIT	124	Microsoft Office - PowerPoint	2
CIT	213	Networking Technologies	4
CIT	216	Computerized Acctg Systems	3
COM	111	Public Speaking.	4
ECO	202	Principles of Microeconomics	3
ENG	112	English Composition	4
MKT	208	Digital Marketing	2
MKT	241	Principles of Advertising	3
MTH	111	Intermediate Algebra*	4
MTH	131	Intro to Probability and Statistics	3
VCA	150	Digital Graphics Design I	3

** Or a higher level math course.*

Program Requirements **60**

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Business Administration - Online

Associate in Applied Science Degree *NMC Code 105*

NMC offers an online alternative for students pursuing an Associate in Applied Science degree in Business Administration. Students are strongly encouraged to meet with an academic advisor because not all classes are offered online every semester, and students must complete an internship, which requires on-site attendance.

General Education Requirements **Credits: 17**

Communications: ENG 111 ***and*** BUS 231 7
Humanities: PHL 201 ***or*** PHL 202 3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23** with a 2.0 or higher
Science: Science Group 1 course with a lab 4
Social Sciences: ECO 201 3

Occupational Specialty Requirements **38**

ACC	121	Accounting Principles I 4
ACC	123	Accounting Principles II 4
BUS	101	Introduction to Business 3
BUS	105	Business Math 3
BUS	155	Interpersonal Communications 3
BUS	261	Business Law I 3
BUS	290	Business Administration Internship** 3
CIT	100	Computers in Business-An Intro 3
CIT	210	Microsoft Office - Excel 3
MGT	241	Principles of Management 3
MGT	251	Human Resources Management 3
MKT	201	Principles of Marketing 3

Directed Electives

Choose any combination of at least 5 credits from the following: **5**

ACC	223	Cost Accounting 4
CIT	119	Microsoft Office - Word 3
CIT	122A	Computer and Internet Basics I 1
CIT	124	Microsoft Office - PowerPoint 2
ECO	202	Principles of Microeconomics 3
ENG	112	English Composition 4
MKT	208	Digital Marketing 2
MKT	241	Principles of Advertising 3
MTH	111	Intermediate Algebra* 4
MTH	131	Intro to Probability and Statistics 3

** Or a higher level math course.*
*** Requires on-site attendance.*

Program Requirements **60**

If you are seeking online courses for your specific program that are not currently offered online, visit Michigan Colleges Online at **www.micollegesonline.org** for online course options.

Computer Information Technology - Developer

Associate in Applied Science Degree *NMC Code 108*

As everyone and everything becomes networked, the demand for software applications continues to expand. The CIT Developer program targets this need by producing graduates who are effective programmers and solution architects. Courses in the Developer Program utilize various languages, frameworks, and technologies to deliver practical knowledge of application development and data access. The program's focus on a solid understanding of good design practices enables students to easily transition into new development environments. Students considering transfer should see an advisor.

General Education Requirements **Credits: 21-22**

Communications: ENG 111 ***and either*** ENG 112 ***or*** ENG 220 7-8
Humanities: PHL 105 ***or*** PHL 202 3
Math competency: Placement into MTH 121 ***or*** higher, ***or*** completion of MTH 111
Science: Any Group 1 with a lab 4
Social Sciences: Any Group 1 course 3

Occupational Specialty Courses **35**

CIT	110	Programming Logic and Design 3
CIT	178	Relational Databases 3
CIT	180	HTML and CSS Programming 3
CIT	190	JavaScript Programming 3
CIT	195	Application Development 3
CIT	213	Networking Technologies* 4
CIT	218	Web Application Development 3
CIT	228	Advanced Database Systems* 3
CIT	255	Object-Oriented Programming 3
CIT	280	Systems Analysis and Design 4
CIT	290	CIT Internship** 3

Occupational Specialty Electives

(Choose a combination of the following) **5-6**

ANY CIT COURSES 2-4		
MKT	208	Digital Marketing 2
VCA	125	Typography I 3
VCA	127	Digital Imaging 3
VCA	150	Digital Graphics Design I 3

Directed Elective (Choose one) **3-4**

ACC	121	Accounting Principles I 4
BUS	155	Interpersonal Communications 3
BUS	231	Professional Communications 3
COM	111	Public Speaking 4

Program Requirements 60-63

** Microsoft Technology Associate Certification Exams required.*
*** 20 CIT credits with a 3.0 GPA and department approval is required. Students with a GPA below 3.0 should talk with their advisor.*
While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.
Note: *This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.*

Computer Information Technology - Assistant Developer

Certificate of Achievement (Level I) *NMC Code 095*

The CIT Assistant Developer Certificate prepares students for the workplace by concentrating on foundational level skills in web, programming and database technologies. Students in this program will have an opportunity to develop a systems portfolio as well as earn several industry recognized certifications.

Level I Certificate Requirements			**Credits: 19**
CIT	110	Programming Logic and Design	3
CIT	178	Relational Databases	3
CIT	180	HTML and CSS Programming	3
CIT	190	JavaScript Programming	3
CIT	195	Application Development	3
CIT	213	Networking Technologies*	4

** Microsoft Technology Associate Certification Exam required.*

Computer Information Technology - Associate Developer

Certificate of Achievement (Level II) *NMC Code 094*

Students completing the CIT Assistant Developer Certificate may elect to continue their education and obtain a Level II Certificate. This program prepares students for careers as software and web developers using the latest industry technologies.

Level I Certificate Requirements			**Credits: 19**
CIT	218	Web Application Development	3
CIT	228	Advanced Database Systems	3
CIT	255	Object-Oriented Programming	3

CIT Elective (Choose from the following)			**2-3**
ANY CIT COURSE			2-3
MKT	208	Digital Marketing	2
VCA	125	Typography I	3
VCA	127	Digital Imaging	3
VCA	150	Digital Graphics Design I	3

Total Level II Certificate Requirements **30-31**

Computer Information Technology - Infrastructure

Associate in Applied Science Degree *NMC Code 125*

This program provides students with comprehensive background in computer hardware, operating systems, security, local area networking, and internetwork routing and switching. This degree is designed to prepare students for the following internationally recognized certifications:

- CompTIA A+® Certification
- CompTIA Cloud+® Certification
- CompTIA Network+® Certification
- CompTIA Security+® Certification
- Cisco CCNA - Cisco Certified Network Associate
- MCP - Microsoft Certified Professional
- MTA - Microsoft Technology Associate

Successful associate degree graduates are qualified for positions as hardware technicians, network administrators, system administrators, and infrastructure support specialists. Students considering transfer should see an advisor.

General Education Requirements			**Credits: 21-22**
Communications: ENG 111 ***and either*** ENG 112 ***or*** ENG 220			7-8
Humanities: PHL 105 ***or*** PHL 202			3
Math competency: Placement into MTH 121 ***or*** higher, ***or*** completion of MTH 111			4
Science: Any Group 1 course with a lab			4
Social Sciences: Any Group 1 course (ECO 201 recommended)			3

Occupational Specialty Courses			**49-50**
BUS	155	Interpersonal Communications ***or***	
BUS	231	Professional Communications ***or***	
COM	111	Public Speaking	3-4
CIT	156	CompTIA A+® Certification I	3
CIT	157	CompTIA A+® Certification II	3
CIT	160	Cisco Internetworking I	3
CIT	161	Cisco Internetworking II	3
CIT	213	Networking Technologies	4
CIT	215	Windows Server Environment	3
CIT	240	Network Security Management	3
CIT	243	Cloud Technologies	3
CIT	246	Windows Server Infrastructure	3
CIT	247	Enterprise Solutions	3
CIT	256	Linux Administration	3
CIT	260	Cisco Internetworking III	3
CIT	261	Cisco Internetworking IV	3
CIT	290	CIT Internship*	3
CIT Elective		Choose any 3 credit CIT course	3

** Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0.*

While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.

Note: *This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.*

Program Requirements **66-68**

Computer Information Technology - Infrastructure Specialist I

Certificate of Achievement (Level I) *NMC Code 033*

The Infrastructure Specialist I Certificate of Achievement prepares computer professionals to assemble, upgrade, maintain and repair personal computers and work with Local Area Networks. The program is designed to prepare students for the following internationally recognized certifications:

- CompTIA A+® Certification
- CompTIA Linux+® Certification
- CompTIA Network+® Certification
- Microsoft MCP Certification
- Microsoft MTA Certification

Level I Certificate Requirements **Credits: 19-20**

BUS	155	Interpersonal Communications ***or***	
BUS	231	Professional Communications ***or***	
COM	111	Public Speaking	3-4

For CompTIA A+® Certification:

CIT	156	CompTIA A+® Certification I	3
CIT	157	CompTIA A+® Certification II	3

For CompTIA Linux+ Certification:

CIT	256	Linux Administration	3

For CompTIA Network+® Certification:

CIT	213	Networking Technologies	4

For Microsoft MCP Certification:

CIT	215	Windows Server Environment	3

Computer Information Technology - Infrastructure Specialist II

Certificate of Achievement (Level II) *NMC Code 030*

Students completing the Infrastructure Specialist I Certificate may elect to continue their education and obtain a Level II Certificate. The Cisco CCNA certification is an industry recognized certification in internetwork routing and switching. NMC is a Cisco Networking Academy Program.

Level I Certificate Requirements **Credits: 19-20**

For Cisco CCNA Routing & Switching Certification:

CIT	160	Cisco Internetworking I	3
CIT	161	Cisco Internetworking II	3
CIT	260	Cisco Internetworking III	3
CIT	261	Cisco Internetworking IV	3

Total Level II Certificate Requirements **31-32**

Computer Information Technology - Infrastructure Specialist III

Certificate of Achievement (Level III) *NMC Code 024*

After completing the Infrastructure Specialist II Certificate students may elect to obtain a Level III certificate. The CompTIA Cloud+ certification is an industry-recognized certification focusing on cloud technologies. The CompTIA Security+ certification is an industry-recognized certification focusing on computer security.

Level II Certificate Requirements **Credits: 31-32**

For Microsoft MCP Certification:

CIT	246	Windows Server Infrastructure	3
CIT	247	Enterprise Solutions	3

For CompTIA Cloud+® Certification:

CIT	243	Cloud Technologies	3

For CompTIA Security+® Certification:

CIT	240	Network Security Management	3

Occupational Requirements

CIT	290	CIT Internship*	3
CIT Elective		Choose any 3 credit CIT course	3

Total Level III Certificate Requirements **49-50**

** Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0.*

While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for students who do not meet this requirement.

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Computer Information Technology - Microsoft Office™ Applications Specialist

Certificate of Achievement (Level I) *NMC Code 035*

The Microsoft Office™ Applications Specialist Certificate helps meet the demand for qualified and knowledgeable people in today's workplace. It helps students to acquire the desktop applications expertise and basic computer skills needed to work more productively and efficiently with Microsoft Office™.

This program requires Microsoft Office™ 2016 on a Windows computer (or on a Mac with a Windows partition). The software is available for download and is also at campus computer labs.

This NMC credential also serves to train candidates for the globally recognized Microsoft Specialist series of certifications. NMC is a Microsoft Office approved testing center, and the certification exams are administered at the Aero Park campus. For more information: (231) 995-2017.

Level I Certificate Requirements			**Credits: 17**
BUS	155	Interpersonal Communications	3
CIT	119	Microsoft Office - Word	3
CIT	122A	Computer and Internet Basics I	1
CIT	124	Microsoft Office - PowerPoint	2
CIT	210	Microsoft Office - Excel	3
MGT	251	Human Resources Management	3
MKT	208	Digital Marketing	2

Note: *Students selecting this certificate program need beginning keyboarding skills.*

Computer Information Technology - Computer Support Specialist

Certificate of Achievement (Level III) *NMC Code 006*

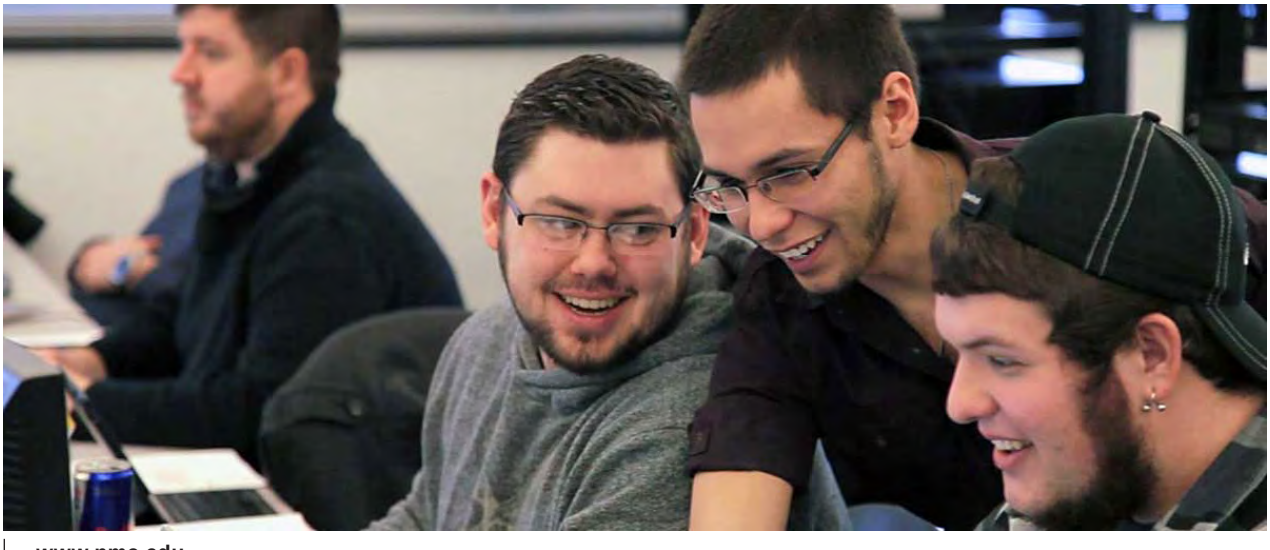
Students complete course work in business and computer operations leading to a certificate. This program is designed to provide students with the necessary skills to work as support specialist or computer technician. Students will have an opportunity to acquire skills using current operating system and application software and gain experience using Local Area Networks. Students will also learn troubleshooting methodologies and develop project management skills.

This program requires Microsoft Office™ 2016 on a Windows computer (or on a Mac with a Windows partition). The software is available for download and is also at campus computer labs.

Completion of Microsoft Office™ Applications Specialist Certificate **Credits: 17**

Level III Certificate Requirements			**34**
BUS	105	Business Math	3
BUS	231	Professional Communications	3
CIT	156	CompTIA A+ Certification I	3
CIT	157	CompTIA A+ Certification II	3
CIT	213	Networking Technologies	4
CIT	240	Network Security Management	3
CIT	243	Cloud Technologies	3
CIT	292	Support Specialist Internship	3
ENG	220	Technical Writing	3
PHL	105	Critical Thinking	3
CIT Elective		Choose any 3 credit CIT course	3
Total Computer Support Specialist Requirements			**51**

Note: *Students selecting this certificate program need beginning keyboarding skills.*



Computer Information Technology - Industry Certifications

Industry Certifications

For additional information on testing and/or training for any of the certification opportunities listed below, call (231) 995-1169 or email **CIT@nmc.edu**. NMC is an authorized Certiport, Pearson-VUE, and Prometric testing center.

Cisco CCNA Routing & Switching Certification – The CCNA certification (Cisco Certified Network Associate) indicates a foundation in, and apprentice knowledge of networking. CCNA certified professionals can install, configure, operate LAN, WAN and dial access services for small networks (100 nodes or fewer), including but not limited to use of these protocols: IP, EIGRP, OSPF, Ethernet, Access Lists.

Cisco Internetworking I through Cisco Internetworking IV are courses offered by the NMC Cisco Networking Academy and provide training for the CCNA Routing & Switching Exam.

CompTIA A+ Certification® – This certification is the industry standard for validating vendor-neutral skills expected of an entry-level IT technician. CompTIA A+® Certification I and CompTIA A+® Certification II are NMC courses and provide the necessary preparation to pass the A+ Essentials and A+ Technician Certification exams.

CompTIA Network+ Certification® – This certification validates technical competency in network infrastructure and support. Those holding Network+ certification demonstrate critical knowledge of network concepts, network installation and configuration, network media and topologies, network management and network security. Network Technologies is an NMC course that provides the necessary preparation to pass the Network+ Certification exam.

CompTIA Security+ Certification® – This certification validates technical knowledge of an individual with experience in network security. The CompTIA Security+® certification validates technical competency in security and covers industry-wide topics including communication security, infrastructure security, cryptography, access control, authentication, external attack, operational and organization security. Network Security Management provides the necessary preparation to pass the Security+ Certification exam.

CompTIA Cloud+ Certification® – This certification validates the skills and expertise of IT practitioners in implementing and maintaining cloud technologies. Cloud+ accredits IT professionals with the constantly changing and advancing knowledge they need to be successful in today's cloud computing environment.

Microsoft Certified Professional (MCP) – The Microsoft Certified Professional certification is an internationally recognized certification focusing on Microsoft Technologies. Enterprise Solutions, Windows Server Environment, and Windows Server Infrastructure are NMC courses that provide the necessary preparation to pass the Microsoft MCP certification. Students passing a Microsoft Certified Professional exam associated with each of the courses will earn the Microsoft Certified Solutions Associate (MCSA) certification.

Microsoft Office Specialist (MOS) – Microsoft Office Specialist certification proves expertise in Microsoft applications. Microsoft Office-Word, Microsoft Office-Excel, Microsoft Office-PowerPoint and Microsoft Office-Access are NMC courses that provide the necessary preparation to pass Microsoft Office Specialist certifications.

Microsoft Technology Associate (MTA) – Microsoft Technology Associate (MTA) certification is an entry-level credential from Microsoft that validates essential technology knowledge, enabling students to explore academic and career options, and take the first step toward building a successful career in technology. MTA certifications are embedded into the CIT Developer and CIT Infrastructure degree programs and certificates.

Computer Information Technology - Assistant Web Developer

Certificate of Achievement (Level I) *NMC Code 053*

This series of Web Developer certificates provides an introduction to both website design and website development. Visual Communication courses enable students to create visually effective sites using graphic design principles and tools. Information Technology courses provide the technical ability to develop interactive, data-driven sites and applications. Students interested in this profession are usually detail and result oriented, self-directed and enjoy working with both people and technology. The certificates may be completed as stand-alone certificates, taken in order, or applied to electives or major area requirements for an Associate in General Studies or an Associate in Applied Science degree.

Level I Certificate Requirements **Credits: 18**

CIT	110	Programming Logic and Design	3
CIT	180	HTML and CSS Programming	3
CIT	190	JavaScript Programming	3
VCA	127	Digital Imaging	3
VCA	147	Web Design I	3
VCA	150	Digital Graphics Design I	3

Note: *This program requires a minimum of 60 credits. Courses tested out or waved must be replaced with approved program electives.*

Computer Information Technology - Associate Web Developer

Certificate of Achievement (Level II) *NMC Code 054*

The Associate Web Developer Certificate is designed for students seeking entry level employment, and includes advanced web design and development skills such as data connectivity, responsive design, interactive graphics and animation.

Level I Certificate Requirements **Credits: 18**

ART	131	2-D Design	3
CIT	195	Application Development	3
VCA	125	Typography I	3
VCA	146	Interactive Animation	3

Total Level II Certificate Requirements **30**

Computer Information Technology - Web Developer

Certificate of Achievement (Level III) *NMC Code 041*

The Web Developer Certificate is designed for students seeking employment requiring more advanced skills including server-side development, advanced database connectivity, and advanced animation. This certificate also includes a semester long internship experience.

Level II Certificate Requirements **Credits: 30**

BUS	155	Interpersonal Communications ***or***	
BUS	231	Professional Communications ***or***	
COM	111	Public Speaking	3-4
CIT	178	Relational Databases	3
CIT	218	Web Application Development	3
CIT	255	Object-Oriented Programming	3
CIT	291	Web Developer Internship*	3

Total Level III Certificate Requirements **45-46**

** Students planning to take the internship class require department approval and are required to have a GPA of 3.0 in their CIT classes. It is also recommended that students have 20 credits in CIT classes and an overall GPA of 2.0. While a 3.0 GPA in CIT classes is required for this internship, an alternative, campus-based internship opportunity is available for those students who do not meet this requirement.*

Construction Technology - Carpentry Technology

Certificate of Achievement (Level I) *NMC Code 061*

Skilled carpenters must knowledgeably use specialized tools, read blueprints, frame structures, install doors, windows, cabinets, insulation, finish trim; and construct roofs, decks, and stairways. Being versatile opens a wide range of employment opportunities. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

Level I Certificate Requirements		**Credits: 22-23**
CAR 101	Introduction to Carpentry	3
CAR 103	Construction Blueprint Reading	3
CAR 105	Foundations and Framing	3
CAR 121	Exterior Construction	3
CAR 125	Interior Construction	3
CMT 107	Construction Supervision	4
MTH 111	Intermediate Algebra ***or***	
MTH 120	Mathematical Explorations	3-4

Construction Technology - Carpentry Technology

Certificate of Achievement (Level II) *NMC Code 068*

After completing the Carpentry Technology Level I Certificate students may elect to obtain a level II certificate. Skilled carpenters must knowledgeably use specialized tools, read blueprints, frame structures, install doors, windows, cabinets, insulation, finish trim and construct roofs, decks, and stairways. Being versatile opens a wide range of employment opportunities. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

Level I Certificate Requirements		**Credits: 22-23**
Level II Certificate Requirements		**18**
CAR 102	Introduction to Woodworking	3
CAR 104	Woodworking Applications I	3
CIT 100	Computers in Business - An Intro	3
CMT 207	Construction Cost Estimating	3
EGY 105	Sustainable Building Design	3
EGY 115	Residential Energy Efficiency	3
Total Level II Certificate Requirements		**40-41**

NMC.
Find it here.

Construction Technology - Construction Management

Associate in Applied Science Degree *NMC Code 368*

The Construction Management program provides graduates with the technical and managerial skills needed in today's commercial and residential construction industry; from the planning stage with architects and engineers, to the budgeting stage with cost estimators, to the production stage with laborers. Construction managers also obtain work permits, hire contractors, troubleshoot emergencies, schedule walkthroughs and keep clients informed on work timetables and progress.

Students are prepared for the management responsibilities they will face on the job, creating an opportunity to move into supervision and construction management. Information: (231) 995-2777.

General Education Requirements		**Credits: 21**
Communications: ENG 111 ***and*** BUS 231		7
Humanities: Any Group 1 course		3
Math competency: Placement into MTH 122 ***or*** higher, ***or*** completion of MTH 121		4
Science: PHY 105		4
Social Sciences: ECO 201		3

Business/Management Requirements		**Credits: 20**
CIT 100	Computers in Business - An Intro	3
CMT 107	Construction Supervision	4
CMT 207	Construction Cost Estimating	3
COM 111	Public Speaking	4
MGT 241	Principles of Management	3
MKT 201	Principles of Marketing	3

Completion of any Construction Technology Certificate*	**Credits: 18-24**
Program Requirements	**60**

* *Completion of any construction technology certificate in carpentry, electrical, facilities maintenance, HVAC/R or PLC. The HVAC/R and PLC certificates will require one additional construction technology elective.*

Construction Technology - Electrical

Associate in Applied Science Degree *NMC Code 653*

The AAS in Electrical provides in-depth training and knowledge to those students who seek to have a well-balanced foundation of not only technical skills, but soft skills as well. Students completing this degree will find a wide range and availability of job opportunities. Electrical technicians have been in demand for installations, maintenance, repair, and support for industries ranging from private home owners to hospitals, manufacturers, and breweries. Technical training includes electrical theory, National Electrical Code, motors, generators, lighting, and control systems for residential through commercial/industrial applications. The curriculum is designed by the industry and aligned with State of Michigan electrical apprenticeship requirements. Information: (231) 995-2777.

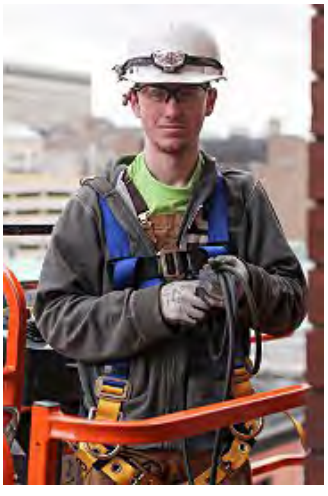
General Education Requirements **Credits: 21-22**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 ***or*** ENG 220 7-8
Humanities: Any Group 1 course 3
Math competency: Placement into MTH 122 ***or*** higher, ***or*** completion of MTH 121 4
Science: ENV 103 ***or*** ENV 117 ***or*** PHY 121 4
Social Sciences: Any Group 1 course 3

Occupational Specialty Requirements **39**

EGY 141 Solar Photovoltaic Technology I 3
ELE 101 Introduction to Electrical 3
ELE 105 Beg. Residential Electrical 3
ELE 110 Electrical Code Studies I 3
ELE 111 Electrical Code Studies II 3
ELE 121 Adv. Residential Electrical 3
ELE 125 Pre-Commercial Electrical 3
ELE 131 Commercial Electrical 3
ELE 135 Adv Commercial Electrical 3
ELE 142 Industrial Electrical 3
ELE 146 Adv Industrial Electrical 3
Construction Technology Electives (See Elective list on page 36) 6

Program Requirements **60-61**



Construction Technology - Electrical Technology

Certificate of Achievement (Level I) *NMC Code 062*

Qualified electricians install, troubleshoot, and repair electrical systems in residential and commercial settings. There is high demand for well-trained electricians nationwide. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. This certificate program is approved by the State of Michigan to meet the electrical apprenticeship requirements. Information: (231) 995-2777.

Certificate Requirements **Credits: 24**

ELE 101 Introduction to Electrical 3
ELE 105 Beg. Residential Electrical 3
ELE 121 Adv. Residential Electrical 3
ELE 125 Pre-Commercial Electrical 3
ELE 131 Commercial Electrical 3
ELE 135 Adv. Commercial Electrical 3
ELE 142 Industrial Electrical 3
ELE 146 Adv. Industrial Electrical 3

** ELE 110 - Electrical Code Studies I and ELE 111 - Electrical Code Studies II are additional courses offered for those seeking National Electrical Code references to daily work or those who would like structured study preparation for the Journeymen or Master Electrician License Exam.*

Construction Technology - Facilities Maintenance

Certificate of Achievement (Level II) *NMC Code 063*

Performing facilities maintenance requires knowledge in several areas. This level II certificate covers reading blueprints, general carpentry, tools of the trade, electrical wiring and schematics, and thermodynamics of refrigeration. Also required will be 14 technical elective credits that can range from drafting to alternative energy integration into a facility. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

Certificate Requirements **Credits: 33-34**

CAR 101 Introduction to Carpentry 3
CAR 105 Foundations and Framing 3
ELE 101 Introduction to Electrical 3
ELE 105 Beg. Residential Electrical 3
HVA 101 Introduction to HVAC/R 3
HVA 106 Fundamentals of Heating 3
MTH 111 Intermediate Algebra ***or***
MTH 120 Mathematical Explorations 3-4
PLU 101 Introduction to Plumbing 3
PLU 105 Plumbing Components 3
Construction Technology Electives (See Elective list on page 36) 6

Construction Technology - HVAC/R

Associate in Applied Science Degree *NMC Code 654*

The AAS in HVAC/R provides in-depth training and knowledge to those students who seek to have a well-balanced foundation of not only technical skills, but soft skills as well. Students completing this degree will find a wide range and availability of job opportunities. HVAC/R technicians have been in demand for installations, maintenance, repair, and support for industries ranging from private home owners to hospitals, manufacturers, and breweries. Technical training includes heating, ventilating, air-conditioning, and refrigeration systems for residential through commercial/industrial applications. The curriculum is designed by the industry and aligned with national competency standards (EPA certification). Focus is on hands-on training in our state-of-the-art facility. Information: (231) 995-2777.

General Education Requirements **Credits: 21-22**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 ***or*** ENG 220 7-8
Humanities: Any Group 1 course 3
Math competency: Placement into MTH 122 ***or*** higher, ***or*** completion of MTH 121 4
Science: ENV 117 ***or*** PHY 121 ***or*** ENV 103 4
Social Sciences: Any Group 1 course 3

Occupational Specialty Requirements **39**

EGY	145	Geothermal Technology	3
ELE	105	Beg Residential Electrical	3
ELE	142	Industrial Electrial	3
ELE	146	Adv Industrial Electrical	3
HVA	101	Introduction to HVAC/R	3
HVA	106	Fundamentals of Heating	3
HVA	122	Refrigeration Fundamentals	3
HVA	126	Residential and Commercial A/C	3
HVA	132	Commercial A/C & Refrigeration	3
HVA	136	EPA Certification	3
PLU	101	Introduction to Plumbing	3
PLU	105	Plumbing Components	3
PLU	121	Commercial Plumbing	3

Note: *This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.*

Program Requirements **60-61**

NMC.
Find it here.

Construction Technology - HVAC/R Technology

Certificate of Achievement (Level I) *NMC Code 064*

There is a high demand for qualified technicians in the heating and cooling industry. HVAC/R technicians install, maintain, and repair heating, ventilating, air-conditioning, and refrigeration systems. Because of continuing demand, HVAC/R technicians can usually find employment with good beginning salaries. The curriculum is designed by the industry and aligned with national competency standards. Students receive hands-on training in our state-of-the-art facilities. Information: (231) 995-2777.

Certificate Requirements **Credits: 21-22**

HVA	101	Introduction to HVAC/R	3
HVA	106	Fundamentals of Heating	3
HVA	122	Refrigeration Fundamentals	3
HVA	126	Residential and Commercial A/C	3
HVA	132	Commercial A/C & Refrigeration	3
HVA	136	EPA Certification.	3
MTH	111	Intermediate Algebra ***or***	
MTH	120	Mathematical Explorations	3-4

Construction Technology - Renewable Energy Technology - Electrical

Certificate of Achievement (Level II) *NMC Code 065*

This certificate is designed for someone with introductory interest or for someone who is currently working in the electrical field and wants to enhance their job prospects. With a very narrow focus on the fundamentals of renewable energy, the specific applications as related to producing electricity, and a few electrical courses, the individual who completes this certificate will greatly enhance their job market skills. Information: (231) 995-2777.

Certificate Requirements **Credits: 30**

EGY	101	Principles of Renewable Energy	3
EGY	105	Sustainable Building Design	3
EGY	115	Residential Energy Efficiency	3
EGY	141	Solar Photovoltaic Technology I	3
ELE	101	Introduction to Electrical	3
ELE	105	Beg. Residential Electrical	3
ELE	121	Adv. Residential Electrical	3
ELE	131	Commercial Electrical	3
MTH	111	Intermediate Algebra	4
Construction Technology Elective			2

Note: *ELE 110 - Electrical Code Studies I and ELE 111 - Electrical Code Studies II are additional courses offered for those seeking National Electrical Code references to daily work or those who would like structured study preparation for the Journeymen or Master Electrician License Exam.*

Construction Technology - Renewable Energy Technology - HVAC/R

Certificate of Achievement (Level II) *NMC Code 066*

This certificate is designed for someone with introductory interest or for someone who is currently working in the HVAC/R career field and wants to enhance their job prospects. With a very narrow focus on the fundamentals of renewable energy, the specific applications as related to HVAC/R, and a few HVAC/R courses, the individual who completes this certificate will greatly enhance their job market skills. Information: (231) 995-2777.

Certificate Requirements **Credits: 31**

EGY	101	Principles of Renewable Energy	3
EGY	105	Sustainable Building Design	3
EGY	115	Residential Energy Efficiency	3
EGY	145	Geothermal Technology	3
HVA	101	Introduction to HVAC/R	3
HVA	106	Fundamentals of Heating	3
HVA	122	Refrigeration Fundamentals	3
HVA	126	Residential and Commercial A/C	3
MTH	111	Intermediate Algebra	4
Construction Technology Elective			3

Construction Technology

Approved Electives **Credits**

AVF	141	Remote Pilot Flight	3
AVF	211	Commercial Drone Operations*	4
AVF	241	Advanced Drone Operations*	3
CAR	101	Introduction to Carpentry	3
CAR	102	Intro to Woodworking	3
CAR	103	Construction Blueprint Reading	3
CAR	105	Foundations and Framing	3
CAR	121	Exterior Construction	3
CAR	125	Interior Construction*	3
CMT	107	Construction Supervision	4
CMT	207	Construction Cost Estimating*	3
EET	103	Electrical Studies I*	3
EET	204	Electrical Studies II*	3
EET	221	Industrial Controls*	3
EET	232	Programmable Logic Controllers*	3
EET	233	PLC Applications I*	3
EET	234	PLC Applications II*	3
EGY	101	Principles of Renewable Energy*	3
EGY	105	Sustainable Building Design	3
EGY	115	Residential Energy Efficiency	3
EGY	141	Solar Photovoltaic Technology I*	3
EGY	143	Solar Thermal Technology I*	3
EGY	145	Geothermal Technology*	3
ELE	101	Intro to Electrical	3
ELE	105	Beg. Residential Electrical*	3
ELE	110	Electrical Code Studies I*	3
ELE	111	Electrical Code Studies II*	3
ELE	121	Adv. Residential Electrical*	3
ELE	125	Pre-Commercial Electrical*	3
ELE	131	Commercial Electrical*	3
ELE	135	Adv. Commercial Electrical*	3
ELE	142	Industrial Electrical*	3
ELE	146	Adv. Industrial Electrical*	3
HVA	101	Introduction to HVAC/R	3
HVA	106	Fundamentals of Heating*	3
HVA	122	Refrigeration Fundamentals*	3
HVA	126	Residential and Commercial A/C*	3
HVA	132	Commercial A/C & Refrigeration*	3
HVA	136	EPA Certification*	3
PLU	101	Introduction to Plumbing	3
PLU	105	Plumbing Components*	3
PLU	121	Commercial Plumbing*	3
PLU	125	Plumbing Installation*	3

** Denotes courses with required prerequisites.*

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Find it here.

Culinary Arts
Great Lakes Culinary Institute

Associate in Applied Science Degree *NMC Code 109*

The Great Lakes Culinary Institute believes in the principle of learning by doing. Extensive hands-on training will give students a competitive advantage in this highly competitive field.

This program is designed to provide rigorous and concentrated study for those students who plan careers in the rapidly-growing food service industry. The program's main emphasis is to prepare students for entry-level chef and kitchen management positions. Consideration is given to the science and techniques associated with the selection, preparation, and serving of foods to large and small groups.

The Great Lakes Culinary Institute is located on NMC's Great Lakes Campus. It is comprised of five culinary labs: a bakery, introductory and food skills kitchen, an advanced cooking kitchen, a garde manger kitchen, an á la carte kitchen, and Lobdell's, a 90-seat training restaurant. Upon graduation, students will have a combination of knowledge, skills, and work experience.

The Great Lakes Culinary Institute is accredited by the American Culinary Federation.

Note: *Admission to the Culinary Arts program requires placement into MTH 08 or higher and placement into ENG 99/108 or higher.*

General Education Requirements **Credits: 17-18**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 7-8
Humanities: Any Group 1 course 3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23
Science: Any Group 1 course with a lab 4
Social Sciences: Any Group 1 course 3

Occupational Specialty Requirements **49**

CUL	101	Today's Hospitality Industry 3
CUL	110	Safety and Sanitation 2
CUL	111	Professional Cookery 4
CUL	118	Introduction to Baking 4
CUL	190	Culinary Internship 2
CUL	210	Nutrition for Culinary Arts 2
CUL	211	Menu Planning and Purchasing 3
CUL	213	World Cuisine 6
CUL	215	Garde Manger 4
CUL	217	Kitchen and Dining Room Mgmt 3
CUL	218	Advanced Baking 4
CUL	295	Contemporary Service & Cuisine 12

Program Requirements **66-67**

Culinary Arts
Culinary Sales and Marketing

Associate in Applied Science Degree *NMC Code 129*

The Culinary Sales and Marketing program will prepare students for food sales, marketing, and procurement positions within the food industry. If you are interested in sales career within in the food service industry, the more you know about the products you sell and to whom you are selling to, the better prepared you will be. By combining an education in food preparation with business courses, this program will position you one step ahead of the competition.

Note: *Admission to the Culinary Arts program requires placement into MTH 08 or higher and placement into ENG 99/108 or higher.*

General Education Requirements **Credits: 17-18**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 7-8
Humanities: Any Group 1 course 3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23
Science: Any Group 1 course with a lab 4
Social Sciences: ECO 202 3

Occupational Specialty Requirements **43**

BUS	105	Business Math 3
CUL	110	Safety and Sanitation 2
CUL	111	Professional Cookery 4
CUL	118	Introduction to Baking 4
CUL	190	Culinary Internship 2
CUL	211	Menu Planning and Purchasing 3
CUL	213	World Cuisine 6
CUL	215	Garde Manger 4
CUL	295	Contemporary Service & Cuisine 12
MKT	201	Principles of Marketing 3

Program Requirements **60-61**

American Culinary Federation
The Standard of Excellence for Chefs

Culinary Arts
Great Lakes Culinary Institute

Certificate of Achievement (Level III) *NMC Code 029*

This program is designed to provide rigorous and concentrated study for those students who plan to enter the culinary industry. GLCI Certificate students receive practical training in all aspects of commercial food preparation and presentation. The program includes laboratory courses in classical and American regional cookery, baking and, in our teaching restaurant, Lobdell's, dining room service restaurant operations. The curriculum also includes lecture courses in nutrition, sanitation, purchasing, and management. Graduates of this program are prepared to accept jobs as prep cooks and line cooks in fine restaurants, hotels, resorts and institutions. Promotions are often rapid and salaries are often high for talented and enthusiastic people. The Great Lakes Culinary Institute is accredited by the American Culinary Federation.
See note under AAS degree for admission requirements.

Certificate Requirements **Credits: 49**

CUL	101	Today's Hospitality Industry	3
CUL	110	Safety and Sanitation	2
CUL	111	Professional Cookery	4
CUL	118	Introduction to Baking	4
CUL	190	Culinary Internship	2
CUL	210	Nutrition for Culinary Arts	2
CUL	211	Menu Planning and Purchasing	3
CUL	213	World Cuisine	6
CUL	215	Garde Manger	4
CUL	217	Kitchen and Dining Room Mgmt	3
CUL	218	Advanced Baking	4
CUL	295	Contemporary Service & Cuisine	12

Culinary Arts - Baking
Great Lakes Culinary Institute

Certificate of Achievement (Level I) *NMC Code 037*

This program is designed to provide rigorous and concentrated study for those students who plan to enter the baking industry. GLCI baking certificate students receive practical training in all aspects of commercial baking preparation and presentation. The program includes laboratory courses in baking that will provide the student with the essential and fundamental skills needed to be a successful baker. The curriculum also includes lecture courses in sanitation, menu development and purchasing, and management. Graduates of this program are prepared to accept jobs as bakers in commercial bakeries, restaurants, hotels, resorts and institutions.

Note: Admission to the Culinary Arts program requires placement into MTH 08 or higher and placement into ENG 99/108 or higher.

Certificate Requirements **Credits: 23**

CUL	110	Safety and Sanitation	2
CUL	118	Introduction to Baking	4
CUL	211	Menu Planning and Purchasing	3
CUL	217	Kitchen and Dining Room Mgmt	3
CUL	218	Advanced Baking	4
CUL	221	Chocolate and Cake Design	4
CUL	222	Cafe Operations	3

All courses lead to the Culinary Arts Associate in Applied Science (AAS) Degree.

NMC.
Find it here.

Dental Assistant

Associate in Applied Science Degree *NMC Code 300*

Dental Assistants are members of a highly qualified health team whose varied duties require knowledge of the basic dental sciences, proficiency in laboratory and clinical skills, and practical experience in meeting patient needs. Both the associate and the certificate programs are accredited by the Commission on Dental Accreditation (CODA) and approved by the Michigan Board of Dentistry. Completion of the program qualifies students for the state board exam and after passing the exam, they may practice as Registered Dental Assistants. In addition, program completers are eligible for the National Certification Exam, which is recognized nationwide.

Few jobs offer the diversity and flexibility found in dental assisting. While most dental assistants work as chairside or business assistants in general or specialty dental practices such as orthodontics or oral surgery, other career paths include the following: lab technicians, sales representatives in dental supply companies, and as teachers in vocational or college dental auxiliary programs.

Enrollment in any Dental Assistant (HDA) course requires admission to the dental assistant program OR approval from the dental assistant program director.
The following are required for admission:

1. High school ***or*** college transcript 2.0 minimum GPA, ***or*** successful GED completion.
2. Mathematics: MTH 23 ***or*** placement into MTH 111 ***or*** higher.
3. Communications: Placement into ENG 111 ***or*** higher.

General Education Requirements **Credits: 21-22**

Communications: ENG 111 ***and*** ENG 112		8
Humanities: Any Group 1 course		3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23		
Science: BIO 106		4
Social Science: PSY 101		3
Elective Course(s) 100 level or above		3-4

Occupational Specialty Requirements **39-40**

BUS 155	Interpersonal Communications ***or***	
COM 111	Public Speaking	3-4
HAH 120	Infection Control	2
HDA 101	Introduction to Dentistry	2
HDA 112	Dental Materials	2
HDA 113	Dental Materials Lab	1
HDA 120	Dental Anatomy	3
HDA 140	Oral Pathology/Pharmacology	2
HDA 150	Dental Office Management	2
HDA 160	Dental Emergencies	1
HDA 170	Preventive Dentistry	2
HDA 240	Chairside Procedures	5
HDA 241	Chairside Procedures Lab	2
HDA 242	Dental Radiography	2
HDA 243	Dental Radiography Lab	1.5
HDA 282	CDA/RDA Written Exam Prep	2
HDA 286	RDA Clinical Exam Prep	1
HDA 290	Dental Assistant Internship	5
HPD 110	Basic Life Support for Health Care Providers (or equivalent)	0.2

Note: *A 2.0 grade or higher is required in HDA & HAH courses.*

Minimum Program Requirements **60**

Dental Assistant

Certificate of Achievement (Level II) *NMC Code 070*

The following coursework must be taken in order to qualify for the Certificate of Achievement in Dental Assisting. Completion of the program qualifies students for the state board exam and after passing the exam, they may practice as Registered Dental Assistants. In addition, program completers are eligible for the National Certification Exam, which is recognized nationwide. While the associate degree is not required for either of these exams, students can complete the associate degree after completion of the certificate.

Admission Requirements

Enrollment in any Dental Assistant (HDA) course requires admission to the dental assistant program OR approval from the dental assistant program director.

The following are required for admission:

1. High school ***or*** college transcript 2.0 minimum GPA, ***or*** successful GED completion.
2. Mathematics: MTH 23 ***or*** placement into MTH 111 ***or*** higher.
3. Communications: Placement into ENG 111 ***or*** higher.

Certificate of Achievement **Credits: 39-40**

BUS 155	Interpersonal Communications ***or***	
COM 111	Public Speaking	3-4
HAH 120	Infection Control	2
HDA 101	Introduction to Dentistry	2
HDA 112	Dental Materials	2
HDA 113	Dental Materials Lab	1
HDA 120	Dental Anatomy	3
HDA 140	Oral Pathology/Pharmacology	2
HDA 150	Dental Office Management	2
HDA 160	Dental Emergencies	1
HDA 170	Preventive Dentistry	2
HDA 240	Chairside Procedures	5
HDA 241	Chairside Procedures Lab	2
HDA 242	Dental Radiography	2
HDA 243	Dental Radiography Lab	1.5
HDA 282	CDA/RDA Written Exam Prep	2
HDA 286	RDA Clinical Exam Prep	1
HDA 290	Dental Assistant Internship	5
HPD 110	Basic Life Support for Health Care Providers (or equivalent)	0.2

Note: *A grade of 2.0 or higher is required in HDA and HAH courses.*

Digital Administration and Marketing

Certificate of Achievement (Level I) *NMC Code 048*

This certificate combines existing courses in accounting, the Microsoft Office suite, computers in business, computer programming, advertising, marketing and graphic design.

It is intended to help address the needs of currently employed and underemployed white-collar workers who want to improve their digital skills for professional advancement, and their employers, who are interested in forestalling the loss of employees to competitors.

Certificate Requirements **Credits: 17-18**

CIT	100	Computers in Business-An Intro	3
CIT	180	HTML and CSS Programming	3
MKT	201	Principles of Marketing	3
MKT	208	Digital Marketing	2

Directed Electives **6-7**

(Choose any combination of 6-7 credits from the following)

ACC	121	Accounting Principles I	4
BUS	231	Professional Communications	3
CIT	110	Programming Logic and Design	3
CIT	119	Microsoft Office - Word	3
CIT	178	Relational Databases	3
CIT	210	Microsoft Office - Excel	3
CIT	216	Computerized Acctg Systems*	2
MKT	241	Principles of Advertising	3
VCA	127	Digital Imaging	3
VCA	150	Digital Graphic Design I	3

** ACC 121 is a required prerequisite*

Early Childhood Education

Associate in Applied Science Degree *NMC Code 321*

This program prepares students for the challenges of the ever-changing world of early care and education. Specialized courses and liberal arts studies provide students with a foundation needed to pursue careers in early childhood education, childcare, and preschool education. The order in which courses are taken is not critical except where prerequisites are involved. Course substitutions may be made only with the approval of the program coordinator or the academic area chair.

Students planning to pursue a four-year degree in Child Development or Early Childhood Education should familiarize themselves with the requirements of the school of choice for their bachelor's degree.

General Education Requirements **Credits: 17-18**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 7-8
Humanities: ENG 210 3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23
Science: Any Group 1 course with a lab 4
Social Sciences: PSY 101 3

Occupational Specialty Requirements **42**

ECE	101	Early Childhood Education	3
ECE	202	Human Development and Learning	5
ECE	203	Curriculum for Child Guidance	3
ECE	204	Early Childhood Curriculum	3
ECE	206	Infant Toddler Care Curriculum	3
ECE	220	Early Education Administration	3
ECE	230	Early Literacy and Learning	3
ECE	240	Integrated Arts in Curriculum	3
ECE	290	Early Education Internship	4
EDU	212	Educating Exceptional Children	3
SOC	101	Introduction to Sociology	3
SOC	211	Marriage and the Family	3
General Electives			3

Minimum Program Requirements **60**

Early Childhood Education and Care

NMC offers two pathways to reaching foundation level certification or credentials related to early care and education. These programs of study are CDA/NMC Cohort and Early Childhood Certificate of Achievement. Completing one or both programs provides preparation for careers for many levels of teaching and caring for children in preschools, child daycare and before and after school programs.

For some individuals, those currently working in the field of early education, the CDA Cohort pathway provides the training hours and support needed for students to complete the National CDA (Child Development Associate) credentialing process as they earn college credit. NMC in partnership with the Great Start Network and TEACH of Michigan provide training and financial support for eligible students. Students in this program will complete their CDA training and credentialing requirements along with earning nine early childhood college credits. These early education credits can be used for pursuing a Certificate of Achievement or Associate of Applied Science degree in Early Childhood Education. Students interested in this pathway will need to contact the Early Childhood program coordinator for special instructions.

Certificate of Achievement (Level II) *NMC Code 002*

This certificate program is designed to meet the qualifications for center directors and lead teachers required by Michigan's Licensing Rules for Child Care Centers. Students completing the Early Childhood Education and Care Certificate will reliably demonstrate the working knowledge of child development from conception to age 10 and possess the skills necessary for teaching and administering early care and education programs. This is a building block program that provides more than half of the 60 credits required for an Associate of Applied Science Degree in Early Childhood Education. Students interested in the certificate program are encouraged to work closely with the Early Childhood Education Program coordinator. A 2.0 GPA must be maintained to receive the certificate.

Certificate Requirements **Credits: 38-39**

ECE	101	Early Childhood Education	3
ECE	202	Human Development and Learning	5
ECE	203	Curriculum for Child Guidance	3
ECE	204	Early Childhood Curriculum	3
ECE	206	Infant Toddler Care Curriculum	3
ECE	220	Early Education Administration	3
ECE	230	Early Literacy and Learning	3
ECE	240	Integrated Arts in Curriculum	3
ECE	290	Early Education Internship*	2-3
EDU	212	Educating Exceptional Children	3
ENG	111	English Composition	4
PSY	101	Intro to Psychology	3

Placement into MTH 111 ***or*** higher,
or completion of MTH 23.

** This internship can be split over more than one semester.*

Engineering Technology

Associate in Applied Science Degree

Biomedical Technician ..... *NMC Code 546*
Computer Technology ..... *NMC Code 545*
Electronics Technology ..... *NMC Code 557*
General Technology ..... *NMC Code 556*
Marine Technology ..... *NMC Code 541*
Photonics Technology ..... *NMC Code 559*
Robotics & Automation Technology ..... *NMC Code 544*
Unmanned Aerial Systems Technology ..... *NMC Code 542*
Unmanned Ground Vehicles Technology ..... *NMC Code 543*

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, manufacturing, construction, and engineering operational functions.

The NMC Engineering Technology degree offers students a broad-based curriculum across all areas of technical education, preparing the graduates for emerging job markets and highly technical fields. The program is designed to allow students to choose courses of interest or specialize in one of the following specialty areas: Biomedical Technician, Computer Technology, Electronics Technology, Photonics Technology, Robotics & Automation Technology, Unmanned Aerial Systems (UAS) Technology, Marine (ROV) Technology, Unmanned Ground Vehicles (UGV) Technology.

Note: *Industry standards may require that students have First Aid/CPR certification and HAZWOPER certification.*

General Education Requirements **Credits: 21-22**

Communications: ENG 111 ***and*** ENG 112 ***or*** ENG 220 ***or*** BUS 231			7-8
Humanities: PHL 105			3
Math competency: Placement into MTH 122 ***or*** higher, ***or*** completion of MTH 121			4
Science: BIO 106 ***or*** PHY 105			4
Social Science: GEO 115			3

Technical Specialty Requirements **Credits: 21**

DD	170	CADD/Computer Modeling	4
EET	102	Intro to Engineering Tech	2
EET	103	Electrical Studies I	3
EET	260	System Engineering in Practice	3
MFG	104	Fluid Power	3
RAM	155	Microcontroller Programming	3
RAM	205	Microcontroller Systems	3

General Technology **17-18**

Select at least 17-18 credits from any of the specializations listed below:

Biomedical Technician **Credits: 20**

CIT	213	Networking Technologies	4
EET	180	Biomedical Equipment I	3
EET	190	Biomedical Internship	1
EET	204	Electrical Studies II	3
EET	281	Biomedical Equipment II	3
EET	290	Engineering Tech Internship	3
HAH	101	Medical Terminology	3

Computer Technology **Credits: 24**

CIT	110	Programming Logic and Design	3
CIT	178	Relational Databases	3
CIT	180	HTML and CSS Programming	3
CIT	190	JavaScript Programming	3
CIT	195	Application Development	3
CIT	228	Advanced Database Systems	3
CIT	255	Object-Oriented Programming	3
RAM	205	Microcontroller Systems	3

Electronics Technology **Credits: 19**

EET	161	Fundamentals of Light & Lasers	4
EET	204	Electrical Studies II	3
EET	221	Industrial Controls	3
EET	232	Programmable Logic Controllers	3
Approved Elective (see advisor)			6

Marine Technology (ROV) **Credits: 19**

EET	204	Electrical Studies II	3
ENV	131	Oceanography	4
WSI	200	GL Research Technologies	3
WSI	210	Underwater Acoustics and Sonar	3
WSI	215	Marine GIS & Data Processing	3
WSI	240	ROV Systems and Operations	3

Photonics Technology **Credits: 17**

EET	161	Fundamentals of Light & Lasers	4
EET	204	Electrical Studies II	3
EET	212	Elements of Photonics	4
EET	221	Industrial Controls	3
Approved Elective (see advisor)			3

Robotics & Automation Technology **Credits: 18**

EET	204	Electrical Studies II	3
EET	221	Industrial Controls	3
EET	232	Programmable Logic Controllers	3
EET	233	PLC Applications I	3
EET	234	PLC Applications II	3
MFG	203	Manuf./Engineering Processes	3

(continued on next page)

Unmanned Aerial Systems (UAS) Technology **Credits: 19**

AVF	141	Remote Pilot Flight	3
AVF	211	Commercial Drone Operations	4
AVF	241	Advanced Drone Operations	3
AVG	142	Remote Pilot Ground	3
EET	204	Electrical Studies II	3
Approved Elective (see advisor)			3

Unmanned Ground Vehicles (UGV) Technology **Credits: 17**

AT	130	Engine Performance I	5
AT	220	Automotive Electrical II	5
AT	240	Unmanned Ground Vehicles	4
Approved Elective (see advisor)			3

Please consult an NMC Engineering Technology program advisor for scheduling guidelines.

Note: *Internship opportunities are available for additional credits.*

Minimum Program Requirements **60**

Engineering Technology Programmable Logic Controllers (PLC)

Certificate of Achievement (Level I) *NMC Code 076*

Trained personnel who design, program, operate, service, and maintain these devices are performing duties that fit the job description of a programmable logic contoller technician. They have the technical knowledge to set up electronic control systems for mechanical equipment, including integrating electrical wiring requirements to pneumatic and hydraulic systems. They also will learn system monitoring, debugging and troubleshooting operational problems, making repairs and performing preventive maintenance activities. There is a very high demand for trained individuals in this field as many industries have automated processes in which equipment and machines are computer-controlled. The curriculum is designed by industry experts to meet employer demands. Students receive hands-on training in our state-of-the-art lab.

Certificate Requirements **Credits: 18**

EET	103	Electrical Studies I	3
EET	204	Electrical Studies II	3
EET	221	Industrial Controls	3
EET	232	Programmable Logic Controllers	3
EET	233	PLC Applications I	3
EET	234	PLC Applications II	3

Freshwater Studies

Associate in Applied Science Degree *NMC Code 490*

The Freshwater Studies program is offered by NMC's Great Lakes Water Studies Institute. The program is designed to prepare students for both current and emerging career pathways in water related fields. The Freshwater Studies degree program combines unique courses and opportunities for field experiences available through Northwestern Michigan College and our University partners. In addition to the partners in the Great Lakes region, our program has collaborators in selected sites overseas. This freshwater focused program has an interdisciplinary approach designed to offer students the ability to gain unique competencies and credentials of value. The core program of study includes Introduction to Freshwater Studies, Watershed Science, Geographic Information Systems (GIS), Oceanography, Meteorology and Climatology, Water Policy and Sustainability, and an Internship experience either locally or overseas. The degree is intended both for students who plan to enter professional fields as well as those who wish to further their studies and complete a bachelor's degree with university partners located in Traverse City and offsite.

General Education Requirements **Credits: 17-18**

Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112 ***or*** ENG 220	7-8
Humanities: PHL 105 ***or*** PHL 202 *or* PHL 203	3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23	
Science: ENV 117	4
Social Sciences: GEO 115	3

Core Requirements** **15-17**

ENV	131	Oceanography	4
ENV	140	Watershed Science	4
WSI	105	Introduction to Freshwater Studies	3
WSI	230	Water Policy and Sustainability	3
WSI	290	Freshwater Studies Internship	1-3

Approved Electives by Areas of Concentration:**

Economy and Society

BIO	110	Essential Biology	4
BUS	101	Introduction to Business	3
BUS	261	Business Law I ***or***	
MGT	241	Principles of Management	3
ECO	201	Principles of Macroeconomics ***or***	
ECO	202	Principles of Microeconomics	3
MGT	245	Principles of Entrepreneurship	3
MTH	131	Intro to Probability and Statistics	3

Global Freshwater Policy and Sustainability

BIO	110	Essential Biology 4
GEO	109	World Regional Geography 3
MTH	131	Intro to Probability and Statistics 3
SPN	202	Intermediate Spanish II ***or***
SPN	227A	Spanish for Environmental Mgmt 3-4

Science and Technology

BIO	115	Cell, Plant & Ecosystem Biology ***or***
CHM	150	General Chemistry I ***or***
PHY	121	General Physics I 4-5
MTH	141	Calculus I 5

General

ANT	113	Intro to Cultural Anthropology 3
BIO	115	Cell, Plant & Ecosystem Biology 4
BIO	116	Genetic, Evolution, Animal Biology 4
CHM	150	General Chemistry I 4
ECO	202	Principles of Microeconomics 3
MTH	121	College Algebra 4
MTH	131	Intro to Probability and Statistics 3

***Core and Concentration credits can also be applied to General Education Requirements.*

Please consult an NMC Freshwater Studies program advisor for scheduling guidelines.

Minimum Program Requirements **60**

Law Enforcement

Associate in Applied Science Degree *NMC Code 352*

Graduates of this program are eligible to take the state law enforcement officer examination. Students who anticipate transfering to a four-year college or university need to see an NMC advisor during their first semester, as some courses may be acceptable for transfer credit. Students may enroll in the Law Enforcement Preservice Police Academy upon completing first year requirements or with a college degree. Completion of the Police Academy (LWE courses) must occur within two semesters, beginning fall semester and completed the following spring semester. A minimum grade of 2.0 must be achieved in each LWE course, satisfying prerequisites for licensing and qualifying the student to take the state examination to be hired by a law enforcement agency, which activates the license. The Police Academy is approved and regulated by the Michigan Commission on Law Enforcement Standards (MCOLES).

It is mandatory that students meet with the Law Enforcement Coordinator prior to beginning LWE courses to register with MCOLES. Students must pass MCOLES reading/writing and physical agility tests prior to starting the LWE courses. Visit **www.michigan.gov/mcoles** for online registration or call (231) 995-1283 with questions.

General Education Requirements **Credits: 18**

Communications: ENG 111 ***and*** ENG 112 8
Humanities: PHL 201 ***or*** PHL 202 3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23
Science: Any Group 1 course with lab 4
Social Sciences: PLS 101 ***or*** PLS 132 3

Core Requirements **13**

CJ	101	Introduction to Criminal Justice 4
PSY	101	Introduction to Psychology 3
PSY	250	Abnormal Psychology ***or***
SOC	231	Deviance and Criminal Behavior 3
SOC	101	Introduction to Sociology 3

Occupational Specialty Requirements **39**

HAH	200	Emergency Assessment and Intervention 3
LWE	102	Police Operations 4
LWE	210	Cultural Awareness/Diversity 2
LWE	212	Criminal Investigation 3
LWE	214	Firearms 4
LWE	215	Defensive Driving 3
LWE	216	Traffic Enforcement and Investigation 3
LWE	218	Physical Training/Wellness 4
LWE	225	Defensive Tactics 4
LWE	226	Michigan Criminal Law 3
LWE	227	Criminal Procedures 3
LWE	228	Speed Measurement/PBT 3

Recommended Course:

LWE	195*	Police Practicum 4

** Recommended for students with no police field experience.*

Program Requirements **70**

Law Enforcement

Certificate of Achievement (Level II) *NMC Code 049*

The following coursework may be taken in order to qualify for the Certificate of Achievement in Law Enforcement. Completion of the program qualifies students for the Michigan Commission on Law Enforcement Standards (MCOLES), State of Michigan Post-Test Exam and after passing the exam students are certifiable to work as Police Officers throughout the State of Michigan as well as other states in the United States with reciprocity agreements. An associate degree is required to qualify to take the MCOLES licensing exam.

ADMISSION REQUIREMENTS

Enrollment in the Law Enforcement Certificate program requires approval of the NMC Law Enforcement Director and MCOLES.

The following are required for admission:

- A minimum of an associate degree from an accredited college or completion of an associate degree at the completion of the required courses*
- Must be a U.S. Citizen
- Must be at least 18 years of age
- Have never been convicted of a Felony (including expunged records)
- Vision must be correctable to 20/20 in both eyes
- Must have normal color vision
- Must have a valid driver's license
- Must pass a pre-service physical fitness test
- Must pass a reading/writing exam
- Must pass a physical exam
- Must pass a psychological exam

** Admission is contingent on a one-on-one interview with MCOLES representatives, NMC Law Enforcement Director, and a college degree audit.*

Certificate of Achievement		**Credits: 39**
HAH 200	Emergency Assessment & Intervention	3
LWE 102	Police Operations	4
LWE 210	Cultural Awareness/Diversity	2
LWE 214	Firearms	4
LWE 218	Physical Training/Wellness	4
LWE 226	Michigan Criminal Law	3
LWE 212	Criminal Investigation	3
LWE 215	Defensive Driving	3
LWE 216	Traffic Enforcement	3
LWE 225	Defensive Tactics	4
LWE 227	Criminal Procedure	3
LWE 228	Speed Measurement / PBT	3

***Note:** A 2.0 grade or higher is required in LWE Courses.*

Manufacturing Technology

Associate in Applied Science Degree *NMC Code 584*

The Manufacturing Technology program is designed to provide a multi-disciplined technical background in fields for which NMC does not offer a specific program. For instance, students interested in pursuing careers in advanced manufacturing or welding may enroll in the Manufacturing Technology program and design a model schedule that emphasizes their major area of interest. This program has the flexibility to match the student's interest with the skills necessary for job entry.

Students, with assistance from an advisor, will select a major area of technical emphasis. These technical courses plus supporting courses from other disciplines comprise the Manufacturing Technology program requirements.

Each student's proposed Manufacturing Technology program must be approved by a committee consisting of the appropriate department head, the academic chair, and the registrar.

General Education Requirements	**Credits: 17-18**
Communications: ENG 111 ***and either*** BUS 231 ***or*** ENG 112* ***or*** ENG 220	7-8
Humanities: Any Group 1 course	3
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23	
Science: Any Group 1 course with a lab	4
Social Sciences: Any Group 1 course	3
** Students intending to transfer to another college or university should take ENG 112.*	
Occupational Specialty Requirements	**39**
Electives	**4-9**
Choose any courses from Group 1 and/or Group 2.	
Program Requirements	**60-65**

NMC.
Find it here.

Marine Technology

Bachelor of Science *NMC Code 870*

The Marine Technology major at NMC prepares students to meet the needs of the global marine industry. Graduates will be in high demand for global employment opportunities in extremely diverse and fast-growing industries. This four-year bachelor's program builds on NMC's Marine Technology concentration of the Engineering Technology program. Technical training will occur at numerous campus labs, NMC's Great Lakes campus harbor and aboard research vessels operating throughout the Great Lakes. Program emphasis is focused on project management, technical competencies and hands-on learning with students having direct access to remotely operated vehicles, multiple SONAR platforms, marine instrumentation and marine data processing software. Instruction will be provided by highly trained instructors with experience in the industry.

Note: *Students must also complete First Aid/CPR certification and HAZWOPER certification.*

General Education Requirements **Credits: 42**

Communications: ENG 111 ***and*** ENG 220 7
Humanities: PHL 105 ***and*** PHL 202 6
Math competency: MTH 121, MTH 122, MTH 131 ***and*** MTH 141 15
Science: PHY 121 ***and*** PHY 122 8
Social Science: ECO 202 ***and*** GEO 115 6

Marine Technology Requirements **Credits: 78**

DD	170	CADD/Computer Modeling	4
EET	102	Intro to Engineering Tech	2
EET	103	Electrical Studies I	3
EET	204	Electrical Studies II	3
EET	260	System Engineering in Practice	3
EET	304	Marine Electronics	3
ENV	117	Meteorology & Climatology	4
ENV	131	Oceanography	4
MFG	104	Fluid Power	3
MFG	304	Marine Hydraulics	3
RAM	155	Microcontroller Programming	3
RAM	205	Microcontroller Systems	3
WSI	200	GL Research Technologies	3
WSI	210	Underwater Acoustics and Sonar	3
WSI	215	Marine GIS & Data Processing	3
WSI	240	ROV Systems and Operations	3
WSI	300	Remote Sensing and Sensors	3
WSI	310	Sonar Systems and Operations	4
WSI	315	Advanced Marine Survey & Data	3
WSI	390	Internship	3
WSI	400	Marine Technology Capstone	4
WSI	405	Marine Industry	3
WSI	433	Marine Project Management	3
WSI	440	Advanced Marine Platforms	3

Approved Elective (see advisor) 2

Program Requirements **120**

Maritime

Great Lakes Maritime Academy

Bachelor of Science *NMC Code 850 / 851*

The Great Lakes Maritime Academy is more than just a college experience. As Michigan's State Maritime Academy, our college educates and trains the finest Deck and Engineering Officers available to the commercial shipping industry.

As you learn more about us, you will discover a professional environment based on pride and tradition. The Academy prepares future merchant marine officers/business professionals for the challenge of operating ships of unlimited tonnage.
Our training ship, *State of Michigan*, is utilized daily as a floating classroom and hands-on learning environment. We set sail with our ship at various times throughout the academic year to reinforce the skills taught shoreside. As cadets progress through the Academy, they learn our industry first-hand by completing essential sea time aboard the training ship and commercial vessels of the Great Lakes and oceans.

Cadets earn their maritime credentials and a bachelor's degree. We offer a condensed core maritime curriculum for those who enter with a bachelor's degree. Cadets are prepared to write the U.S. Coast Guard examination for licensing as Third Mate Great Lakes and Oceans Unlimited Tonnage and First Class Great Lakes Pilot (Deck Officer), or Third Assistant Engineer, Steam and Motor Vessels of any Horsepower (Engineering Officer). Graduates are fully compliant with Standards of Training, Certification and Watchkeeping (STCW).

Great Lakes Maritime Academy is proud of the quality

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education and training we have provided since 1969. Curricula range from seamanship, navigation and piloting, to steam and diesel engineering together with up to 300 days of sea time. Our alumni sail with the fleets of the Great Lakes and oceans with many having reached the pinnacle of their professions as a Captain or Chief Engineer. With exceptional employment and salaries upon graduation, the time is now to consider a career as a professional mariner. The Admissions Office is open weekdays from 8:00 am to 5:00 pm. Please visit www.nmc.edu/maritime for additional information.

This program is approved by the U.S. Maritime Administration, the U.S. Coast Guard, and the Michigan Department of Education. A new class begins each year in mid-August (pre-fall semester).

In addition to the above, the Maritime Academy offers a Bachelor of Science in Maritime Technology - Power Systems program (see page 48).

ADMISSION REQUIREMENTS

Admission to the Great Lakes Maritime Academy **requires** candidates meet the following:

1. Minimum age 17, with high school diploma or GED.
2. United States Citizen.
3. Academic placement at freshman English and Intermediate Algebra level determined by minimum composite ACT score of 20, SAT score of 1440, transferable college credits or placement testing.
4. No misdemeanors, felonies or legal expungements.

Acceptance to the Great Lakes Maritime Academy is competitive, with the incoming class of 60 cadets beginning in the fall of each year. Admissions decisions are made without regard to age, sex, martial status, national origin, or ethical/racial background. Applicants may apply at www.nmc.edu/maritime to submit an online application. An application checklist is provided. If you have questions, please call the Maritime Admissions Office at (231) 995-1213 or (231) 995-1209.

GENERAL PROGRAM REQUIREMENTS

In addition to NMC rules and regulations, Maritime cadets must comply with the rules and regulations specified under the "Maritime Cadet Rules and Regulations."

DEPARTMENT OF NAVAL SCIENCE

The Department of Naval Science is staffed by an active duty Naval Officer. The Department offers training designed to acquaint the cadet with the mutual dependence of the Navy and the Merchant Marine in accomplishing their common objectives through the MNS 100 course. Additionally, Strategic Sealift Officer Program (SSOP) Midshipmen will receive Navy professional development training through the MNS 200 and MNS 250 courses. Upon completion of the SSOP, graduates will be commissioned as an Ensign in the United States Navy Reserve.

GRADUATION REQUIREMENTS

In addition to NMC graduation requirements, Maritime Academy cadets must:

1. Successfully complete all components of the program.
2. Pass the U.S. Coast Guard license exam (not applicable to Power Systems Program).
3. Achieve a 2.0 (76%) grade or higher in all courses.
4. Deck cadets must complete Great Lakes pilotage exams as per the Academy's Rules and Regulations.

CURRICULUM

NMC's Great Lakes Maritime Academy offers three bachelor degree programs of study:

- Bachelor of Science - Maritime Technology: Deck Officer
- Bachelor of Science - Maritime Technology: Engineering Officer
- Bachelor of Science - Maritime Technology: Power Systems

Each program provides the cadet with coursework in math, physical science, humanities, and social studies in addition to the maritime curriculum.

Federal regulations require that each cadet obtain up to 300 sailing days of practical training as a cadet observer aboard ship. Sea time is arranged by the Academy and scheduled throughout the program. In addition to shipboard duties, the cadets are required to complete written assignments and sea projects for evaluation and grading. Great Lakes Maritime reserves the right to revise the program in accordance with industry needs and government agency requirements (not applicable to Power Systems program).

The following program requirements are for a high school graduate or a person without transfer credits from another institution. A condensed maritime curriculum for students with a bachelor's degree is available.

Maritime - Deck Officer
Great Lakes Maritime Academy

Bachelor of Science *NMC Code 850*

General Education Requirements **Credits: 35**

Communications: ENG 111 ***and*** ENG 112 8
Humanities: PHL 202 ***and*** one additional Group 1 Humanities course 6
Math competency: Placement into MTH 141 ***or*** higher, ***or*** completion of MTH 121 and MTH 122 7
Science: ENV 117 ***and*** PHY 105 8
Social Science: ECO 201 ***and*** ECO 202 6

Maritime Requirements **82**

MDK 100	Survival at Sea	1
MDK 104	Rigging and Ship Maintenance Lab	1
MDK 106	Watchstanding I	1
MDK 112	Rules of the Nautical Road	2
MDK 121	Navigation I	3
MDK 122	Navigation I Lab	1
MDK 149	Damage Control & Safety	2
MDK 200	Ship Business & Labor Relations	3
MDK 206	Watchstanding II	1
MDK 210	Sea Project Deck	6
MDK 221	Lakes Piloting	2
MDK 222	River Piloting	3
MDK 242	Ship Stability	3
MDK 311	Sea Project Deck	6
MDK 312	Sea Project Deck	6
MDK 324	Navigation III	3
MDK 330	STCW Elementary First Aid	2
MDK 331	Electronic Navigation	3
MDK 332	Electronic Navigation Lab	1
MDK 333	Automatic Radar Plotting Aids	1
MDK 341	Ship Construction	2
MDK 345	Dry Cargo Stowage	3
MDK 404	Marine Supervisory Lab	1
MDK 411	Marine Communications	2
MDK 431	ECDIS	3
MDK 444	Cargo Systems	2
MDK 445	Liquid Cargo Stowage	2
MDK 446	Bridge Team Management	3
MDK 448	Pilot/Mate License Prep	4
MDK 454	GMDSS	3
MNG 100	Intro to Marine Engineering	1
MNG 105	Shipboard Information Systems	3
MNS 100	Naval Science	2

Occupational Specialty Requirements **3**

MGT 241	Principles of Management	3

Program Requirements **120**

Maritime - Engineering Officer
Great Lakes Maritime Academy

Bachelor of Science *NMC Code 851*

General Education Requirements **Credits: 27-28**

Communications: ENG 111 ***and*** either ENG 112 ***or*** ENG 220 7-8
Humanities: PHL 202 ***and*** any Group 1 Humanities course 6
Math competency: Placement into MTH 141 ***or*** higher, ***or*** completion of MTH 121 ***and*** MTH 122 7
Science: CHM 101 4
Social Science: PLS 101 3

Occupational Specialty Requirements **93**

MDK 100	Survival at Sea	1
MDK 149	Damage Control & Safety	2
MDK 250	Stability for the Engineer	1
MDK 330	STCW Elementary First Aid	2
MDK 341	Ship Construction	2
MNG 100	Intro to Marine Engineering	1
MNG 104	Engine Systems Graphics	3
MNG 105	Shipboard Information Systems	3
MNG 110	Engineering Mechanics	3
MNG 234	Electronic Fundamentals	4
MNG 250	Unloading Systems	3
MNG 260	Maritime Machining	2
MNG 271/L	Maritime Welding and Lab	2
MNG 275	Refrigeration	3
MNG 314	Diesel Engineering	7
MNG 317	Engineering Sea Project I	3
MNG 318	Engineering Sea Project II	6
MNG 319	Engineering Sea Project III	6
MNG 321	Marine Boilers	3.5
MNG 322	Marine Turbines	2.5
MNG 323	Marine Steam Lab	1
MNG 335	Electric Machines & Controls	4
MNG 336	Electric Machines & Controls Lab	2
MNG 455	Watchstanding	2
MNG 466	Engine Room Business	2
MNG 496	License Preparation Engine	2
MNS 100	Naval Science	2
GLMA Program Electives		18

Program Requirements **120**

Maritime - Power Systems
Great Lakes Maritime Academy

Bachelor of Science *NMC Code 860*

The Power Systems Program is designed to prepare individuals for employment in power production industries such as power plants, hospitals, industrial plants, and manufacturing plants. Operators in such industries read, interpret and adjust meters and gauges to make sure plant equipment and processes are working properly. Some operate chemical-feeding devices, take samples of the water or liquid waste, perform chemical and biological laboratory analysis and adjust the amount of chemicals such as chlorine in the water. Some use a variety of instruments to sample and measure water quality and common hand and power tools to make repairs. Operators also make repairs to valves, pumps and other equipment. As facilities become more sophisticated and industry demands more from those individuals who maintain and operate these physical plants, there is a need for intense technical training for these positions. Students at the Great Lakes Maritime Academy obtain these goals through classes in mathematics, science and occupational courses. Cadets also have hands-on experience through labs and internships for practical training.

General Education Requirements **Credits: 24**

Communications: ENG 111 ***and*** ENG 220	7
Humanities: Any Group 1 Course	3
Math competency: Placement into MTH 141 ***or*** higher, ***or*** completion of MTH 121 ***and*** MTH 122	7
Science: CHM 101	4
Social Science: Any Group 1 Course	3

Occupational Specialty Requirements **96**

DD	110	Basic Metallurgy 3
EET	221	Industrial Controls 3
EET	232	Programmable Logic Controllers 3
MGT	241	Principles of Management 3
MNG	104	Engine Systems Graphics 3
MNG	105	Shipboard Information Systems 3
MNG	110	Engineering Mechanics 3
MNG	234	Electronic Fundamentals 4
MNG	250	Unloading Systems 3
MNG	260	Maritime Machining 2
MNG	270	Issues in Power Production 3
MNG	271/L	Maritime Welding and Lab 2
MNG	275	Refrigeration 3
MNG	321	Marine Boilers 3.5
MNG	322	Marine Turbines 2.5
MNG	323	Marine Steam Lab 1
MNG	335	Electric Machines and Controls 4
MNG	336	Electric Mach. & Controls Lab 2
Internship I		6
Internship II		6
Internship III		3
GLMA Program Electives		30

Program Requirements **120**

Nursing - Associate Degree Program Requirements

Associate Degree in Nursing *NMC Code 302*

Northwestern Michigan College's Associate Degree in Nursing (ADN) program consists of two years of nursing classes after prerequisites are met. It is designed to give the student the skills necessary to prepare for employment after graduation. Graduates of the ADN program are eligible to apply for the National Council License Examination (NCLEX-RN) for licensing as a registered nurse. Student clinical experiences may include assignments at Munson Medical Center and a variety of other agencies. The program is approved by the Michigan Board of Nursing and accredited through the Accreditation Commission for Education in Nursing (ACEN).

ADMISSION REQUIREMENTS

Admission requirements include the following:

- Completion of the admission process for the pre-Associate Degree Nursing AGS Degree for NMC.
- Transfer students must submit official transcripts to determine eligibility.
- Completion of prerequisite requirements.

ADN students must submit a competitive ADN application. Students may review the Competitive Points Rubric to determine how competitive points are earned. The Competitive Points Rubric, application deadlines, and further details can be found on the NMC website under Nursing – Associate Degree (ADN). Space in the nursing program is limited. Completion of prerequisites does not guarantee admission to the nursing program. Students are granted access to the online competitive ADN application only after all prerequisite requirements are complete and eligibility has been met. It is recommended that students create a plan to complete prerequisite requirements with the Advising Department.

PREREQUISITE REQUIREMENTS

Prerequisite requirements include the following:

- 2.5 overall GPA or higher ("Nursing GPA" is calculated by including all NMC courses and transfer courses that count toward the ADN degree).
- ENG 111 – English Composition (2.0 grade or higher)
- PSY 101 – Introduction to Psychology (2.0 grade or higher)
- BIO 227 – Human Anatomy & Physiology I (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)
- Math Competency: Placement into MTH 121 or higher

with qualifying test scores or completion of MTH 111 (2.0 grade or higher. Must have been completed within five years of program entry.)

The nursing department enforces a repeat policy that states: Any math and/or science class may only be repeated once. This includes fails, drops, withdrawals or transferred classes (effective June 1, 2012).

Recommended Courses to Take Prior to Starting the ADN Program

- ENG 112 – English Composition
- One Group 1 Humanities course
- BIO 228 – Human Anatomy & Physiology II (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)
- HPD 110 – BLS for Health Care Providers (Equivalent classes include: American Heart Association: HeartCode ® BLS [CPR and AED], American Red Cross: Basic Life Sup port for Health Care Providers, or CPR/AED for Professional Rescuers and Health Care Providers)

Note: *Current CPR certification must be documented by the start of the program, and maintained throughout the program.*

GENERAL INFORMATION

- Current CPR certification, a physical examination indicating good mental and physical health, immunization records, criminal background checks and drug screens are required prior to clinical course work. Nursing students are responsible for the costs associated with these program requirements.
- The Board of Nursing may deny a license for a previous felony conviction, previous treatment for drug or alcohol abuse, or after finding the existence of one or more grounds for board action listed in 333.16221 of the Public Health Code, Act 368 of 1978.
- The clinical facilities have the right to accept or reject a student. This action could result in a student being delayed or unable to complete the nursing program. This decision may be made just prior to the clinical rotation.
- Nursing students must adhere to the policies referenced in the Nursing Program Policy Manual associated with their admission semester. If a student is readmitted due to a program fail, they must adhere to the policies referenced in the Nursing Program Policy Manual associated with their readmission semester.
- Nursing program tuition is charged by the contact hour.
- All nursing courses must be completed within five years of taking the first nursing class.

General Education Requirements **Credits: 20-26**

Communications: ENG 111 ***and*** ENG 112 6-8
Humanities: Any Group 1 course 3
Math competency: Placement into MTH 121 ***or*** higher, ***or*** completion of MTH 111 4
Science: BIO 227 and BIO 228 8
Social Sciences: PSY 101 3

Nursing Specialty Requirements **Credits: 44**

HAH	100C	Informatics Essentials 1
HNR	101	Fundamentals of Nursing-Lecture 4
HNR	102	Fundamentals of Nursing-Clinical 4
HNR	106	Pharmacology I 1
HNR	107	Pharmacology II 2
HNR	125	Lifespan Nursing-Lecture 5
HNR	126	Lifespan Nursing-Clinical 5
HNR	241	Adv. Maternal Child Nursing-Lecture 3
HNR	242	Adv. Maternal Child Nursing-Clinical 2
HNR	221	Complex Patient Mgmt IA-Lecture 1.5
HNR	222	Complex Patient Mgmt IB-Lecture 1.5
HNR	248	Complex Patient Mgmt I-Clinical 4
HNR	251	Mental Health Nursing-Lecture 2
HNR	252	Mental Health Nursing-Clinical 1
HNR	261	Complex Patient Mgmt II-Lecture 3
HNR	262	Complex Patient Mgmt II-Clinical 4
HPD	110	BLS for Health Care Providers**, *** ..... (0.2)

* *If required, completion of MTH 111 will add 4 additional credits/contacts to the program.*

** *Equivalent classes are: American Red Cross BLS for Health Care Providers or CPR/AED for Professional Rescuers and Health Care Providers or HeartCode® BLS.*

***These credits do not count toward degree requirements.*

Note: *A 2.5 grade or higher is required in all Nursing (HNR and HAH) courses. Nursing course completion with a grade less than 2.5 is considered a program fail and requires readmission. A program fail after readmission will result in nursing program dismissal.*

Program Requirements **64-70**

Online Nursing Option

NMC admits students to an online version of its traditional ADN curriculum each fall semester. The online option provides all of the nursing theory courses in an online format. It requires attendance in person for the lab and clinical courses. The labs and clinical courses are generally scheduled in the Traverse City area and will require 2-3 days per week of attendance.

Once students begin the ADN online option, the college will ensure that the online courses will be available until students complete the program, as long as the model schedule is followed. If students become out of sequence for any reason, they will need to move into the traditional program.

Note: *The ADN online option is not available to ADN students beginning the program spring semester. It is not available to students pursuing the Practical Nursing certificate or ADN Completion Option.*

Nursing - ADN Completion Option

Completion Option for Licensed Practical Nurses *NMC Code 302*

The ADN Completion Option for Licensed Practical Nurses is designed to expand upon the previous education of the LPN. The LPN who has current clinical work experience in acute or extended care, or who has graduated within the past three years, can complete the ADN coursework in two semesters after prerequisites are met. The technology and patient acuity in the agencies utilized for clinical coursework have changed greatly in recent years. Current experience in these settings is important to the success of students pursuing this coursework.

Student clinical experiences may include assignments at Munson Medical Center and a variety of other agencies. The ADN program is approved by the Michigan Board of Nursing and accredited through the Accreditation Commission for Education in Nursing (ACEN). Graduates are eligible to apply for the National Council License Examination (NCLEX-RN) for licensing as a registered nurse.

ADMISSION REQUIREMENTS

Admission Requirements include the following:

- Submission of a current Michigan LPN license.
- Completion of the admission process for the pre-ADN for LPN AGS Degree for NMC.
- Transfer students must submit official transcripts to determine eligibility.
- Completion of prerequisite requirements.

The ADN Completion Option has a wait list admission process. Detailed information, including deadlines, can be found on the NMC website under Nursing – ADN Completion Option. Space in the nursing program is limited. Completion of prerequisites does not guarantee admission to the nursing program. Students will be placed on the wait list only after all prerequisite requirements are complete and eligibility has been met. It is recommended that students create a plan to complete prerequisite requirements with the Director of Nursing.

PREREQUISITE REQUIREMENTS

Prerequisite requirements include the following:

- 2.5 overall GPA or higher ("Nursing GPA" is calculated by including all NMC courses and transfer courses that count toward the ADN degree).
- Graduation from a Board of Nursing approved Practical Nursing Program. Nursing requirements include Level One Nursing Coursework of 22 credits (HNR 101 – 145).
- Current work experience in acute or extended care or clinical coursework within the last three years. Applicants who do not meet the work experience criteria will be required to complete the first year nationally normed nursing exam with a minimum competency as identified by the testing service before progressing in the program. If this minimum competency is not achieved, HNR 126 will be required. Additional assessments may be used to determine course placement.
- ENG 111 – English Composition (2.0 grade or higher)
- PSY 101 – Introduction to Psychology (2.0 grade or higher)
- BIO 227 – Human Anatomy & Physiology I (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)
- BIO 228 – Human Anatomy & Physiology II (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)
- Math Competency: Placement into MTH 121 or higher with qualifying test scores or completion of MTH 111 (2.0 grade or higher. Must have been completed within five years of program entry)

The nursing department enforces a repeat policy that states: Any math and/or science class may only be repeated once. This includes fails, drops, withdrawals or transferred classes (effective June 1, 2012).

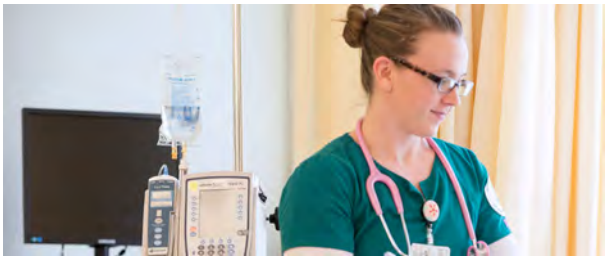
Recommended Courses to Take Prior to Starting the ADN Program

- ENG 112 – English Composition
- One Group 1 Humanities course
- HPD 110 – BLS for Health Care Providers (Equivalent classes include: American Heart Association: HeartCode ® BLS (CPR and AED), American Red Cross: Basic Life Sup port for Health Care Providers, or CPR/AED for Professional Rescuers and Health Care Providers)

Note: *Current CPR certification must be documented by the start of the program, and maintained throughout the program.*

GENERAL INFORMATION

- Current CPR certification, a physical examination indicating good mental and physical health, immunization records, criminal background checks and drug screens are required prior to clinical course work. Nursing students are responsible for the costs associated with these tasks.
- The Board of Nursing may deny a license for a previous felony conviction, previous treatment for drug or alcohol abuse, or after finding the existence of one or more grounds for board action listed in 333.16221 of the Public Health Code, Act 368 of 1978.



- The clinical facilities have the right to accept or reject a student. This action could result in a student being delayed or unable to complete the nursing program. This decision may be made just prior to the clinical rotation.
- Nursing students must adhere to the policies referenced in the Nursing Program Policy Manual associated with their admission semester. If a student is readmitted due to a program fail, they must adhere to the policies referenced in the Nursing Program Policy Manual associated with their readmission semester.
- Nursing program tuition is charged by the contact hour.
- All nursing courses must be completed within five years of taking the first nursing class.

General Education Requirements **Credits: 20-26**

Communications: ENG 111 ***and*** ENG 112 6-8
Humanities: Any Group 1 course 3
Math competency: Placement into MTH 121 ***or*** higher, ***or*** completion of MTH 111* 4
Science: BIO 227 and BIO 228 8
Social Sciences: PSY 101 3
Level One Nursing Coursework 22

Note: *Credit for the practical nursing level coursework (HNR 101-145) must be established prior to admission to the program. At least 22 nursing credits must be established through NMC course completion or transfer equivalencies to meet the program requirements. Additional coursework may be required and will be arranged by the Director of Nursing if necessary.*

Level Two Nursing Coursework 22

HAH 100C	Informatics Essentials	(1)
HNR 241	Adv. Maternal Child Nursing-Lecture	3
HNR 242	Adv. Maternal Child Nursing-Clinical	2
HNR 221	Complex Patient Mgmt IA-Lecture	1.5
HNR 222	Complex Patient Mgmt IB-Lecture	1.5
HNR 248	Complex Patient Mgmt I-Clinical	4
HNR 251	Mental Health Nursing-Lecture	2
HNR 252	Mental Health Nursing-Clinical	1
HNR 261	Complex Patient Mgmt II-Lecture	3
HNR 262	Complex Patient Mgmt II-Clinical	4
HPD 110	BLS for Health Care Providers**, ***	(0.2)

* *If required, completion of MTH 111 will add 4 additional credits/contacts to the program.*

** *Equivalent courses are: American Red Cross BLS for Health Care Providers or CPR/AED for Professional Rescuers and Healthcare Providers or HeartCode® BLS.*

*** *These credits do not count toward degree requirements.*

Note: *A 2.5 grade or higher is required in all Nursing (HNR and HAH) courses. Nursing course completion with a grade less than 2.5 is considered a program fail and requires readmission. A program fail after readmission will result in nursing program dismissal.*

Program Requirements **64-70**

Nursing - Practical

Certificate of Achievement *NMC Code 010*

Northwestern Michigan College's Practical Nursing (PN) program is a certificate program that consists of two semesters of nursing classes after prerequisites are met. It is designed to give the student basic health care provider skills which will enable them to become eligible to take the National Council License Exam (NCLEX-PN). After successfully completing the NCLEX-PN exam, students are able to enter the work force in various health care settings. The program is approved by the Michigan Board of Nursing and accredited through the Accreditation Commission for Education in Nursing (ACEN). Licensed Practical Nurses often work in offices, long-term care, and home health care facilities.

ADMISSION REQUIREMENTS

Admission requirements include the following:

- Completion of the admission process for the pre-Practical Nursing AGS Degree for NMC.
- Transfer students must submit official transcripts to determine eligibility.
- Completion of prerequisite requirements.

The PN program has a wait list admission process. Detailed information, including deadlines can be found on the NMC website under Nursing – Practical. Space in the nursing program is limited. Completion of prerequisites does not guarantee admission to the nursing program. Students will be placed on the wait list only after all prerequisite requirements are complete and eligibility has been met. It is recommended that students create a plan to complete prerequisite requirements with the Advising Department.

PREREQUISITE REQUIREMENTS

Prerequisite requirements include the following:

- 2.5 overall GPA or higher ("Nursing GPA" is calculated by including all NMC courses and transfer courses that count toward the ADN degree).
- ENG 111 – English Composition (2.0 grade or higher)
- BIO 227 – Human Anatomy & Physiology I (2.5 grade or higher. Must have been completed within five years of program entry, or successfully complete a competency exam if the class is older than five years.)

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• Math Competency: Placement into MTH 121 or higher with qualifying test scores or completion of MTH 111 (2.0 grade or higher. Must have been completed within five years of program entry)

The nursing department enforces a repeat policy that states: Any math and/or science class may only be repeated once. This includes fails, drops, withdrawals or transferred classes (effective June 1, 2012).

GENERAL INFORMATION

- Current CPR certification, a physical examination indicating good mental and physical health, immunization records, criminal background checks and drug screens are required prior to clinical course work. Nursing students are responsible for the costs associated with these tasks.
- The Board of Nursing may deny a license for a previous felony conviction, previous treatment for drug or alcohol abuse, or after finding the existence of one or more grounds for board action listed in 333.16221 of the Public Health Code, Act 368 of 1978.
- The clinical facilities have the right to accept or reject a student. This action could result in a student being delayed or unable to complete the nursing program. This decision may be made just prior to the clinical rotation.
- Nursing students must adhere to the policies referenced in the Nursing Program Policy Manual associated with their admission semester. If a student is readmitted due to a program fail, they must adhere to the policies referenced in the Nursing Program Policy Manual associated with their readmission semester.
- Nursing program tuition is charged by the contact hour.
- All nursing courses must be completed within five years of taking the first nursing class.

Certificate Requirements **Credits: 39**

ENG	111	English Composition	4
Math competency: Placement into MTH 121 ***or*** higher, ***or*** completion of MTH 111			4
BIO	227/L	Human Anatomy & Physiology I with Lab	4
BIO	228/L	Human Anatomy & Physiology II with Lab	4
HNR	101	Fundamentals of Nursing-Lecture	4
HNR	102	Fundamentals of Nursing-Clinical	4
HNR	106	Pharmacology I	1
HNR	107	Pharmacology II	2
HNR	125	Lifespan Nursing-Lecture	5
HNR	126	Lifespan Nursing-Clinical	5
HNR	145	Practical Nursing Role & Issues	1
HAH	100C	Informatics Essentials	1
HPD	110	BLS for Health Care Providers*, **	(0.2)

** Equivalent courses are: American Red Cross BLS for Health Care Providers or CPR/AED for Professional Rescuers and Health Care Providers or HeartCode® BLS.*

***These credits do not count toward degree requirements.*

***Note:** A 2.5 grade or higher is required in all Nursing (HNR and HAH) courses. Nursing course completion with a grade less than 2.5 is considered a program fail and requires readmission. A program fail after readmission will result in nursing program dismissal.*

Office Administration

Certificate of Achievement (Level II) *NMC Code 044*

Well-trained office professionals continue to be in demand and play an integral role in the successful operation of an organization. They work as a team with managers, professionals, and other support staff to control and manage administrative operations.

The Office Administration Certificate builds on the Microsoft Office™ Applications Specialist Certificate and focuses on specific skills that area employers consider essential.

This program requires Microsoft Office™ 2016 on a Windows computer (or on a Mac with a Windows partition). The software is available for download and is also at campus computer labs.

Level II Certificate Requirements **Credits: 30**

Completion of all courses required for the Microsoft Office™ Applications Specialist Certificate (see page 30)			17
ACC	121	Accounting Principles I	4
BUS	101	Introduction to Business	3
BUS	231	Professional Communications	3
PHL	105	Critical Thinking ***or***	
PHL	201	Ethics ***or***	
PHL	202	Contemporary Ethical Dilemmas	3

***Note:** Students selecting this certificate program need beginning keyboarding skills, which is available through an Extended Education class if needed.*

Paramedic

Associate in Applied Science Degree in partnership with Munson Medical Center *NMC Code 310*

Northwestern Michigan College (NMC) and Munson Regional EMS have partnered to offer an Associate in Applied Science Degree (AAS) with a Paramedic focus. All general education classes are offered at NMC. All paramedic classes are offered through Munson Regional EMS. The program is designed to allow the transfer of 43 paramedic credits from Munson Regional EMS to NMC. With the completion of 18 or more general education credits as identified in the NMC program map, the student will earn an AAS – Paramedic.

ADMISSION REQUIREMENTS

To earn an AAS - Paramedic students must obtain a Basic EMT license and meet the clinical experience requirement. This can be completed concurrently while taking NMC classes. Students interested in pursuing a degree in Paramedic would follow the guidelines below for application to NMC and registration of classes.

1. Complete an application for admission through NMC at www.nmc.edu/admissions/future-students/
2. Request to have an official high school transcript sent to the Admissions Office.
3. Schedule an orientation session after an admission letter is obtained.
4. Take the placement test or submit your ACT or SAT scores prior to orientation.
5. Meet with an academic advisor.
6. Bring placement scores to paramedic program contact at Munson Regional EMS.

The following are required for application:

Math competency: placement into MTH 111 or higher with qualifying test scores or completion of MTH 23. (2.0 grade or higher must have been completed within five years or program entry.)

Degree Requirements

1. Complete at least 60 credit hours with a 2.0 or higher cumulative grade point average. A model schedule can be found on the NMC website.
2. Complete a minimum of 15 of the 60 credits at NMC.
3. Apply for graduation by completing the Application for Degree available online or in the Records & Registration Office on the main floor of the Tanis Building.
4. Request an official document from Munson Regional EMS contact to confirm successful completion of the Paramedic program.
5. Submit a copy of your Paramedic license to the NMC Records & Registration Office.

Plant Science

Associate in Applied Science Degree

Fruit and Vegetable Crop Management ..... *NMC Code 581*
Landscape Management ..... *NMC Code 582*
Viticulture ..... *NMC Code 580*

NMC and MSU offer a joint program where students dual enroll at NMC and MSU. Students earn an Applied Science degree in the areas of Fruit and Vegetable Crop Management, Landscape Management or Viticulture through NMC, and a certificate in Agricultural Technology from Michigan State University. All courses are taught in Traverse City. Upon meeting the program requirements for the AAS, students may transfer to the MSU East Lansing Campus as a junior to complete a Bachelor of Science degree. See your MSU advisor prior to enrolling each semester.

MSU Institute of Agricultural Technology
2200 Dendrinos Drive, Suite 203, Traverse City, MI 49684
Phone: (231) 995-1719
Email: elshoff@msu.edu

General Education Requirements..... Credits: 17-19

Communications: ENG 111 ***and*** either BUS 231 ***or*** ENG 112 ***or*** ENG 220 7-8
Humanities: Any Group 1 course 3-4
Math competency: Placement into MTH 111 ***or*** higher, ***or*** completion of MTH 23
Science: BIO 108 4
Social Science: ECO 201 ***or*** ECO 202 3

NMC Occupational Specialty Requirements
Credits: 11-13

CIT 100 Computers in Business-An Intro (***or*** equivalent)... 3
NMC directed electives (see program coordinator for appropriate selection) 8-10

MSU Occupational Specialty Requirements
Credits: 30

(Select from the following MSU areas of interest.)

MSU Fruit and Vegetable Crop Management Requirements **Credits: 30**

ABM	130	Farm Management	3
AT	202	Agricultural Regulation, Compliance & Safety	3
AT	293	Professional Internship in Agricultural Technology	3
CSS	126	Introduction to Weed Management	2
CSS	143	Introduction to Soil Science	2
ENT	110	Applied Entomology of Economic Plants	3
HRT	206	Training and Pruning Plants	1
HRT	207	Horticulture Career Development	1
HRT	218	Irrigation Systems for Horticulture	3
PLP	105	Fundamentals of Applied Plant Pathology	2

A minimum of seven additional IAT approved MSU CANR (College of Agriculture and Natural Resources) credits must be completed with approval from the program coordinator..... 7

(continued on next page)

MSU Landscape Management Requirements **Credits: 30**

AT	202	Agricultural Regulation, Compliance & Safety	3
AT	293	Professional Internship in Agricultural Technology	3
CSS	126	Introduction to Weed Management	2
CSS	143	Introduction to Soil Science	2
ENT	110	Applied Entomology of Economic Plants	3
HRT	207	Horticulture Career Development	1
HRT	211	Landscape Plants I	3
HRT	212	Landscape Plants II	3
HRT	213	Landscape Maintenance	2
HRT	218	Irrigation Systems for Horticulture	3
PLP	105	Fundamentals of Applied Plant Pathology	2

A minimum of three additional IAT approved MSU CANR (College of Agriculture and Natural Resources) credits must be completed with approval from the program coordinator..... 3

MSU Viticulture Requirements **Credits: 30**

AT	202	Agricultural Regulation, Compliance & Safety	3
AT	293	Professional Internship in Agricultural Technology	3
CSS	126	Introduction to Weed Management	2
CSS	143	Introduction to Soil Science	2
ENT	110	Applied Entomology of Economic Plants	3
HRT	231	Clerkship in Grape Harvesting and Processing	1
HRT	232	Principles of Viticulture	3
HRT	233	Field Practices of Viticulture	3
HRT	234	Current Issues in Viticulture and Enology	1
PLP	105	Fundamentals of Applied Plant Pathology	2

A minimum of seven additional IAT approved MSU CANR (College of Agriculture and Natural Resources) credits must be completed with approval from the program coordinator..... 7

Program Requirements **60**

MSU Transfer Students: Students wishing to transfer to MSU as juniors must meet with the program coordinator during their first semester to alter general education courses to meet MSU transfer requirements.

Respiratory Therapy - RT

Associate in Applied Science Degree through Muskegon Community College *NMC Code 712*

Northwestern Michigan College is a partner with Muskegon Community College and Munson Medical Center to offer a collaborative program leading to an Associate in Applied Science degree. All liberal arts and science courses can be taken through NMC. All didactic respiratory classes will be offered at Munson Medical Center via live interactive television from Muskegon Community College. Most clinical courses can be completed at Munson Medical Center. This program is fully accredited by the Commission on Accreditation for Respiratory Care (COARC).

The respiratory therapy program begins each fall semester. Enrollment in the program is based on the student meeting the following criteria: overall GPA of 2.0 and proficiency testing in Beginning Algebra and successful completion of ENG 111. Depending on placement test results and high school and/or college transcript evaluation, some prerequisite classes may be required. Class sizes generally begin with eight students in the Munson interactive classroom.

After completing more than two years of instruction, the student therapist receives the Associate in Applied Science degree (AAS) from Muskegon Community College. The student must pass the advanced practical examination given by the National Board for Respiratory Therapy in order to receive credentials.

ADMISSION REQUIREMENTS

Enrollment in any Respiratory Therapy (RT) course requires admission to the Respiratory Therapy program. Consideration for admission requires satisfactory completion of program prerequisites and admission to both Muskegon Community College and the Respiratory Therapy program. Students who have completed the entry level requirements and have also completed non-professional courses will be given preference into the program. Space in the Respiratory Therapy program is limited. **Completion of prerequisites does not guarantee admission to the Respiratory Therapy program.** Students interested in pursuing a degree in Traverse City for Respiratory Therapy from Muskegon Community College would follow these guidelines for application to and registration in the program.

1. Submit an application to Northwestern Michigan College. Applications are available at **www.nmc.edu/admissions** or at the Admissions Office (231) 995-1054.
2. Meet with an NMC advisor or Health Occupations Respiratory Therapy Advisor to complete your educational development plan for completing your degree.
3. Complete the basic criteria for admissions to the Respiratory Therapy program including: overall GPA of 2.0 and proficiency testing in Beginning Algebra and successful completion of ENG 111.
4. Apply for Admission to both Muskegon Community College and the Respiratory Therapy program at Muskegon Community College. More information is available by calling (231) 995-1235.

Surgical Technology

Associate in Applied Science Degree *NMC Code 311*

Northwestern Michigan College's Surgical Technology program is designed to provide students with the skills and knowledge necessary to become a competent entry level Surgical Technologist. Graduates of the program will be eligible to apply for the Certified Surgical Technologist exam through the National Board of Surgical Technology and Surgical Assisting (NMSTSA). The program includes 36 credit hours of classroom, lab and clinical components over four semesters after prerequisites are met. Cohorts will typically begin in the fall semester and graduate in December (fall, spring, summer, and fall).

ADMISSION REQUIREMENTS

- Completion of the admission process for the pre-Surgical Technology AGS Degree for NMC.
- Completion of prerequisite requirements.
- Transfer students must submit official transcripts to determine eligibility.

PREREQUISITE REQUIREMENTS

- College GPA of 2.0 (Overall GPA is defined as a combination of NMC GPA and any transfer courses counted toward the AAS degree.)
- ENG 111 – English Composition I (2.0 grade or higher)
- HAH 101 – Medical Terminology (2.0 grade or higher)
- BIO 227/227L – Human Anatomy & Physiology I* (2.0 grade or higher. Must have been completed within seven years of program entry.)
- Math Competency: Placement into MTH 121 – College Algebra or higher with qualifying test scores or completion of MTH 111 with a 2.0 grade or higher.

Recommended Courses to Take Prior to Starting the Surgical Tech Program

- BIO 228/228L* – Human Anatomy & Physiology II* (2.0 grade or higher) If not successfully completed prior to beginning the program, must be taken during Semester I.
- HPD 110 – BLS for Healthcare Providers (grade required: S) or an equivalent course:
- American Heart Association: HeartCode® BLS (CPR and AED)
- American Red Cross: Basic Life Support for Health Care Providers
- CPR/AED for Professional Rescuers and Health Care Providers

General Education Requirements Credits: 21

Communications: ENG 111 ***and*** BUS 231 ***or*** ENG 112 7
Humanities: Any Group 1 course 3
Science: BIO 227* and BIO 228* 8
Social Sciences: PSY 101 ***or*** SOC 101 3

(Continued on next page)

* *Transfer students must have completed coursework equivalent to BIO 227 and BIO 228 with a 2.0 or better within the last seven years before transfer credit will be considered.*

Note: BUS 231 is recommended to meet the communications requirement for the AAS degree; however, students who anticipate transferring credits to another school or who plan to pursue a four-year degree are advised to take ENG 112.

Occupational Specialty Requirements 39

HAH	101	Medical Terminology	3
SRG	101	Intro to Surgical Technology	3
SRG	101L	Intro to Surgical Technology Lab	2
SRG	102	Surgical Microbiology	1.5
SRG	103	Surgical Pharmacology	1.5
SRG	121	Surgical Procedures I	4
SRG	121L	Surgical Procedures I Lab	3.5
SRG	122	The Surgical Patient	0.5
SRG	123	Biomed Sciences and MIS	1.5
SRG	201	Surgical Procedures II	3
SRG	202	Surgical Procedures II Clinical	5
SRG	204	Professional Career Preparation I	0.5
SRG	221	Surgical Procedures III	3
SRG	222	Surgical Procedures III Clinical	6
SRG	224	Professional Career Preparation II	1

Program Requirements 60

NMC.
Find it here.

Surveying

Associate in Applied Science Degree *NMC Code 577*

The Surveying program focuses on the technical aspects of surveying, ensuring students in the program are trained to meet varying roles surveyors play in the workforce. In today's ever changing world of technology, autonomous vehicles, construction and development there has never been more demand for surveyors. All boundaries defining ownership, road construction, housing, schools, and commercial structures, cell phone towers, fiber optic line, gas pipe line, solar panel farms, oil – gas exploration, dams, rails, bridges, mining requires the assistance of a properly trained land surveyor.

The tools that a modern-day surveyor use are technically very advanced and vary depending on the accuracy and precision required for a specific task. Leica Geosystems has partnered with NMC to provide a comprehensive set of equipment, ensuring every student in the program has ready access to the most recent tools and technology.

General Education Requirements	**Credits: 21**
Communications: ENG 111 ***and*** ENG 220	7
Humanities: PHL 105 ***or*** PHL 203	3
Math competency: Placement into MTH 122, ***or*** completion of MTH 121	4
Science: PHY 105	4
Social Sciences: GEO 115	3

Occupational Specialty Requirements			**39**
AVF	141	Remote Pilot Flight	3
MTH	131	Intro to Prob & Stats	3
SVR	110	Fundamentals of Surveying	5
SVR	120	CAD for Surveying	4
SVR	XXX*	Construction Survey Applications	4
SVR	XXX*	Surveying Calculations	3
SVR	XXX*	Survey Positioning	5
SVR	XXX*	Boundary Surveying	3
SVR	XXX*	Remote Sensing Systems	3
WSI	200	GL Research Technologies	3
Approved Elective (see advisor)			3

* *Courses under development*

Note: *This program requires a minimum of 60 credits. Courses tested out or waived must be replaced with approved program electives.*

Program Requirements **60**

Technical Management Administration

Associate in Applied Science Degree *NMC Code 573*

Adding technical training to a business background has long been recognized as a powerful combination in the job market. Technicians often work with non-technical personnel such as accountants, managers, and data processors.

In order to obtain this successful combination of technical and business skills, students who have earned an Associate in Applied Science degree in a technical program may earn a second AAS degree in Technical Management Administration by completing 32 additional credits with a business emphasis.

Please note: This program is available only to students who have already completed an associate degree program in a technical area (Technical, Health, and Visual Communications programs). This program is not available to the student whose first degree is from a Business program.

Previous Technical focused AAS degree Credits: 60-64

Occupational Specialty Requirements			**32**
ACC	121	Accounting Principles I	4
ACC	123	Accounting Principles II	4
BUS	101	Introduction to Business	3
BUS	231	Professional Communications	3
BUS	261	Business Law I	3
CIT	100	Computers in Business-An Intro	3
MGT	241	Principles of Management	3
MGT	251	Human Resource Management	3
MKT	201	Principles of Marketing	3
Any Business Area Elective (BUS, MGT, MKT)			3

Program Requirements **92-96**

NMC.
Find it here.

Visual Communications

Associate in Applied Science Degree *NMC Code 351*

Students in this program explore a full range of skills: drawing, typography, photography, graphic design, illustration technique, animation, film, new media, and social media design. In unique, studio-like classrooms there are plentiful opportunities for hands-on work including customized projects based on portofolio goals and real-world pieces published in the community. Students participate and lead critiques and reviews with peers as well as clients/instructors. Several of the digital courses are led by Apple and Adobe Certified trainers. Apple and Adobe Certification and testing is available and is part of the Time Based Media, Digital Imaging, Digital Graphic Design, and Typography classes.

General Education Requirements **Credits: 18-19**

Communications: ENG 111 ***and*** ENG 112 8
Humanities: ART 111 ***or*** ART 112 (preferred)
or ART 213 3-4
Math competency: Placement into MTH 111 ***or*** higher,
or completion of MTH 23
Science: Any Group 1 course with a lab 4
Social Sciences: Any Group 1 course 3

Occupational Specialty Requirements **45**

ART	121	Drawing I	3
ART	131	2-D Design	3
ART	174	Digital Photography I	3
VCA	100	Materials and Techniques	3
VCA	125	Typography I	3
VCA	126	Typography II	3
VCA	127	Digital Imaging	3
VCA	146	Interactive Animation ***or***	
VCA	147	Web Design I	3
VCA	150	Digital Graphic Design I	3
VCA	200	Visual Communications II	3
VCA	220	Visual Communications III	3
VCA	225	Visual Communications Studio	3
VCA	230	Visual Communications V	3
VCA	235	Visual Communications Portfolio	3
VCA	250	Time Based Media I	3

Program Requirements **63-64**

Certified Associate
AUTHORIZED TESTING CENTER

Certified Trainer
Final Cut Pro X

Visual Communications - Creative Management in Art Direction

Associate in Applied Science Degree *NMC Code 251*

This Visual Communications program is designed for students who have already earned the VCA Associate in Applied Science degree and are looking to expand their skills for local employment opportunities instead of transferring to a four-year BFA or university program. This degree focuses on a tailored set of courses from other disciplines that will expose students to marketing, copywriting, small business management, digital photography, and other practical skills that will help them enter the work force. A 180-hour summer internship with a local marketing/design/advertising or film firm is a required part of this program.

Previous Visual Communications AAS degree **64**

General Education Requirements **Credits: 31-32**

ART	174	Digital Photography I ***or***	
VCA	146	Interactive Animation	3
ART	181	Printmaking I	3
ART	213	Modern Art History	3
ART	274	Digital Photography II	3
BUS	155	Interpersonal Communications ***or***	
BUS	231	Professional Communications	3
CIT	180	HTML and CSS Programming	3
ENG	220	Technical Writing ***or***	
ENG	221	Creative Writing	3
ENG	266	Popular Culture ***or***	
COM	201	Mass Communication and Culture	3-4
MKT	201	Principles of Marketing ***or***	
MKT	241	Principles of Advertising	3
VCA	290	Visual Communications Internship	4

Program Requirements **64**

Welding Technology

Associate in Applied Science Degree *NMC Code 386*

Welding is one of the foundations upon which our industrial world is built. The ability to form and join metals has been a critical need in our society for thousands of years and, with the rapid pace of technological advancement, is as in demand now as it ever was. Northwestern Michigan College is proud to offer three paths by which students will gain the competence and skill necessary to embark on a rewarding career in the welding world. Students will develop their skills through lecture and laboratory experiences in Gas Metal Arc Welding, Shielded Metal Arc Welding, Gas Tungsten Arc Welding, Flux Cored Arc Welding, Oxy-Fuel Processes, and Plasma Arc Cutting as well as additional skills that are in high demand for welding professionals. All programs incorporate industry recognized AWS Qualification testing. No prior experience needed.

General Education Requirements			**Credits: 21**
Communications: ENG 111 ***and*** ENG 112			8
Humanities: Any Group 1 course			3
Math competency: Placement into MTH 141 ***or*** higher, ***or*** completion of MTH 122 with a 2.0 or higher			3
Science: PHY 105			4
Social Sciences: Any Group 1 course			3

Occupational Specialty Requirements			**41**
DD	101	Print Reading and Sketching	3
DD	110	Basic Metallurgy	3
EET	103	Electrical Studies I	3
MFG	113	Machining I	3
WPT	111	Welding Theory I	3
WPT	112	Welding Lab I	4
WPT	113	Welding Theory II	3
WPT	114	Welding Lab II	4
WPT	161	Welding Qualification Prep	3
WPT	211	Welding Fabrication I	3
WPT	212	Welding Fabrication II	3
WPT	213	Weld Quality Testing	3
WPT	260	Intro to Welding Automation	3

Program Requirements **62**

Welding Technology

Certificate of Achievement (Level I) *NMC Code 036*

The Welding Technology courses are designed to meet the needs of beginning welding students as well as the needs of people who are upgrading their welding skills. Students will develop their skills in this area through laboratory experience using equipment representative of the welding industry. Welding classes can prepare students to be a certified welder or provide either a certificate or an Associate in Applied Science degree. The welding curriculum includes Oxyacetylene, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), and Gas Tungsten Arc Welding (GTAW), on both ferrous and nonferrous materials.

Certificate Requirements			**Credits: 17**
WPT	111	Welding Theory I	3
WPT	112	Welding Lab I	4
WPT	113	Welding Theory II	3
WPT	114	Welding Lab II	4
WPT	161	Welding Qualification Prep	3

Welding Technology

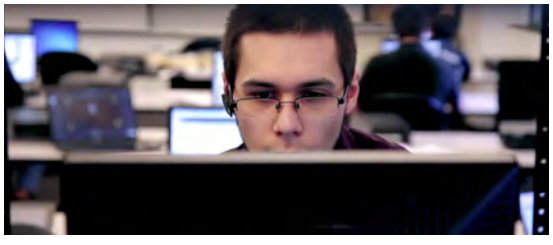
Certificate of Achievement (Level II) *NMC Code 038*

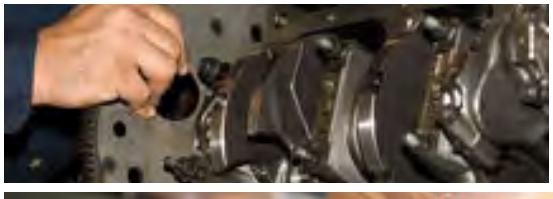
After completing the Welding Certificate Level I students may elect to obtain a Welding Certificate Level II. Students will advance their skills in this area through more laboratory experience using equipment representative of the welding industry. Welding classes can prepare students to be a certified welder or provide either a certificate or an Associate in Applied Science degree. The welding curriculum includes Oxyacetylene, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), and Gas Tungsten Arc Welding (GTAW), on both ferrous and nonferrous materials.

Level I Certificate Requirements **Credits: 17**

Level II Certificate Requirements			**15**
DD	101	Print Reading and Sketching	3
DD	110	Basic Metallurgy	3
EET	103	Electrical Studies I	3
MFG	111	Math for Manufacturing	3
MFG	113	Machining I	3

Total Level II Certificate Requirements **32**





Course Descriptions

Course Prefixes by Academic Area

Aviation
AVF Aviation Flight
AVG Aviation Ground

Business
ACC Accounting
BUS Business Administration
CIT Computer Information Technology
CUL Culinary Arts
MGT Management
MKT Marketing

Communications
ASL World Language - American Sign Language
COM Communications
ENG English
FRN World Language - French
GRM World Language - German
SPN World Language - Spanish

Construction Technology
CAR Carpentry Technology
CMT Construction Management
EGY Renewable Energy
ELE Electrical Technology
HVA HVAC/R Technology
PLU Plumbing Technology

Health Occupations
HAH Allied Health
HDA Dental Assistant
HNR Nursing
HPD Health Professional Development
SRG Surgical Technology

Humanities
ART Art
AUD Audio Technology
DNC Dance
HST History
HUM Humanities
MUS Music
PHL Philosophy
VCA Visual Communications

Maritime
MDK Maritime-Deck
MNG Maritime-Engineering
MNS Naval Science

Science and Mathematics
AST Astronomy
BIO Biology
CHM Chemistry
EGR Engineering
ENV Environmental Science
MTH Mathematics
PHY Physics

Social Sciences
ANT Anthropology
CJ Criminal Justice
ECE Early Childhood Education
ECO Economics
EDU Education
GEO Geography
LWE Law Enforcement
PLS Political Science
PSY Psychology
SOC Sociology
SWK Social Work

Technical
AT Automotive
DD Drafting and Design
EET Electronical/Electronics Technology
MFG Manufacturing Technology
RAM Robotics and Automation
SVR Surveying
WPT Welding Process Technology

Water Studies
WSI Water Studies

Reading a Course Description

The semester credit hours followed by (contact hours) are listed on the first line after the course description. Student tuition, in most cases, is based on the course contact hour. Exceptions are MDK, MNG, MNS, Applied Music, Ensembles and private lessons. At the end of the description the course is identified by group number. See graduation requirements starting on page 8.

In addition to the courses listed in this section, each instructional area within Northwestern Michigan College may offer the following courses:

291 Special Topics
Seminars, lectures, etc. on a selected topic within a field are sometimes offered as special courses. Students may enroll in more than one Special Topics offering but not all four-year schools accept special topics credits. **Group 2 course.**

297 Independent Study
Independent Study provides students the opportunity to explore a topic of study in greater breadth and depth than would be possible in an established College course. Students must seek faculty approval and complete a formal contract that stipulates the student learning outcomes, the activities that will help the student meet those outcomes, and the methods and measures to be employed to assess the student's performance. The Independent Study will appear on the student's transcript under the appropriate disciplinary prefix followed by 297. **Group 2 course.**

NMC Course Descriptions

ACC Accounting

ACC 121, Accounting Principles I Division: Business
Introduction to financial accounting covering the accounting cycle, preparation of financial statements, and accounting for merchandising operations. It includes accounting for cash, receivables, inventory, property plant and equipment, current liabilities, payroll, long-term liabilities and corporations. Group 2 course
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: MTH 08 with a grade of 2.0 or better, or placement into MTH 23. Co-Requisites: None
Recommended Prerequisites: BUS 105

ACC 123, Accounting Principles II Division: Business
Continuation of ACC 121. Introduction of the role of accounting information in the planning and decisionmaking of business organizations. Includes managerial accounting, costing of products, planning and budgeting, performance measurement, control of organizational activities, decision making, profitability analysis, statement of cash flows, and financial statement analysis. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: ACC 121 Co-Requisites: None
Recommended Prerequisites: MTH 111

ACC 199, Accounting Practicum Division: Business This course expands upon previously learned computerized general ledger accounting. Focuses on developing skills for application through the continued use of accounting software; including chart of accounts, journal entries, sales/receivables, expenses/accounts payable, payroll, and automated general ledger. Various projects are used and integrated to guide students through the accounting cycle including financial statements and a variety of special reports. Special emphasis is placed upon the interpretation and evaluation of financial information. This course requires students to have an electronic device capable of processing QuickBooks as well as spreadsheet software. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: ACC 123, CIT 210, CIT 216
Co-Requisites: None
Recommended Prerequisites: None

ACC 221, Intermediate Accounting I Division: Business
A detailed analysis of the content of financial statements covering problems related to revenue recognition, time value of money, cash, receivables, and inventories including calculation and analysis of financial ratios. US and international reporting standards are compared. The course begins with a brief review of the fundamental accounting process. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: ACC 123 Co-Requisites: None
Recommended Prerequisites: Students should possess the ability to write business communications, such as research memos and reports to management. Students should also have competency in algebra at the intermediate level.

ACC 222, Intermediate Accounting II Division: Business
A detailed analysis of the content of financial statements covering problems related to property, plant and equipment, investments, current liabilities and contingencies, bonds and long-term notes, leases, income taxes, and shareholders' equity. US and international reporting standards are compared. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: ACC 221 Co-Requisites: None
Recommended Prerequisites: Students should possess the ability to write business communications, such as research memos and reports to management. Students should also have competency in algebra at the intermediate level.

ACC 223, Cost Accounting Division: Business
This course explores cost accounting from a managerial perspective. Job costing, activity-based costing, and process costing are analyzed. Budgeting and variance analysis for management control are examined. Cost volume-profit analysis, inventory costing and capacity, and inventory management techniques are investigated. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: ACC 123 Co-Requisites: None
Recommended Prerequisites: MTH 111

ACC 231, Federal Income Tax Problems
Division: Business
In this course, the student will learn income tax practices and procedures necessary to prepare an accurate individual income tax return. Basic tax research and planning will be incorporated. Payroll tax laws and procedures will be examined including computing wages and withholdings, computing unemployment taxes and analyzing and journalizing payroll transactions. The course includes preparation of individual and payroll tax returns. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: ACC 123 Co-Requisites: None
Recommended Prerequisites: None

ACC 241, Principles Fraud Examination
Division: Business
This course is an introduction to the field of forensic accounting. Topics include the history of forensic accounting, the fraud triangle theory, financial statement misrepresentation, and fraud examination techniques, including fraud prevention and control. Students will be exposed to real-world cases in the area of forensic accounting. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: ACC 123 with a 2.0 grade or higher
Co-Requisites: None
Recommended Prerequisites: ACC 221, ACC 222, ENG 112, critical reading ability is beneficial.

ACC 290, Accounting Internship Division: Business
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Accounting. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid or unpaid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support and feedback, review of professional employment documents and an internship exit interview. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: 12 semester credits in accounting in addition to a spreadsheet course. This internship requires the approval of the accounting instructor, a GPA of 3.0 in accounting and a minimum of eight hours per week spent on-site Co-Requisites: None
Recommended Prerequisites: ACC 221, ACC 222, MTH 111

ANT Anthropology

ANT 102, Underwater Archaeology
Division: Social Science
This course will provide students with an introduction to theory, method, technologies, and practice in underwater archaeology, with case studies of prehistoric and historical sites worldwide, including the Michigan Great Lakes. This is a lecture-based course that provides a specialization in anthropology and the applied social sciences. This course also qualifies for NAS Part 3 credits. No diving is required. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 99/108 or placement into ENG 11/111.

ANT 113, Intro to Cultural Anthropology
Division: Social Science
The study of the role of society and culture in humankind's adaptation to a variety of environments is the focus of this course. A variety of cultures are studied, utilizing cross-cultural comparisons. This is an introductory course which provides a broad overview of the four fields of anthropology with some concentration on archaeology. Among topics considered are field methods, theories of cultural evolution, the family, kinship, economics, religion, political organization and language. Group 1 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: ENG 99/108 or placement into ENG 11/111 Co-Requisites: None
Recommended Prerequisites: None

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ANT 201, Nautical Archaeology I Division: Social Science
This is an entry level course to the Nautical Archaeology Society Training Program and is aimed at introducing nautical archaeology to divers and non-divers, and promoting their interest in the subject. It provides the basic training in archaeological survey and project management with the aim of teaching students how to design, plan and run their own field work projects. The curriculum will be presented in the classroom and in an open water setting (or foreshore site for non-divers) in the field. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: ENG 99/108 or placement into ENG 11/111 Co-Requisites: None
Recommended Prerequisites: ANT 102, The minimum diving qualification level for those taking part in the pool exercises is CMAS 1-Star or equivalent, e.g. BSAC Ocean Diver, SAA Open Water Diver, or PADI Open Water.

ANT 202, Nautical Archaeology II
Division: Social Science
This is a field archaeology course that allows students the opportunity to practice skills they learned in ANT 201. Students will design and execute a maritime archaeology project in the Grand Traverse region or other maritime landscape. Students may also participate in larger projects during special summer field schools hosted at NMC and abroad. Beach projects will be developed for non divers. The course will be offered throughout the summer semester on a flexible time schedule and is based on individual availability and weather conditions. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ANT 201, ENG 99/108 or placement into ENG 11/111.

ART Art/Fine Arts

ART 100, Art Appreciation Division: Humanities
Art Appreciation is a course which allows for a great deal of exploration into the world of art as we see it. The course provides an avenue for understanding this world by investigating technique, media, idea, personal expression and meaning. In examining personal expression, surrounding issues and their effect upon society will also be analyzed. Students in this course will develop a foundation for understanding art through analytical observation, examination, interpretation and writing about art. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

ART 111, History of Western Art I Division: Humanities
The course will introduce major trends of Western Art from Pre-History through Greece, Rome and the Middle Ages. Significant works of painting, sculpture and architecture will be presented within the social, political and cultural context of each period. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 111

ART 112, History of Western Art II Division: Humanities
This course is designed to introduce major trends in Western Art from the Renaissance through Modernism to the present. Significant works of painting, sculpture and architecture will be presented within the social, political and cultural context of each period. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 111

ART 121, Drawing I Division: Humanities
Drawing I introduces the students to basic drawing skills and techniques through the use of line, form, composition, perspective and the use of chiaroscuro. The course emphasis is on using drawing as a vehicle for seeing and communicating. Students will learn to judge proportions, create volume, depict the illusion of space and to analyze their own work as well as others. Black and white dry medium will be used for all assignments. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 122, Drawing II Division: Humanities
Course will explore advanced methods in drawing including the effects of lighting, multiple panel design and conceptualizing of compositions with an emphasis on the use of new media and developing a personal style. Advanced use of color media and theory will be explored in this course. Assignments will include still life and object studies designed by both the instructors and students. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 121 Co-Requisites: None
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 131, 2-D Design Division: Humanities
A problem-solving course covering the principles of composition and design. Course will study the concepts and theory of two-dimensional design, pattern, and color as they apply to visual perception and communication. Uses predominately abstract shapes and black, white, and achromatic gray ranges. Students will study visual structure, color and their application. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 132, 3-D Design Division: Humanities
An introduction to the elements of construction and production of three-dimensional design. Shape, volume, mass, and interaction of forms and colors will be studied within a variety of conceptual modes, e.g. architecture, sculpture, package design, display, etc. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ART 131; Students are encouraged to have good reading skills or seek help.

ART 151, Ceramics I Division: Humanities
This is an introductory course consisting of instruction and development of hand-building skills and basic ceramic design. Students prove critical thinking and development of technical skills by completing hand building projects that include: sets, complex shapes (made from multiple shapes), relief, pouring vessels, and a detailed sketchbook that includes research and design focused on each project. Functional pottery, sculpture, and hybrids of these forms will be the focus of this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

ART 152, Ceramics II Division: Humanities
This course is an advanced studio intensive class that builds on the skills and knowledge developed in Ceramics I. Advanced projects using hand building and wheel throwing techniques will be completed for assessment. Projects will include the concepts of sets, bottle forms, wheel throwing, the human figure, and large stacking forms. Sketchbook/ sourcebook documentation of research and design will be required. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 151 Co-Requisites: None
Recommended Prerequisites: None

ART 161, Painting I Division: Humanities
This course will introduce concepts of painting as well as principles of design, and the development of painting techniques. Students will be given painting projects/problems throughout the semester ending with a painting that incorporates the combined skills. Oils and/or acrylic paint will be used. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 162, Painting II Division: Humanities
This course will continue to investigate the concepts of Painting I as well as elements of design, including the development of a personal style. Students will deal with more complex painting concepts, including a deeper understanding of color challenges. This course is designed to give a more independent/individual approach (than Painting I). Students will work in either oil or acrylic paint. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 161 Co-Requisites: None
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 165, Watercolor Painting I Division: Humanities
An introduction to the techniques and materials of watercolor painting. Includes use of creative effects, additive and subtractive approaches, and mixing of color to create effective paintings in a step-by-step manner. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

ART 166, Watercolor Painting II Division: Humanities
Watercolor II deals with advanced problems in watercolor painting with special emphasis on individual development and creativity particularly in the area of compositional conceptualization. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 165 Co-Requisites: None
Recommended Prerequisites: None

ART 174, Digital Photography I Division: Humanities
The student will gain a strong understanding of manual exposure with a digital camera, working in camera raw, digital workflow, and natural light. Students are introduced to the artistic principles of aesthetics, composition, color, and applying those principles to the digital photography medium. Students also work in post processing with lightroom, photo shop, and output to digital prints. Group 2 course.
Credit Hours: 3 Contact Hours: 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

ART 181, Printmaking I Division: Humanities
Printmaking I is an introductory survey course that introduces the student to a wide variety of print media: relief, intaglio, embossing and monotype. Students will gain knowledge of the history, conception, production and presentation of achromatic prints. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 182, Printmaking II Division: Humanities
Printmaking II expands on processes and concepts explored in Printmaking I with the emphasis on more complex techniques including lithography, drypoint, and collagraphs. Students will refine their technical skills and concepts begun in Printmaking I. Students will explore contemporary printing techniques and issues. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 181 Co-Requisites: None Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 213, Modern Art History Division: Humanities
This course examines the history of art from the beginning of the 20th century to present. Emphasis is placed on the continuing connection between modern art movements and the relationship of art to current social and cultural contexts. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ENG 111

ART 221, Life Drawing I Division: Humanities
Life Drawing I involves comprehensive studies in drawing the human figure with a variety of materials and discusses the solution of the problems of figure drawing used to advance the general qualities of grace, rhythm, and form. Explorations include gesture drawing, contour drawing and drawing the figure in motion. Life Drawing I will work primarily in charcoal and pencil. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 121 Co-Requisites: None Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 222, Life Drawing II Division: Humanities
Life Drawing II is an advanced study of problems in drawing the human figure in multiple views and in longer studies with an accent on composition and dealing not only with the model but the environment the model is in. Life Drawing II will include the introduction of color and wet media. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ART 221 Co-Requisites: None Recommended Prerequisites: Students are encouraged to have good reading skills or seek help.

ART 274, Digital Photography II Division: Humanities
Digital Photography II is an intermediate photography course covering advanced techniques in capturing & processing of photographs in the digital form. Specific topics will include image enhancement by use of software programs (Adobe Lightroom & Photoshop), color management, in depth artistic principles and expression for a photographic series, and output to digital prints. Students also work in studio with professional studio lighting to create work in the commercial and portrait genres.
Group 2 course. Credit Hours: 3 Contact Hours: 4
Required Prerequisites: ART 174 Co-Requisites: None
Recommended Prerequisites: None

ASL World Language - American Sign Language

ASL 101, American Sign Language I
Division: Communications
ASL 101 introduces students to the language and culture of Deaf people in the United States and most of Canada. This course will focus on building vocabulary and dialogue structures needed for introductory conversations about purposeful topics, the use of non-manual grammatical markers such as facial expression, use of fingers spelling and numbers, and an introduction to the rich history and culture of the Deaf community. Students will participate in interactive classroom activities using a "voices off" policy to ensure ASL immersion. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 102, American Sign Language II
Division: Communications
ASL 102 furthers student knowledge and experience of the language and culture of Deaf people in the United States and most of Canada. The introduction of additional vocabulary and grammar structures furthers students' ability to communicate meaningfully with ASL users. Students will develop greater insight into the Deaf culture through the context of ASL literature and current topics relevant to the Deaf community are explored. "Voice off" policy is used for more extended periods of time. While developing communication skills, students will simultaneously mature in their understanding of the Deaf experience. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: ASL 101 or instructor permission Co-Requisites: None Recommended Prerequisites: Students will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

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ASL 103, American Sign Language III
Division: Communications
ASL 103 is a continuation of ASL 101 and ASL 102, expanding the emphasis on ASL grammar, vocabulary development, and Deaf culture. Dialogue, short stories, narratives, and short conversation, both receptive and expressive, will be featured through the course. Meaningful conversational topic development is emphasized. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: ASL 102 or instructor permission Co-Requisites: None Recommended Prerequisites: You will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of -class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

ASL 104, American Sign Language IV
Division: Communications
ASL 104 is a continuation of ASL 101, ASL 102, and ASL 103. Students will further develop ASL grammar, vocabulary development, and Deaf culture. Dialogue, short stories, narratives, and short conversation, both receptive and expressive, will be featured through the course. Meaningful conversational topic development is emphasized. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: ASL 103 or instructor permission Co-Requisites: None Recommended Prerequisites: You will be required to communicate in sign language; need a minimal amount of technological knowledge and skill to take advantage of outside-of-class requirements; need to be able to play a course-required DVD; and need internet access as much of the course is supported by Moodle.

AST Astronomy

AST 100, Observational Astronomy
Division: Science & Math
This course is an introduction to astronomy. The goal of this course is to acquaint the student with the constellations, solar system objects and their motions, the celestial sphere concept and co-ordinate system. Stars, star clusters, nebulae and galaxies are also studied. Students will use naked-eye observations as well as telescopes, spectrograph, photometer and CCD camera to observe and report findings. Each session includes training in the operation of astronomical equipment. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 23

AST 109, Planetary Astronomy Division: Science & Math
AST 109L, Planetary Astronomy Lab
Characteristics and properties of the solar system and its components are presented to students in the context of the history of discovery. This information is integrated with student observational data to develop a mathematical model in the laboratory. The model is developed by incorporating equations used to compute characteristics and properties of solar system components. The model is utilized by students to encourage understanding of why the solar system has evolved to its current state by evaluating the effects of changes in values of fundamental measured properties and characteristics. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: ENG 99/108
Co-Requisites: AST 109L
Recommended Prerequisites: ENG 111, MTH 111

AST 119, Astronomy Division: Science & Math
AST 119L, Astronomy Lab
History of discovery of the nature of the cosmos and its contents is the format utilized to develop understanding of the nature of stars and the universe, and the physical principles determining this nature. These principles underlie our proficiency for prediction of the nature of the universe and our ability to make observations of our universe. The principles are analyzed by means of a student developed mathematical model incorporating the quantitative relationships derived by physicists and astronomers. Observations provide students with the sky knowledge and data necessary for prediction of stellar characteristics. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: ENG 99/108
Co-Requisites: AST 119L
Recommended Prerequisites: ENG 111, MTH 111

AT Automotive Technology

AT 100, Automotive Service Basics Division: Technical
This is the first course in the Automotive Service Program. Engine theory, cooling systems, and lube requirements will be covered. Bolts, micrometers and basic specialty tools are integrated into the class. Training in the use of acetylene torch equipment will be taught along with its use in the automotive field. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 110, Automotive Brake Systems Division: Technical
This course covers theory, components, nomenclature, and service of automotive brake systems. Students will use standard skills to diagnose hydraulic systems, drum and disk brakes, power assist units and systems. The study and repair of modern ABS systems along with the replacement of associated parts such as wheel bearings will also be covered. Group 2 course.
Credit Hours: 5 **Contact Hours:** 7
Required Prerequisites: AT 100, may be taken concurrently Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 120, Automotive Electrical I Division: Technical
This course covers basic electricity, circuits, testing equipment, and solid state electronics. Group 2 course.
Credit Hours: 5 **Contact Hours:** 8
Required Prerequisites: AT 100, may be taken concurrently Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 130, Engine Performance I Division: Technical
This course is designed to familiarize the student with the theory and operation of the automotive ignition system and fuel system. Group 2 course.
Credit Hours: 5 **Contact Hours:** 8
Required Prerequisites: AT 220 Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 140, Suspension and Steering Division: Technical
This course is designed to familiarize the student with the nomenclature, theory, and service techniques for the modern steering and suspension system. Group 2 course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: AT 100, may be taken concurrently Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 150, Automatic Transmissions Division: Technical
This course is designed to familiarize the student with hydraulic theory, internal transmission powerflow, electronic control and torque converter operation. All aspects of transmission operation will be covered as well as removal, overhaul, and installation procedures. Students will remove, dyno-test, and install actual failed units in the lab. Group 2 course.
Credit Hours: 6 **Contact Hours:** 9
Required Prerequisites: Instructor signature required. Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 160, Engine Repair Division: Technical
This course covers the theory, construction, and repair of the four stroke automotive engine. This will include the proper use of compression leakage and test equipment, precision measuring tools, special engine tools and valve grinding equipment. Group 2 course.
Credit Hours: 6 **Contact Hours:** 8
Required Prerequisites: AT 100, may be taken concurrently Co-Requisites: None Recommended Prerequisites: ENG 111 and completion of MTH 08 or placement into MTH 23.

AT 170, Heating and Air Conditioning Division: Technical
This course covers the principles of refrigeration with emphasis on the particular problems of application to automotive air conditioning. The course also covers automotive heating systems which include heater cores, blower motors, vent systems and the electronic controls for them. The student will learn how to use refrigerant recovery and charging equipment and will have hands-on experience in the lab with that equipment. Group 2 course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: AT 120 Co-Requisites: None Recommended Prerequisites: None

AT 180, Manual Drivetrain and Axles Division: Technical
This course covers the basic operating principles, construction, power flow and repair of clutches, manual transaxles, and drive shafts. Differential theory and overhaul will be covered including ring and pinion replacement and set up. Group 2 course.
Credit Hours: 6 **Contact Hours:** 9
Required Prerequisites: AT 100, may be taken concurrently Co-Requisites: None Recommended Prerequisites: None

AT 200, Service Department Management
Division: Technical
This course is designed to acquaint the student who plans a career in the automotive service industry with the duties, responsibilities, qualifications, and problems of service department manager. The student will learn general shop organization, types of service, and cost and returns by department. Time will be devoted to employer-employee and customer relations, and instruction in the use of the service manual. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

AT 210, Hybrid Technology Division: Technical
This course provides a comprehensive systems overview of the operating principles, maintenance, and service of hybrid electric vehicles. Group 2 course.
Credit Hours: 5 **Contact Hours:** 8
Required Prerequisites: AT 130 or Certification in Electrical and Engine Tune Up Co-Requisites: None Recommended Prerequisites: None

AT 220, Automotive Electrical II Division: Technical
This course covers advanced automotive electronics with the emphasis placed on operation, troubleshooting, and repair of lighting, gauges, accessories, and power option circuits. Body hardware is covered including diagnostics of modern systems with body control modules. Group 2 course.
Credit Hours: 5 **Contact Hours:** 8
Required Prerequisites: AT 120 Co-Requisites: None
Recommended Prerequisites: None

AT 230, Engine Performance II Division: Technical
This course covers computerized engine controls including the latest emission control systems. The student will become proficient with the use of scanners, scopes, and the latest engine analyzers. The art of diagnostics and troubleshooting will be stressed. The student will have hands-on experience in this area including practice using the computer as a source of information. Group 2 course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: AT 130 Co-Requisites: None
Recommended Prerequisites: None

AT 240, Unmanned Ground Vehicles Division: Technical
This course is designed to be a capstone project for students in the Engineering Technology unmanned ground vehicle curriculum specialization. Students enrolled in this project will design and build an unmanned ground vehicle. The specifics on the type of vehicle will be developed by the instructor and students as part of the course. Students will gain experience in all areas of engineering technology, including design, project management, scheduling, budgeting and fundraising. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: AT 130, AT 220, ENG 111, MTH 111, RAM 205 Co-Requisites: None
Recommended Prerequisites: ENG 112, MTH 121

AT 290, Automotive Internship Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD Audio Technology

AUD 100, Applied Music - Audio Tech
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None *Co-Requisites:* None *Recommended Prerequisites:* None

AUD 100B-F, Applied Music - Audio Tech
Division: Humanities
This course consists of one-on-one mentoring in audio technology with our NMC Audio Technology Staff. It is designed to customize the audio tech training experience for each student, helping to identify interests and aptitude, or to provide tutoring as needed. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 100 *Co-Requisites:* None
Recommended Prerequisites: None

AUD 101, Theory for Studio Engineers
Division: Humanities
This course is a study of song forms, notation of rhythms, chord symbols, key and time signatures, and familiarization with lead sheets and scores as commonly used in Pop and Jazz. This course will provide students the knowledge needed to work in a variety of musical genres and mediums. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None *Co-Requisites:* None
Recommended Prerequisites: None

AUD 110, Studio Recording I Division: Humanities
This course is a combination of the study of audio and recording theory with instruction and practice in audio studio recording techniques. There is an emphasis on developing skills in the use of current technology. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None *Co-Requisites:* None
Recommended Prerequisites: None

AUD 111, Studio Recording II Division: Humanities
This course is a study of audio signal processing theory, history, and application using current industry standard technology. There is an emphasis on developing skills in the operation of hardware and software to manipulate digital audio recordings. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 110 with a grade of 2.0 or better. *Co-Requisites:* None
Recommended Prerequisites: None

AUD 120, Digital Audio I Division: Humanities
This course includes a brief history of MIDI, the MIDI specification and setting up a MIDI studio. Students will learn techniques of MIDI and audio recording and editing, creating MIDI and audio tracks using MIDI software sequencers and Digital Audio Workstations (DAW). This course will present the content required for taking the Logic Level One User Certification exam. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

AUD 121, Digital Audio II Division: Humanities
Digital Audio II is a the continuation of AUD 120, Digital Audio I. This course explores Pro Tools, MIDI recording and editing, then delves further into advanced MIDI editing techniques. The use and operation of control surfaces and MIDI session strategies are explored. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 120 with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD 130, Live Sound I Division: Humanities
This course is an introduction to live sound techniques, including basic properties of sound, sound equipment, signal flow, and system engineering. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

AUD 131, Live Sound II Division: Humanities
This course is a continuation of live sound techniques, including acoustic properties of sound, sound equipment, signal flow, and system engineering. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 130 with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD 210, Studio Recording III Division: Humanities
This course builds on the topics covered in AUD 110 and AUD 111, focusing on the refining and addition of skills in digital audio recording. Students develop competencies in working with hardware and software in audio project-based settings. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 111 with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD 220, Digital Audio III Division: Humanities
Digital Audio III is the continuation of AUD 121, Digital Audio II. This course further explores MIDI and audio recording and editing in Logic and Pro Tools, and also delves into an exploration of software sound synthesizers and sampler instruments found in Digital Audio Workstations. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 121 with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD 230, Live Sound III Division: Humanities
This course is an advanced exploration of live sound techniques, including room acoustics, digital sound equipment, software analysis, and system engineering. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 131 with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD 250, Audio Tech Practicum Division: Humanities
This course is designed to give students practical experience in digital audio recording. Students participate in a variety of recording situations using various hardware and software recording techniques. Students apply techniques used in previous recording and digital audio courses. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: AUD 110, AUD 120, AUD 130 all with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AUD 260, Audio Tech Internship Division: Humanities
This course is required for the Associate of Applied Science degree in Audio Technology. The purpose of the internship is to provide on-the-job experience for the student who wishes to pursue a career in audio related fields. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firms. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or better; or instructor approval. Co-Requisites: None Recommended Prerequisites: None

AUD 270, Audio Tech Final Project Division: Humanities
This course is required for the Associate of Applied Science degree in Audio Technology. The purpose of the Audio Tech Final Project course is to provide in-depth intensive training experience in an area of specialization in audio technology. The student will be paired with staff in their area of expertise. Examples are Audio for Worship, Mastering, Audio for Film, Scoring, etc. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: AUD 210, AUD 230, AUD 250 all with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

AVF Aviation Flight

AVF 111, Private Flight Division: Aviation
A flight course structured to provide a minimum of 40 dual and solo flight hours to meet the aeronautical experience requirements for a private pilot. Upon completion of this course, the student will have attained the FAA Private Pilot Rating. Course requires 42.4 hours of flight time, 8.0 hours of pre/post, and 17.5 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course. **Credit Hours: 5 Contact Hours: 5**
Required Prerequisites: Instructor Permission Required
Co-Requisites: None Recommended Prerequisites: None

AVF 132, Instrument Flight Division: Aviation
A flight course designed to meet the aeronautical experience requirements for the FAA Instrument check ride. Upon completion of this course, the student will have attained the FAA Instrument Rating. Course requires 39.8 flight hours, 9.8 hours of pre/post, and 17.2 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: Private Pilot Rating; AVF 111 and AVG 101 CoRequisites: None
Recommended Prerequisites: None

AVF 141, Remote Pilot Flight Division: Aviation
Students will be introduced to the world of Unmanned Aerial Systems. This course takes a look at everything from current Unmanned Aircraft Systems to future civilian applications. In addition to learning about this new industry, students will be introduced to flying remotely piloted aircraft and operating entry level Unmanned Aerial Vehicles. Group 2 course.
Credit Hours: 3 Contact Hours: 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

AVF 211, Commercial Drone Operations
Division: Aviation
This course will guide students deeper into the Unmanned Aerial Systems Industry. Topics will include Federal Regulations for UAS, components of Unmanned Aerial Vehicles, autopilot programming and flight plan development. Students will be working with UAS autopilot simulators and also be introduced to flying professional UAS systems. Group 2 course. **Credit Hours: 4 Contact Hours: 4**
Required Prerequisites: AVF 141, AVG 142 Co-Requisites: None Recommended Prerequisites: AVG 101

NMC.
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AVF 230, Commercial Flight I Division: Aviation
The student will advance their skills required by the FAA to obtain a Commercial Pilot Certificate. They will gain experience in different aircraft with the opportunity to gain a Tailwheel Endorsement or Seaplane Rating. Students will increase their instrument proficiency while conducting cross country flights. Course requires 44.4 flight hours, 9.85 of pre/post, and 1.3 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 2 Contact Hours: 2
Required Prerequisites: AVF 130 or AVF 132 and AVG 252, both with a 2.0 or better or equivalent rating. Co-Requisites: None Recommended Prerequisites: None

AVF 232, Commercial Flight II Division: Aviation
A flight course structured to provide a dual and solo flight hours to partially fulfill the flight hour requirements for the FAA Commercial Pilot Certificate. This course will provide a review of VFR and IFR cross country navigation procedures and introduce the student to multi-engine flight. Course requires 33.4 flight hours, 0.9 hours of pre/post, and 10.3 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for single engine ground instruction and $69/hour for multi-engine flight instruction and $230/hour for the single aircraft and flight instructor and $340/hour for the multi-engine aircraft and instructor. Group 2 course. **Credit Hours: 3 Contact Hours: 3** Required Prerequisites: AVF 230 with a 2.0 or better - may be taken concurrently
Co-Requisites: None Recommended Prerequisites: None

AVF 234, Commercial Flight III Division: Aviation
This course is the last of three flight courses required to obtain the FAA Commercial Pilot Certificate. This course consists of flight hours with an emphasis on commercial flight maneuvers in preparation for the Commercial Pilot FAA Practical Test. Upon completion of this course, the student will have attained the FAA Commercial Pilot Certificate. Course requires 17.2 flight hours, 2.7 hours of pre/post, and 8.5 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $212/hour for the aircraft and flight instructor. Multi-engine training lessons will be charged at $69/hour for ground instruction and $340/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 2 Contact Hours: 2
Required Prerequisites: AVF 232 with a 2.0 or better
Co-Requisites: None Recommended Prerequisites: None

AVF 241, Advanced Drone Operations
Division: Aviation Students will apply what they have learned in previous courses by working largely in the field conducting simulated and real life flight missions. This course focuses on applying Unmanned Aerial Systems to future civilian applications such as inspections, aerial mapping, and aerial photography. Group 2 course. **Credit Hours: 3 Contact Hours: 4** Required Prerequisites: AVF 141 and either AVF 211 or AVG 210 CoRequisites: None
Recommended Prerequisites: None

AVF 261, Aerosonde UAS Flight Training
Division: Aviation This hands on flight course allows students to earn a manufactures certification from one of the leading UAS platform manufacturers in the U.S. Students will participate in live flight training utilizing the Aerosonde Small UAS platform, a leading platform currently operated for U.S Department of Defense customers around the globe. Group 2 course. **Credit Hours: 3 Contact Hours: 4** Required Prerequisites: AVF 241 - may be taken concurrently and AVG 260 CoRequisites: None Recommended Prerequisites: None

AVF 271, Multi-Engine Flight Division: Aviation
This flight course is designed to give the student the aeronautical knowledge, proficiency, and experience required to meet the FAA Practical Test Standards for the Private or Commercial Multi-engine rating. Upon completion of this course, the student will have attained the FAA Multi-engine Land Rating. Course requires 4 flight hours, 1 hour of pre/post, and 1 ground hour. Hourly rates effective March 2018 are $69/hour for ground instruction and $340/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 1 Contact Hours: 1
Required Prerequisites: AVF 234 with a 2.0 or better
Co-Requisites: None Recommended Prerequisites: None

AVF 272, Multi Engine Instructor Division: Aviation
In this course, the student will learn the skills to be a Certified Multi Engine Flight Instructor (MEI). They will master the skills of the Private and Commercial Pilot ratings. In addition, they will learn how to be an effective teacher and understand all FAA rules and regulations that accompany being an instructor. Course requires 5 flight hours, 1.3 hours of pre/post, and 5 hours of ground instruction. Hourly rates effective March 2018 are $69/hour for ground instruction and $271/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 2 Contact Hours: 2
Required Prerequisites: AVF 382 Co-Requisites: None
Recommended Prerequisites: None

AVF 274, Tailwheel Flight Division: Aviation
This course is designed to provide the student with the skills, knowledge, and experience to receive a logbook endorsement to fly tailwheel aircraft. Course requires 4 flight hours and 1 hour of pre/post. Hourly rate effective March 2018 is $209/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 1 Contact Hours: 1
Required Prerequisites: AVF 111 and AVG 101 - both with a 2.0 or better CoRequisites: None
Recommended Prerequisites: None

AVF 275, Seaplane Flight Division: Aviation
In this course, the student will gain the skills, knowledge, and experience to receive endorsement for the FAA Practical Test. Students will learn in a Piper Super Cub on floats as they demonstrate maneuvers and landings. Course requires 5 flight hours, 1.2 hours of pre/post, and 1 hour of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $209/hour for the aircraft and flight instructor. Group 2 course. **Credit Hours: 2 Contact Hours: 2**
Required Prerequisites: AVF 234 with a 2.0 or better
Co-Requisites: None Recommended Prerequisites: None

AVF 283, Upset Maneuver Training Division: Aviation
In this course, the student will learn the foundations to safely perform basic aerobatic maneuvers. Also, the student will gain confidence and skills necessary to recover from various unusual flight attitudes that will increase the students' overall flight safety. Course requires 6 flight hours, 1.5 hours of pre/post, and 2 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $209/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 1 Contact Hours: 1
Required Prerequisites: AVF 111 and AVG 101, both with a 2.0 or better CoRequisites: None
Recommended Prerequisites: None

AVF 284, Instrument Flight Instructor Division: Aviation
The student perfects both teaching and instrument flying skills while sitting in the right seat of the cockpit. The student develops the knowledge and ability to teach others instrument flying procedures. Course requires 6 flight hours, 1.2 hours of pre/post, and 8 hours of ground instruction. Hourly rates effective March 2018 are $59/hour for ground instruction and $230/hour for the aircraft and flight instructor. Group 2 course. **Credit Hours: 2 Contact Hours: 2**
Required Prerequisites: AVF 382 with a 2.0 or better
Co-Requisites: None Recommended Prerequisites: None

AVF 382, Flight Instructor Rating Division: Aviation
In this course the student will learn the skills to be a Certified Flight Instructor (CFI). They will master the skills of the Private and Commercial Pilot ratings. In addition they will learn how to be an effective teacher and understand all FAA rules and regulations that accompany being an instructor. Course requires 18 flight hours, 4.5 hours of pre/post, and 20 hours of ground instruction. Hourly rates for effective March 2018 are $59/hour for ground instruction and $212/hour for the aircraft and flight instructor. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: AVF 234 with a 2.0 or better and instructor permission CoRequisites: None
Recommended Prerequisites: None

AVG Aviation Ground

AVG 101, Private Ground School Division: Aviation
This course will provide the aeronautical knowledge required of a private pilot and prepare the student to take the FAA Private Pilot written examination. Topics include: aerodynamics, engine and aircraft systems, airport operations, weight and balance, aircraft performance, Federal Aviation Regulations, meteorology, airspace, navigation, and flight physiology. Group 2 course.
Credit Hours: 5 Contact Hours: 5
Required Prerequisites: Instructor Permission Required
Co-Requisites: None
Recommended Prerequisites: None

AVG 142, Remote Pilot Ground Division: Aviation
An online course structured to provide the aeronautical knowledge required of a remote pilot and to prepare the student to take the FAA Unmanned Aircraft General written examination. Topics include: airport operations, aircraft performance, regulations, meteorology, airspace, maintenance, sUAS
operations, risk assessment/management. This course will be completed upon the student passing the FAA Unmanned Aircraft General written examination. Group 2 course. **Credit Hours: 3 Contact Hours: 3**
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

AVG 161, Mechanics for Pilots Division: Aviation
This course will teach the students about the systems, components, safe repair, and regulations involved with maintaining and operating small aircraft. Students will learn in the classroom and in the maintenance hangar. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

AVG 190, Aviation Weather Division: Aviation
This course offers thorough coverage in the application and analysis of meteorological charts and how they pertain to aviation. It emphasizes the need for advanced knowledge on how NWS/NOAA charts are derived and how to understand their use in aviation today. Additional emphasis will be placed on predominant weather patterns, associated weather and planning flights to avoid severe weather. A basic understanding in the theory of meteorology is desired. Group 2 course. **Credit Hours: 3 Contact Hours: 3**
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: AVG 101

AVG 201, International Aviation Division: Aviation
This course will provide an overview and analysis of the international aviation industry. International oversight organizations will be reviewed along with interactions with national regulations. Students will evaluate country differences with regard to aviation regulations, global aviation safety and business forecasts. An analysis of cultural differences for International Aviation Operations will be covered with case studies from current international pilots. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

AVG 202, Advanced Aircraft Systems Division: Aviation
This course is designed to prepare those students seeking to be career pilots to be successful in the intense aircraft systems ground schools offered by the airlines, manufacturers, and private training providers such as Flight Safety. Each major system of large turbine aircraft will be studied, first, in a general overview and then for a specific model, large transport category, jet aircraft. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: AVG 101

AVG 204, Airline Aircraft Ground School
Division: Aviation This course is designed to prepare those students seeking to be career pilots to be successful in the intense aircraft ground schools provided by the airlines. Canadair Regional Jet systems, limitations, normal and emergency checklist, and flows and flight procedures will be covered in this course. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: AVG 202

AVG 231, Aviation Law Division: Aviation
A study of fundamental legal and aviation law principles as they apply to the various segments of the aviation industry. There will be special emphasis on contemporary aviation legal issues. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

AVG 240, Corporate Aviation Ground Division: Aviation
Students taking this course will learn about the aspects of business aviation. Aircraft types, regulations, business customs, and future outlooks of corporate aviation will be presented. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: AVG 202

AVG 251, Commercial Ground School Division: Aviation
This course is an advanced study of aviation topics including: GPS, meteorology, radio communications, airspace, and Federal Aviation Regulations. In addition, aircraft systems, career opportunities, aviation safety, aircraft weight and balance, performance charts, and aerodynamics are reviewed with emphasis on commercial pilot operations. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: AVG 252 Co-Requisites: None
Recommended Prerequisites: None

AVG 252, Instrument Ground School Division: Aviation
This course provides the aeronautical knowledge required for the instrument rating and prepare the student to take the FAA Instrument Rating - Airplane written examination. Topics include: flight instruments, radio navigation, departure, enroute and arrival procedures, VOR, NDB, ILS, and GPS approaches, IFR emergencies, aviation weather, and IFR cross-country flight planning. Group 2 course.
Credit Hours: 4 Contact Hours: 4
Required Prerequisites: AVF 111 and AVG 101; or equivalent rating CoRequisites: None
Recommended Prerequisites: None

AVG 260, Aerosonde UAS Ground Division: Aviation
This ground school and simulator course will provide the foundation training on the Textron Aerosonde UAS platform, one of the leading UAS platforms in the U.S. Students will learn the systems and operational procedures along with in-depth simulator training that will prepare them for the Aerosonde UAS Flight Course.
Credit Hours: 4 Contact Hours: 5
Required Prerequisites: AVF 211 may be taken concurrently
Co-Requisites: None Recommended Prerequisites: None

AVG 285, Crew Resource Management
Division: Aviation This course is an introduction to the principles of crew resource management (CRM) and will acquaint students with the concepts and skills required of aircrew members in safely operating multi-place aircraft. Topics will include flight safety concepts, communications skills, effective teamwork principles, and aircraft accident case studies. Students will practice CRM concepts in the Frasca flight training device. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: AVG 252-may be taken concurrently Co-Requisites: None Recommended Prerequisites: None

AVG 381, Instructor Ground School Division: Aviation
A course of study that will provide basic education principles and a review of the aeronautical knowledge required for the flight instructor (airplane single engine) certificate and prepare the student to take the FAA Fundamentals of Instruction (FOI) and the Flight Instructor-Airplane Single Engine written examinations. Through classroom presentations and one-on-one student teaching, students will gain practical teaching experience. Group 2 course.
Credit Hours: 5 Contact Hours: 5
Required Prerequisites: AVF 230 and AVG 251 Co-Requisites: None Recommended Prerequisites: None

BIO Biology

How to select a first course in Biology:
If you are in a transfer program requiring a full year of introductory biology such as pre-med, pre-dental, pre-vet, agriculture, wildlife and fisheries, or environmental programs, you should choose:
- BIO 115 Cell, Plant and Ecosystem Biology
- BIO 116 Genetics, Evolution and Animal Biology

If you need a one semester laboratory science course to fulfill a basic education requirement, you should choose:
- BIO 110 Essential Biology

All of the above include a common core that is basic to the understanding of any branch of biology. The core topics include cell structure and function, genetics, the chemical and physical principles governing life processes, and evolution. Any 100-level Biology course may serve as a prerequisite for 200-level Biology courses.

It has been the experience of the Biology Department that students with placement scores below MTH 23 and ENG 111 levels have difficulty successfully completing introductory-level biology courses. If your placement scores are below these levels, the Biology Department recommends that you complete ENG 99, ENG 108 or ENG 11/111 and MTH 08 before enrolling in any biology course. If your placement scores are below these levels and you decide to enroll in a Biology course, allow yourself additional time for study and preparation. If you are unsure of your ability, consult your advisor, or a biology instructor.

BIO 106, Human Biology Division: Science & Math
BIO 106L, Human Biology Lab
A survey of human anatomy and physiology with a primary focus on health and disease. Topics to be discussed will include the cell structure, simple chemistry of biology, homeostasis, the organ systems, genetics, evolution, nutrition, exercise physiology, cancer, heart disease, immunology, AIDS, and other topics of current interest. This course does not meet the requirements for the Nursing program. Consult an advisor before enrolling. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: BIO 106L
Recommended Prerequisites: ENG 111 and MTH 23

BIO 108, Plant Biology Division: Science & Math
BIO 108L, Plant Biology Lab
In this class, we will examine some of the major ideas biologists use to study the living world. These will include the scientific method, biology of cells, and genetics. The emphasis in this course will be on: plant anatomy, the life cycle of plants, growth and its regulation, metabolism, and reproduction. Field and laboratory exercises, as well as experiments in the greenhouse, will allow the student to observe these principles, and practice the skills required to cultivate and propagate plants. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: BIO 108L
Recommended Prerequisites: ENG 111, MTH 23

BIO 110, Essential Biology Division: Science & Math
BIO 110L, Essential Biology Lab
Essential Biology is geared toward the non-major. The course will cover broad areas of biology, engage the student in how biology relates to their own life, and how science and society interact. Core concepts covered include: Evolution, Structure and Function, Information Flow, Exchange and Storage, Pathways and Transformations of Energy and Matter, and Living Systems. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: BIO 110L
Recommended Prerequisites: ENG 111, MTH 23

BIO 115, Cell,Plant & Ecosystem Biology
BIO 115L, Cell, Plant, Ecosystem Bio Lab
Division: Science & Math
An introduction to the fundamental concepts of biology, including an investigation of the major kingdoms of life, classification, ecology, botany, cellular anatomy and biochemistry, DNA structure and function, genetic engineering, cloning and stem cell technologies. Laboratory includes field work and investigative exercises which illustrate lecture topics. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: None Co-Requisites: BIO 115L
Recommended Prerequisites: ENG 111, MTH 111

BIO 116, Genetic, Evolution, Animal Bio
BIO 116L, Genetic, Evolu, Animal Bio Lab
Division: Science & Math
The lecture and laboratory portions of this course focus on cell division, classical genetics, evolution and phylogeny as well as the classification and Phyla-level natural history of invertebrate and vertebrate animals. Also, the course covers the anatomy and physiology of organisms found in the Animal Kingdom. The treatment of the topics in this course necessarily assumes a degree of familiarity with the basic biological concepts covered in BIO 115. Students who have not completed BIO 115 should expect to spend extra time reviewing these concepts throughout the course. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: None Co-Requisites: BIO 116L
Recommended Prerequisites: BIO 115, ENG 111 and MTH 111

BIO 208, Microbiology Division: Science & Math
BIO 208L, Microbiology Lab
This course reviews the two types of cells (prokaryotic and eukaryotic). Microbial anatomy, physiology, and diversity are introduced. Microbiological disease pathology and the role of microbes in food production are also discussed. This class includes an oral presentation on a disease caused by microbes. Laboratory work culminates with the identification of an unknown bacterial solution. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: Completion of any 100-level BIO course. Co-Requisites: BIO 208L
Recommended Prerequisites: ENG 111, MTH 111

BIO 215, Genetics Division: Science & Math
A comprehensive treatment of classical genetics will be covered in addition to an in-depth study of molecular genetics, research techniques and applications of recombinant DNA technology. A major emphasis will be on the current results of genetic research as it applies to the molecular mechanisms of inheritance, and other topics such as gene therapy, cloning stem cell research and genetically modified organisms. Population genetics will also be covered. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Completion of any 100-level BIO course. Co-Requisites: None
Recommended Prerequisites: ENG 111, MTH 111

NMC.
Find it here.

BIO 220, Nutrition in Human Health
Division: Science & Math
This course is an exploration of the fundamentals of nutrition: energy nutrients, vitamins and minerals. Function and sources of each is presented, as well as the role each plays in maintaining health. Students complete their own Food Intake Record and use this information throughout the semester so as to better understand human nutrition. In addition, study is made of the role nutrition along with other lifestyles plays in the prevention and protection from disease. Discussion also includes the relationship between nutrition and fitness. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111, and completion of any 100-level BIO course.

BIO 227, Human Anatomy & Physiology I
BIO 227L, Human Anatomy & Phys I Lab
Division: Science & Math
This course will include an introduction to cells, histology, biochemistry, and homeostasis. In addition, the following systems will be discussed: integumentary, skeletal, muscle, nervous, and special senses. Lecture will be accompanied by lab work and applications, which will stress the anatomy, histology and function of these organ systems. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: MTH 111; ENG 11/111 or ENG 111 may be taken concurrently Co-Requisites: BIO 227L Recommended Prerequisites: CHM 101, HAH 101, and completion of any 100-level BIO course. It is highly recommended that students have college level reading skills. Students enrolling in BIO 227 who have not completed these requirements should plan on additional study time.

BIO 228, Human Anatomy & Physiology II
BIO 228L, Human Anatomy & Phys II Lab
Division: Science & Math
This is the second part of a two-semester course. The second semester will continue major systems in the body including: the endocrine system, cardiovascular system, lymphatic system, respiratory system, digestive system, metabolism, urinary system, fluid balance, reproduction and inheritance. Lecture will be accompanied by lab work, which will stress the anatomy and histology of these organ systems. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: BIO 227, BIO 227L, MTH 111; ENG 11/111 or ENG 111 Co-Requisites: BIO 228L Recommended Prerequisites: None

BIO 240, Normal and Clinical Nutrition
Division: Science & Math
Nutrition is considered from a strong biological point of view. Discussions will include a brief overview of principles of normal nutrition and then will proceed to how these principles apply to cause and treatment of specific disease states and the nutrition care process required. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MTH 23 Co-Requisites: None Recommended Prerequisites: BIO 227, ENG 111, MTH 111

BIO 255, Pathophysiology Division: Science & Math
This course covers the etiology, progression, and treatment of disease in the human body. Cellular and tissue structure and function are addressed along with the role of the immune system in body defenses. Disorders and diseases for each body system are covered, including investigation of clinical case studies of pathophysiology. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: BIO 228, BIO 228L with grade of 2.0 or better Co-Requisites: None Recommended Prerequisites: BIO 208, ENG 111, HNR 107

BIO 268, Biochemistry Division: Science & Math
This course is a study of the basic fundamentals of the chemical composition of living matter with application of concepts to normal and abnormal human function. Structure and function of proteins, lipids, carbohydrates and nucleic acids will be covered as well as their metabolic interrelationships. The course also covers the most current biochemical techniques, and an investigation of molecular genetics and published findings in the field of biochemistry. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: CHM 101; CHM 101, CHM 101L Co-Requisites: None Recommended Prerequisites: BIO 227, BIO 227L, ENG 111, MTH 23

BUS Business

BUS 101, Introduction to Business **D**ivision: Business
American business in the 21st century is exciting and challenging. Students will be introduced to the variety of opportunities by exploring ownership, free enterprise, the world economy, management, marketing, international business, social responsibility and business ethics, and entrepreneurship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 11/111 minimum placement

BUS 105, Business Math Division: Business
Apply basic mathematical principles to solve problems in modern business practice. Topics include trade pricing, markups, profit and loss, interest, payroll, taxes, and investments. It is designed for day-to-day business applications. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MTH 08 with grade 2.0 or higher, or placement into MTH 23 Co-Requisites: None
Recommended Prerequisites: None

BUS 155, Interpersonal Communications
Division: Business To be well prepared for employment in the 21st century it will be mandatory for students to demonstrate effective human relations. Individuals who enter the workforce in any field will need to possess interpersonal and customer service skills. The global workplace will demand competence in interpersonal or "soft" skills. Excellent customer service and relationship building skills are a necessary component of overall business communication. Topics include: communication and identity, conflict and communication climates, and how to build and maintain effective relationships with external and internal customers. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 11/111 minimum placement

BUS 231, Professional Communications
Division: Business Communicating professionally is a critical skill in today's world. This course is designed to help students understand communication theory and its application in their professional lives. Students will develop effective writing skills by analyzing complex issues, organizing thoughts logically, and communicating those ideas concisely--in verbal and written form. Students will also practice effective listening skills, understand the components of a successful job search, and use teamwork skills in solving communication problems. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: CIT 100, ENG 111 minimum placement

BUS 261, Business Law I Division: Business
This course is a study of the U.S. legal system and specific areas of law related to business, with an emphasis on the techniques of legal decision-making. Topics include the judicial system, torts, contracts, and criminal law. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 111 minimum placement

BUS 290, Business Admin Internship Division: Business
This course is a requirement for the Associate of Applied Science degree in Business Administration. The objective of the internship is to assess the Business Administration Program Outcomes, and to provide an on-the-job experience for the student pursuing a career in business. At the end of the semester students take a third party assessment to measure their knowledge of business operations, the business organization and business procedures. Students will spend 150 hours over the semester in a supervised training experience. In addition students will meet with the Experiential Learning Coordinator as needed throughout the semester for: internship support, feedback, review of professional employment documents and an internship exit interview. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 30 credit hours towards program requirements and a 2.0 GPA in occupational courses.
Co-Requisites: None
Recommended Prerequisites: None

CAR Carpentry

CAR 101, Introduction to Carpentry
Division: Construction Technology
This course provides an introduction to residential carpentry. Through structured classroom and hands-on skill building, the student will learn about the construction industry, building materials, fasteners and adhesives, hand and power tools, introduction to print reading, and floor systems. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into MTH 23 or better, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 102, Intro to Woodworking
Division: Construction Technology
This course is for the student that has a desire to experience woodworking in the area of basic cabinet and furniture. Techniques in the usage and maintaining of basic hand and power tools, understanding of how wood movement will affect design of an assembly, application of basic joinery, adhesives, and fasteners in the woodworking completion of this class establishes a foundation in which the student can build simple furniture and cabinets. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Students will greatly benefit from having competency up to MTH 111.

CAR 103, Construction Blueprint Reading
Division: Construction Technology
Students will learn the skills needed to read and understand construction drawings, as well as an understanding of manufacturers' literature of component parts used in buildings. Both commercial and residential construction materials and drawings are studied. Problems encountered in design development such as site limitations, zoning restrictions, utility availability, coordination of product specifications, adherence to building codes and life safety are explored. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into MTH 111 or co-enrollment in MTH 08 or MTH 23, placement into ENG 111 or co-enrollment in ENG 99/108.

CAR 104, Woodworking Applications I
Division: Construction Technology
This course is for the student with a strong understanding of hand and power tools used in the craft of woodworking. A desire to expand their knowledge in the aspects involved with basic furniture and cabinet building is a must. Students will be constructing projects that, by design, will challenge those of the advanced beginner and intermediate skill abilities. Students will plan and implement the necessary steps to address the projects' hardware and joinery requirements. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CAR 102 Co-Requisites: None Recommended Prerequisites: MTH 23

CAR 105, Foundations and Framing
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn foundation design, layout, concrete material forms, and applications. Floor, wall, ceiling and roof framing will be covered, as well as basic stair layout and construction. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

CAR 121, Exterior Construction
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn about various roofing materials and applications, window and door installation, siding, cornice design and installation, gutters, downspouts, decks and fences. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into MTH 23 or higher, or co-enrollment in the recommended developmental math course. Placement into ENG 11/111 or higher, or co-enrollment in the recommended English course.

CAR 125, Interior Construction
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn about drywall products, installation, and finishing, wall panels, tile, suspended ceilings, finish trim, flooring, and cabinet and countertop installation. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

CHM Chemistry

CHM 101, Introductory Chemistry
CHM 101L, Introductory Chemistry Lab
Division: Science & Math
A one-semester chemistry course for the non-science major exploring the language, concepts and methods of chemistry. Topics include atomic theory, chemical periodicity, chemical bonding, stoichiometry, gases, nuclear energy, equilibrium, and acid/base chemistry. The laboratory will include descriptive and analytical experiments, focusing on measurement, physical and chemical properties of materials, acids and bases, laboratory procedures and calculations. Science, engineering, and premedical students must select CHM 150 and 151 to meet chemistry requirements. Consult with an advisor before enrolling. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 111 with a grade of 2.0 or better. Co-Requisites: CHM 101L
Recommended Prerequisites: ENG 111; The ability to work algebraic problems involving unknown variables, fractions, percents and proportions. Students enrolling in CHM 101 who have not completed these requirements should plan on additional study time.

CHM 150, General Chemistry I Division: Science & Math
CHM 150L, General Chemistry I Lab
First semester of a two-semester course covering matter and chemical measurement, basic laws, chemical symbols and formulas, stoichiometry and chemical calculations, gases and the gas laws, thermochemistry, atomic structure, electron configurations and the periodic table, elements, chemical bonding and molecular structure, intermolecular forces, liquids and solids. The laboratory includes descriptive and quantitative experiments illustrating the above topics. The recitation includes problem solving, quizzes, and laboratory preparation to accompany lectures. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 111 with a grade of 2.0 or better. Co-Requisites: CHM 150L, CHM 150R
Recommended Prerequisites: MTH 121; ENG 111 with a grade of 2.0 or better.

CHM 150R, General Chemistry I, Recitatn
Division: Science & Math
Problem solving quizzes and laboratory preparation to accompany lectures. Group 1 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MTH 111 with a grade of 2.0 or better. Co-Requisites: CHM 150, CHM 150L Recommended Prerequisites: MTH 121; ENG 111 with a grade of 2.0 or better.

CHM 151, General Chemistry II Division: Science & Math
CHM 151L, General Chemistry II Lab
A second semester course covering chemical reactions in aqueous solution including acid-base and oxidation and reduction reactions, properties of solutions, chemical kinetics, gaseous equilibria, acids and bases, acid-base equilibria, pH, common ion effect, buffer systems, solubility product constant, thermodynamics, enthalpy, entropy, and free energy, electrochemistry, and nuclear chemistry. The laboratory will cover the above topics using quantitative and qualitative procedures. The recitation involves problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111 with a grade of 2.0 or better. Co-Requisites: CHM 151L, CHM 151R
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.

CHM 151R, General Chemistry II Recitatn
Division: Science & Math
Problem solving, quizzes and laboratory preparation to accompany lectures. Group 1 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: CHM 150, CHM 150L, CHM 150R; MTH 111 with a grade of 2.0 or better.
Co-Requisites: CHM 151, CHM 151L
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.

CHM 201, Intro to Organic Chemistry
CHM 201L, Intro to Organic Chemistry Lab
Division: Science & Math
An introduction to organic chemistry. Topics include the classes of organic compounds, reactions, synthesis, and mechanisms. Includes laboratory. (NOTE: This course is a one semester course and is not appropriate for all majors. Please check with an advisor prior to registration) Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: CHM 101 or CHM 150 and MTH 111, all with a grade of 2.0 or better. Co-Requisites: CHM 201L
Recommended Prerequisites: ENG 111

CHM 250, Organic Chemistry I Division: Science & Math
CHM 250L, Organic Chemistry I Lab
The first semester of a two-semester course covering the chemistry of carbon compounds. Designed to meet the requirements for majors in chemistry, chemical engineering, biological science, pre-medicine, etc. Topics include nomenclature, structure, aliphatic compounds, free-radical, nucleophilic substitution and elimination reactions, electrophilic addition reaction and mechanisms, alkyl halides, alkenes, alkynes and alcohols. The laboratory portion will cover fundamental organic laboratory techniques of synthesis, separation and analysis. Group 1 lab course.
Credit Hours: 5 **Contact Hours:** 9
Required Prerequisites: CHM 151, CHM 151L, CHM 151R, MTH 111, all with a grade of 2.0 or better. Co-Requisites: CHM 250L Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.

CHM 251, Organic Chemistry II Division: Science & Math
CHM 251L, Organic Chemistry II Lab
A follow-up to CHM 250. Topics include alcohols, aromatics, ethers and epoxides, arenes, carbonyls, carboxylic and sulfonic acids and their derivatives, amines, phenols, aryl halides, carbohydrates, amino acids, biochemical processes, and others together with appropriate mechanistic theories and structural concepts. Instrumental techniques discussed include infrared spectroscopy (IR), nuclear magnetic resonance (NMR), mass spectrometry (MS), and ultraviolet (UV) spectroscopy. The lab exercises will continue the development of organic chemistry laboratory technique on both semi-microscale and microscale. In addition, analytical techniques using infrared spectroscopy and gas chromatography will be developed. Group 1 lab course.
Credit Hours: 5 **Contact Hours:** 9
Required Prerequisites: CHM 250, CHM 250L, MTH 111, all with a grade of 2.0 or better. Co-Requisites: CHM 251L
Recommended Prerequisites: ENG 111 with a grade of 2.0 or better.

CIT Computer Information Technology

CIT 100, Computers in Business-An Intro
Division: Business
A first exposure to the world of computer applications in business, this course covers the hands-on use of word processing, spreadsheets, database, and presentation graphics programs. In addition, the Windows operating system, file and folder management, basic concepts, terminology and security threats will be covered. This course requires MS Office on a Windows computer (or on a Mac with a Windows partition). The software is also available at campus computer labs. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 110, Programming Logic and Design
Division: Business
The student is introduced to topics in programming logic and design in preparation for subsequent programming courses. The course lecture material is presented via readings and videos outside of class, with in-class activities being largely focused on coding, testing, debugging, and documenting applications. Good coding practices and simple design pattern are emphasized. Topics covered include: Simple Data Types, Control Structures, Decisions and Conditionals, Arrays, Lists, Methods, Functions, Classes, and Enums. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 118, Microsoft Office - Word Intro Division: Business
This course is designed to provide students with an introduction to word processing using Microsoft Word. Skills students will learn include preparing documents, formatting characters and paragraphs, customizing paragraphs, and formatting pages. This course requires MS Office on a Windows computer (or on a Mac with a Windows partition). This software is available at campus computer labs. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 119, Microsoft Office - Word Division: Business
This course teaches students how to use Microsoft Word and prepares them to pass the Microsoft Office Specialist (MOS) Word certification exam. Skills students will learn include navigating in a document, customizing and formatting text, paragraphs and pages, inserting objects, maintaining and proofing documents, performing mail merge operations, document sharing and management, tracking and referencing documents, and managing macros and forms. Students enrolling in this course will take the Microsoft Office certification exam. This course requires Microsoft Office on a Windows computer (or on a Mac with a Windows partition). This software is available at campus computer labs. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 122A, Computer & Internet Basics I
Division: Business
Students will learn the essential skills required to use a computer with the Microsoft Windows operating system. The student will learn to interact with the Windows desktop to access software and data. The course emphasizes the importance of file and folder maintenance. The course also includes introductions to the World Wide Web, e-mail and searching. Students completing this course will master skills required for online courses. This course requires a Windows PC or a Mac with a Windows partition. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 124, Microsoft Office - PowerPoint
Division: Business
This course teaches students how to use Microsoft PowerPoint and prepares them to pass the Microsoft Office Specialist (MOS) PowerPoint certification exam. Skills students will learn include preparing and modifying a presentation, using help, formatting slides and inserting elements in slides, creating tables, charts, and SmartArt graphics, using slide masters and action buttons, applying custom animation and setting up shows, and integrating, reviewing, protecting and saving presentations. Students enrolling in this course will take the certification exam. This course requires MS Office on a Windows computer (or on a Mac with a Windows partition). This software is available at campus computer labs. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 131, Game Development and Design
Division: Business
Students will work to design, develop, implement and test games which include interactivity, animation, sound, constraints, and networking capabilities. Topics covered include iteration, rapid prototyping, texture, lighting, terrain, world building, dynamics, flow theory, game play, game balance, and user interface design. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 156, CompTIA A+ Certification I Division: Business
This course, in conjunction with CIT 157, covers the current objectives of the two CompTIA A+ Certification exams. Major topics areas include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Recommended competency: Windows skills

CIT 157, CompTIA A+ Certification II Division: Business
This course, in conjunction with CIT 156, covers the current objectives of the two CompTIA A+ Certification exams. Major topic areas include PC hardware, networking, laptops, printers, operational procedures, operating systems, security, mobile devices, troubleshooting, safety and professionalism. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: CIT 156

CIT 160, Cisco Internetworking I Division: Business
This course, in conjunction with CIT 161, CIT 260 and CIT 261 provides the necessary preparation to pass the Cisco CCNA Routing & Switching Exam (Cisco Certified Network Associate). The following topics are covered in detail: The OSI Model, LAN topologies and protocols, logical addressing and internetworking devices. This course utilizes the Cisco Networking Academy "CCNA Routing and Switching: Introduction to Networks" curriculum and integrates online curriculum, classroom activities, hands-on lab exercises, and group projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: CIT 213

CIT 161, Cisco Internetworking II Division: Business
This course, in conjunction with CIT 160, CIT 260 and CIT 261, provides the necessary preparation to pass the Cisco CCNA Routing & Switching Exam (Cisco Certified Network Associate). The following topics are covered in detail: router configuration, static and dynamic routing, VLANs, ACLs, DHCP, and NAT. This course utilizes the Cisco Networking Academy "CCNA Routing and Switching: Routing and Switching Essentials" curriculum and integrates online curriculum, classroom activities, hands-on lab exercises, and group projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 160, may be taken concurrently
Co-Requisites: None
Recommended Prerequisites: None

CIT 170, Microsoft Office - Access Division: Business
This course introduces database management using Microsoft Access. Students will design, construct, and administer databases. Students will create and modify database objects including tables, queries, forms and reports. Students will enter, delete, modify, import, and export data. Students will configure database features such as security and backup. Course content is mapped to the current Microsoft Office Specialist (MOS) Access learning objectives and students enrolled in this course will take the certification exam. This course requires MS Office on a Windows computer (or on a Mac with a Windows partition). This software is available at campus computer labs. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 178, Relational Databases Division: Business
This course introduces students to core database concepts including data, data types, and relationships. Students will interpret and create relational data structures and use SQL language to perform basic create, read, update, and delete operations. Students will perform, administrative, backup and security functions. Students will recognize the value of optimized data and produce normalized designs. Course content is mapped to the MTA 98-364 Database Fundamentals learning objectives and students enrolled in this course will take the certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 180, HTML and CSS Programming
Division: Business
Students in this course will develop skills in HTML web development with a focus on responsive web design and CSS styling techniques. An emphasis is placed on developing solid coding practices as well as providing for ADA compliance requirements and W3C HTML and CSS validation. Students will develop web projects during the course. A brief introduction to JavaScript and other web-related extended topics is included. Course content is mapped to the MTA 98-383 Introduction to Programming Using HTML and CSS learning objectives and students enrolled in this course will take the certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

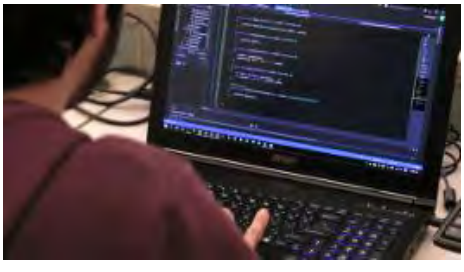
CIT 190, JavaScript Programming Division: Business
Students in this course develop web client scripting skills using JavaScript and jQuery. Students use variables, decisions, loops, functions, objects, and other programming concepts as they add robust and powerful interactivity to web pages. Students create responsive web solutions integrating HTML, CSS, JavaScript, jQuery, JSON, and Ajax technologies. Course content is mapped to the MTA 98-382 Introduction to Programming Using JavaScript learning objectives and students enrolled in this course will take the certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 180 or instructor permission
Co-Requisites: None Recommended Prerequisites: None

CIT 195, Application Development Division: Business
The student is introduced to .NET application and game development. Students use Visual Studio to develop applications and games featuring XAML-based and graphical interfaces, user devices such as game controllers, and database integration. Object-oriented concepts including encapsulation, inheritance, polymorphism, collections, delegates, and events are included. Application design patterns including 3-tier architecture and proper documentation are emphasized. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 110 with a grade of 2.0 or better
Co-Requisites: None Recommended Prerequisites: None

CIT 210, Microsoft Office - Excel Division: Business
This course deals with a comprehensive study of Microsoft Office Excel spreadsheet software and the business applications which can be created and used with the software. The entry of data with different formats, formula creations, file transfer of data, graphing, data tables, solver programs, apply what-if scenarios and an introduction to macros will be covered. Course content is mapped to the current Microsoft Office Specialist (MOS) Excel learning objectives and students enrolled in this course will take the certification exam. This course requires MS Office on a Windows computer (or on a Mac with a Windows partition). The software is also available at campus computer labs. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 213, Networking Technologies Division: Business
This course covers the knowledge and skills needed to troubleshoot, configure, and manage wired and wireless networks. The OSI model will be studied and identified to better enhance the understanding of how various parts work together. Included is an in-depth study of TCP/IP and the characteristics for maintaining a network and ensuring its security. Clouds computing and virtualization technologies will also be introduced. This course maps to the CompTIA Network+ certification exam objectives. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: CIT 156 and CIT 157, may be taken concurrently

CIT 215, Windows Server Environment
Division: Business
In this course students will learn about the latest Windows Server operating system. Students will install many server roles and features. Concepts studied include remote administration, storage, virtualization, Windows Containers, Windows Server Update Services, and high-availability. Students will have an opportunity to work with different types of server installations. Windows PowerShell and Hyper-V will also be introduced. This course maps to the Microsoft 70-740 Installation, Storage and Compute with Windows Server 2016 certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 213 Co-Requisites: None
Recommended Prerequisites: None



CIT 216, Computerized Acctg Systems
Division: Business
This course is designed to give the student experience with setting up an accounting system on the computer. QuickBooks software will be used. Accounts receivable, accounts payable, general ledger, inventory and payroll will be covered, with an emphasis on conversion from manual accounting systems to both desktop and/or cloud-based platforms. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ACC 121 Co-Requisites: None
Recommended Prerequisites: None

CIT 218, Web Application Development
Division: Business
The student will develop multi-tier web applications using client-server technologies in a variety of frameworks. Development will include design patterns such as MVC and MVVM with students writing client-side and server-side code to create a functional, consistent, and robust web application. As a capstone project, the students will develop and deploy a functional web application. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 190 and CIT 195, both with a grade of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: CIT 228, CIT 255

CIT 228, Advanced Database Systems Division: Business
This course builds upon database knowledge gained in CIT178 by extending into other data sources and connection technologies. Students will be able to identify and evaluate data options and access data via code. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 110, CIT 180 and either CIT 178 or CIT 248 Co-Requisites: None Recommended Prerequisites: None

CIT 231, Current Topics in IT
Division: Business The student is introduced to IT topics, each presented in five week modules, that are both timely and relevant to the IT industry. The course uses these modules to both present the new technologies and provide opportunity for the student to identify skills and resources relevant to profession development in the IT industry. Group 2 course. **Credit Hours: 3 Contact Hours: 3**
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

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CIT 233, Project Management Division: Business
This course is intended for CIT students and business professionals who need to manage project activities or resources on time, on budget, and according to performance standards. Students use a variety of project management tools to schedule tasks, and monitor resources, cost, and project progress. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CIT 240, Network Security Management
Division: Business
This course covers the knowledge and skills required to install and configure systems to secure applications, networks, and devices while supporting the principles of confidentiality, integrity, and availability. Additional topics include threat analysis and mitigation, risk assessments, and compliance. Course content is mapped to the CompTIA Security+ certification exam objective. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 213 Co-Requisites: None
Recommended Prerequisites: None

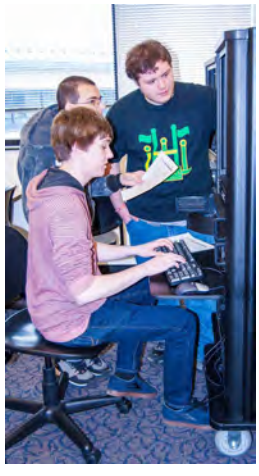
CIT 243, Cloud Technologies Division: Business
Students will explore cloud topics including cloud concepts, virtualization, infrastructure, resource and security management, security, and cloud system management. Cloud concepts will be explored using Microsoft Azure, Amazon Web Services, and Google Cloud Services. This course will prepare students for the CompTIA Cloud+ certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: CIT 213 Co-Requisites: None
Recommended Prerequisites: None

CIT 246, Windows Server Infrastructure
Division: Business
Students taking this course will learn how to setup, configure, and maintain a Windows Server Infrastructure. Topics covered include Dynamic Host Configuration Protocol (DHCP), Domain Name Systems (DNS), Distributed File Systems (DFS), and Virtual Private Networks. This course maps to the 70-741 Networking with Windows Server 2016 certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 215 *Co-Requisites:* None *Recommended Prerequisites:* None

CIT 247, Enterprise Solutions Division: Business
In this course students will gain practical experience building enterprise systems using Identity solutions. Students will study Active Directory, Group Policy, Certificate Services and Federation and access solutions. This course maps to the 70-742 Identity with Windows Server 2016 certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 246 Co-Requisites: None
Recommended Prerequisites: None

CIT 255, Object-Oriented Programming
Division: Business
TThe student builds on object-oriented fundamentals learned in CIT 195, focusing on implementing SOLID Principles throughout the course. Projects will explore design patterns, UI/UX considerations, multiple forms of desktop and online persistence, and the integration of various technologies to form a complete solution. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 178 and CIT 195, both with a grade of 2.0 or better. Co-Requisites: None Recommended Prerequisites: None

CIT 256, Linux Administration Division: Business
IIn this course students will take an in-depth look at Linux, focusing on proper installation, command line usage, and administration of the Operating System. Students will examine the concepts common to all Linux systems. Exploration will take the form of a practical, hands-on approach, using a mix of hands-on projects as well as web resources. This course will prepare students for the CompTIA Linux+ Exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 213 Co-Requisites: None
Recommended Prerequisites: None



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CIT 257, Linux Administration II Division: Business
In this course students will take an in-depth look at Linux, focusing on proper installation, command line usage, and administration of the operating system. Students will examine various server technologies, including BASH scripting, X11, display managers, localization settings, printing, and security. Exploration will take the form of a practical, hands-on approach, using a mix of hands-on projects as well as web resources. This course will prepare students for the second CompTIA Linux+ exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 256 Co-Requisites: None
Recommended Prerequisites: None

CIT 260, Cisco Internetworking III Division: Business
This course, in conjunction with CIT 160, CIT 161 and CIT 261 prepares the student for the Cisco CCNA Exam (Cisco Certified Network Associate). Describes the architecture, components, and operations of routers and switches in a large and complex network. Students learn how to configure routers and switches for advanced functionality. Students will configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in IPv4 and IPv6 networks. This course utilizes the Cisco Networking Academy "CCNA Routing & Switching: Scaling Networks" curriculum and integrates online curriculum, classroom activities, hands-on lab exercises and group projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 161 Co-Requisites: None
Recommended Prerequisites: None

CIT 261, Cisco Internetworking IV Division: Business
This course, in conjunction with CIT 160, CIT 161, and CIT 260, provides the necessary preparation to pass the Cisco CCNA Routing and Switching Exam (Cisco Certified Network Associate). Topics covered in detail: WAN design, HDLC, PPP, PPPoE, VPNs, BGP, advanced ACLs, IoT, QOS, troubleshooting and CCNA exam review. This course utilizes the Cisco Systems Networking Academy "CCNA Routing and Switching: Connecting Networks" curriculum and integrates online curriculum, classroom activities, handson exercises, and group projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: CIT 260, may be taken concurrently
Co-Requisites: None
Recommended Prerequisites: None

CIT 280, Systems Analysis and Design
Division: Business
This is the capstone course in the CIT Developer AAS. Students will gain practical knowledge in systems analysis and design through participation in a team-based software/hardware project that follows the systems development life cycle using agile development with industry patterns and practices. A capstone project will be developed and presented to a review group. Students will conduct a feasibility study, perform requirements analysis, model objects and data, develop and test the solution, and communicate effectively. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: CIT 255 with a grade of 2.0 or better
Co-Requisites: None
Recommended Prerequisites: CIT 228

CIT 290, CIT Internship Division: Business
Work experience is an integral part of the CIT student's program. In this course, students are placed in settings that utilize their business and CIT skills. Students will work 150 hours during the semester in a supervised on-the-job training experience. Students must meet with their academic advisor and submit a resume for review before they will be allowed to enroll in this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 20 credits with a minimum of 3.0 GPA in CIT courses and instructor permission.
Co-Requisites: None
Recommended Prerequisites: None

CIT 291, Web Developer Internship Division: Business
Work experience is an integral part of the Web Developer Certificate program. In this course, students are placed in settings that utilize their web installation and development skills as well as business and CIT skills. Students will work 150 hours during the semester in a supervised on-the-job training experience. In addition to the required 150 hours in the internship placement, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Instructor permission
Co-Requisites: None Recommended Prerequisites: None

CIT 292, Support Specialist Internship Division: Business
Work experience is an integral part of the Support Specialist Certificate program. Students are placed in settings that utilize their technical, business applications, and interpersonal communications skills. Students will work 150 hours during the semester in a supervised on-the-job training experience. Students must meet with their academic advisor and submit a resume for review before enrolling. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 27-30 hours in the Administrative Support Specialist Certificate and instructor permission.
Co-Requisites: None Recommended Prerequisites: None

CJ Criminal Justice

CJ 101, Intro to Criminal Justice Division: Social Science
The student is introduced to the criminal justice system and the criminal justice process. Includes the history, present structure, current functions and contemporary problems of the police, the prosecution, the courts, corrections, and security agencies. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CJ 202, Police Administration Division: Social Science
This course will present an overview of public administration with the emphasis on the vitality and capacity for pragmatic change within our American police system. This understanding will be brought about by the comprehensive and analytical study of the structures, processes, and behavior of the typical police infrastructure in the United States. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: CJ 101

CJ 211, Criminal Law Division: Social Science
This course will study the history and nature of criminal law, defenses to criminal conduct, and substantive criminal offenses. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

CJ 221, Juvenile Delinquency Division: Social Science
This course is a study of juvenile delinquency theories of causation and current preventive programs. It will explore the nature and extent of delinquency and examine suspected causes of delinquent behavior. It will also cover critical issues in juvenile delinquency and examine crucial policies and programs in the Criminal Justice system that addresses juvenile delinquency. It will also include issues facing juvenile probation officers and it will look at the role of police agencies and their relationship to juvenile courts. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: SOC 101, placement into ENG 11/111. Students are encouraged to have good reading, writing, and organizational skills or seek help through the resources available to them through the NMC Writing Center and academic counseling.

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CJ 231, Survey of Corrections Division: Social Science
This course will examine the historical and philosophical development of corrections in the United States. Special consideration is given to the theoretical approaches to changing and controlling criminal behavior. Practical limitations and justification to probation, parole, and the operational functions of institutional supervision are also studied. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

CJ 242, Evidence & Criminal Procedures
Division: Social Science
An overview of the criminal court system and the process of a criminal proceeding from incident to disposition and appeal, including the rules of evidence affecting the trial of a criminal case. It also includes an overview of the criminal procedure rules concerning arrest, search and seizure, and interrogation and confession, which regulate law enforcement and protect citizens' rights of privacy and presumed innocence. The course includes pertinent Supreme Court decisions. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

CMT Construction Management

CMT 107, Construction Supervision
Division: Construction Technology
Students will learn the skills needed for construction management including: business management, estimating and job costing, design and building science, contracts, liability and risk management, marketing and sales, project management and scheduling, the Michigan Residential Code, MIOSHA construction safety standards, and effective communication for construction project management. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None *Co-Requisites:* None
Recommended Prerequisites: It is recommended that students have taken or are co-enrolled in MTH 08 or 23 and ENG 99/108.

CMT 207, Construction Cost Estimating
Division: Construction Technology
In this course students will explore topics pertaining to the processes of construction estimating and bidding techniques. Those topics will include, but are not limited to, the discussion and exploration of the identification and quantification of construction materials, labor, and equipment for the construction bidding process. Some computer estimation programs and/or cost data publications will be used to develop estimates. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: CAR 103, CIT 100, CMT 107, MTH 111 or higher Co-Requisites: None
Recommended Prerequisites: ENG 111, may be taken concurrently, math and reading skills are necessary for success in this course.

COM Communications

COM 101, Introduction to Communication
Division: Communications
The course is designed to introduce the student to the basic components of the communication process as they operate in four contexts: interpersonal, group, organizational and mass media. The four contexts will be integrated under the rubric of Meaning Theory in the latter part of the course. The direct application of theories to the student's individual career choice or personal life experience is stressed. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

COM 111, Public Speaking Division: Communications
Designed to acquaint students with the fundamentals of the discipline and to give them confidence in speech situations. This course considers voice, platform technique, message organization and audience analysis. Emphasis is upon the formal speaking situation. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111, ENG 111/11, or successful completion of ENG 99/108.

COM 121, Broadcasting Practicum I
Division: Communications
Practical experience in underwriting, announcing, script writing, "on-air" studio operations and the management of the non-profit college radio station are all part of this course. Internships with local radio stations may be arranged. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: College level reading and writing skills.

COM 122, Broadcasting Practicum II
Division: Communications
This course continues practical experience in underwriting, announcing, script writing, "on-air" studio operations and management. Internships with local radio stations may be arranged. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: College-level reading and writing skills.

COM 201, Mass Communication & Culture
Division: Communications
The course is designed to introduce the student to various perspectives on the analysis, evaluation and understanding of mediated communication in mass culture. The course is divided into two major parts. The first focuses on industrial-age theories of mass communication and culture. The second part is designed to give the student the necessary tools to make information-age adaptations to the explanatory/predictive models of the effects of mass communication and culture. The direct application of theories, critical thinking and analysis of communication having relevance to the student's individual career choice of life experience is stressed. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CUL Culinary Arts

CUL 101, Today's Hospitality Industry Division: Business
This course is designed for students who wish to pursue a career in the hospitality industry. It introduces the student to segments of the industry and the different career tracks within each one. The course will acquaint the student with the rigors of hospitality and the particular nature of this people-oriented industry. A foundation course in the study of resort and resort settings, the course provides the student with an awareness of the unique problems associated with the development, management and marketing of a resort. Also, the seasonal nature of most resorts and the challenges presented by this issue are discussed. The nature and unique characteristics of the hospitality industry as a career choice are discussed. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into MTH 08 or higher and ENG 99/108 or higher.

CUL 110, Safety and Sanitation Division: Business
This course is designed for students who wish to pursue a career in culinary arts or hotel and restaurant management. With today's complex safety and health laws, it is essential as well as required by many firms to have an in-depth understanding and certification in safety and sanitation. This course provides the students with both. Students study food service safety including fire safety and kitchen and dining room safety. Students also learn all aspects of food service sanitation and earn both the Michigan and NRA Educational Institute Sanitation Certificate. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

CUL 111, Professional Cookery Division: Business
An intensive study of foods and cooking, this course exposes the student to commercial equipment, quality food production, and professional presentation. It provides the chef training student with the practice and theory involved in the preparation of foods in a commercial operation. Basic cooking terminology, methods and procedures are introduced. The course also includes kitchen safety and sanitation, knife and equipment identification and technique, preparation of stocks, soups, and mother sauces, meats, poultry and seafood, and the presentation of a complete meal. Uniforms and knives will need to be purchased through the department for this course. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: CUL 110, may be taken concurrently Co-Requisites: None Recommended Prerequisites: Placement into ENG 99/108.

CUL 118, Introduction to Baking Division: Business
This course is designed for students seeking a career in Culinary Arts. In this intensive study of fundamental baking techniques, students will become familiar with baking operation and production. This course covers fundamental pastry and dessert recipes as well as the preparation of yeast dough. Also included are tortes, pies, tarts, and other desserts. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: CUL 110, may be taken concurrently and placement into ENG 99/108 Co-Requisites: None Recommended Prerequisites: None

CUL 190, Culinary Internship Division: Business
A culinary internship integrates academics with professional
A culinary internship integrates academics with professional
work experience. Students earn college credit while working in fine dining properties, gaining valuable hands-on experience. Students are encouraged to contact the internship coordinator at least two months prior to the semester they are requesting placement. Culinary internships require a minimum of 320 hours of work during the enrolled semester. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: CUL 110, CUL 111, CUL 118, CUL 213 and Culinary staff approval. Co-Requisites: None Recommended Prerequisites: None

CUL 210, Nutrition for Culinary Arts Division: Business
This course is designed for students who wish to pursue a career in culinary arts. Healthy eating is attracting more attention as Americans struggle with the problems of obesity and disease prevention. In this atmosphere it is essential for prospective chefs to be aware of the needs of their customers. This course presents the principles of nutrition within the context of professional food preparation. Various ingredients and their role in good nutrition, spa cuisine, planning healthy menus and alternative eating styles are discussed. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

CUL 211, Menu Planning and Purchasing
Division: Business
This course provides the student with the understanding of the menu as the center of the food outlet, around which is built the facility. Menu theme is the driver for food, non-food, and equipment purchases, staffing, location and floor plan. An understanding of this complex item is vital to anyone involved in food service. This course is designed to familiarize the student with all aspects of planning a modern menu - from market research to the physical layout of the document. Various types of menus are covered including A'La Carte, Table d'Hote, Institutional and Special Occasion. Menus will be analyzed for effectiveness and pricing strategies. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: CUL 110, CUL 111 Co-Requisites: None Recommended Prerequisites: Placement into ENG 99/108

CUL 213, World Cuisine Division: Business
This course is designed for the student who wishes to be a chef. It comprises the study, preparation and presentation of foods and cooking methods from selected countries. These countries have been selected based on their current popularity in restaurants. In this course, students develop knowledge and basic understanding of ethnic cooking including the cooking styles of Italy, France, Mexico, China, and various other Asian and American regions. In the process of learning these multi-national cuisines, the student develops additional technical skills in the preparation of the different foods. Group 2 course.
Credit Hours: 6 **Contact Hours:** 12
Required Prerequisites: CUL 110, CUL 111 Co-Requisites: None Recommended Prerequisites: None

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CUL 215, Garde Manger Division: Business
This course is designed for students who wish to pursue a career in culinary arts. As America's sophistication regarding food has increased, it is essential that students training to be chefs be exposed to the most up-to-date cooking and presentation techniques. Students prepare cold foods for display: pates, galantines, terrines and mousses. Decorative garnishes and other functional banquet presentations are covered in this course. Meat and seafood fabrication is also practiced. Projects made will be used and displayed at various functions and events at the Great Lakes Campus and at other special occasions. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: CUL 110, CUL 111, CUL 118, CUL 213 Co-Requisites: None Recommended Prerequisites: None

CUL 217, Kitchen and Dining Room Mgmt
Division: Business
This course is designed for students who wish to pursue a career in the food service industry. Its focus is the control of the dynamics of the kitchen and dining room in a modern restaurant. In the highly competitive restaurant business, it is necessary for prospective food and beverage professionals to have a thorough understanding of this aspect of the industry. Many restaurants fail because of a lack of coordination between the front and back of the house. The course focuses on the basic principles of management as applied to kitchen and dining room situations. Other topics include management techniques, team building, motivational techniques, stress management, production management, and styles of table service. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: CUL 101

CUL 218, Advanced Baking Division: Business
This course is designed for students seeking a career in Culinary Arts. In this intensive study of advanced baking techniques, students will become familiar with baking operations and production as well as dessert and pastry finishing and plate presentation. This course covers more advanced pastry and dessert recipes as well as the preparation of yeast dough. Pastries, desserts and dessert sauces will be served to guests at Lobdell's, the Great Lakes Culinary Institute's teaching restaurant. Cake icing and finishing is also included as are tortes, mousses, Bavarians, tarts and other desserts. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: CUL 110, CUL 118
Co-Requisites: None Recommended Prerequisites: None

CUL 221, Chocolate and Cake Design Division: Business
This course is designed for students who wish to pursue a career in pastry arts. It is designed for students that would like to expand their creative talents in areas of chocolate artistry and cake decorating. In this course students will learn through lecture, demonstrations and lab work the characteristics of chocolate, chocolate tempering and modeling, candies, fillings, centerpieces, molds & decorations. The cake decoration portion of the course will cover buttercream recipes, history of cake decorating and tools, preparation of boards, papers, columns, boxes, etc., the art of icing a cake, basic cake covering using combs and spatulas, basic piping skills and the use of decorating tips, border skills, floral piping skills, art of swag and drapery applications, art of writing and coloring on a cake. Course includes how to create and display wedding cakes, icings, fondant, pastillage, and gum paste. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: CUL 110, CUL 118 Co-Requisites: None Recommended Prerequisites: None

CUL 222, Cafe Operations Division: Business
This course focuses on practical bakery training. Students rotate through the front-of-the-house and the bakery in this intensive course. Front-of-the-house students learn barista and cafe service. Menu merchandising is stressed throughout the course. Guest relations and timing of service are also emphasized as advanced students serve both to-go and eat-in pastries and beverages at the Great Lakes Culinary Institute's teaching restaurant. Bakery certificate students practice a variety of baking and pastry skills learned in their program. Other areas covered include recipe construction and costing, the use and care of equipment, the pressure of cafe preparation and service, and the effective handling and use of supplies. NOTE: Students are required to work an additional 12 paid hours in the GLCI Cafe. Group 2 course.
Credit Hours: 3 **Contact Hours:** 6
Required Prerequisites: CUL 110, CUL 118, CUL 218
Co-Requisites: None
Recommended Prerequisites: CUL 221

CUL 295, Contemporary Service & Cuisine
Division: Business
This course focuses on practical hands-on training. Students rotate through the front-of-the-house and the restaurant kitchen in this intensive semester-long course. Front-of-the-house students learn various styles of table, wine and beverage service. Menu merchandising is stressed throughout the course. Guest relations and timing of service are also emphasized as advanced students serve lunch to guests in Lobdell's, the Great Lakes Culinary Institute's teaching restaurant. Heart-of-the-house students learn classical food preparation preparing designated menu items. Other areas covered include recipe construction and costing, the use and care of equipment, the pressure of a la carte preparation and service, and the effective handling and use of supplies. Group 2 course.
Credit Hours: 12 **Contact Hours:** 24
Required Prerequisites: CUL 110, CUL 111, CUL 211, CUL 213 Co-Requisites: None Recommended Prerequisites: Recommended competency: Basic keyboarding and computer skills.

DD Drafting & Design

DD 101, Print Reading and Sketching Division: Technical
Students will learn to read engineering drawings of products and tooling used in today's manufacturing. Basic drawing format and layout are presented using product, tooling assembly, and tooling detail drawings. Students learn methods of three dimensional shape description, dimensioning and tolerancing. Types of fasteners along with related terminology and manufacturing processes, material specifications, and welding symbols are presented. Students learn the presentation skills of orthographic projection, isometric and oblique pictorial drawings using straight line and free hand sketches. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

DD 110, Basic Metallurgy Division: Technical
This course presents the making and forming of steel and the classification of steel and cast iron. Mechanical and physical properties are presented along with hardness and tensile testing labs. Principles of alloying, crystal structure, and the iron-carbon diagram help students understand how annealing, hardening, and tempering processes alter the mechanical properties of steel. Non-ferrous metallurgy is presented with an emphasis on aluminum. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

DD 160, Tolerancing and GD&T Division: Technical
This course first presents conventional tolerancing terminology, expressions, and accumulations in both inch and metric formats. Next, Geometric Dimensioning and Tolerancing (GD&T) presents an international system of symbols used to dimension products or tooling components. The course is based on the current ASME Y14.5M2009 Dimensioning and Tolerancing standard. Engineers, designers, drafters, cost estimators, machinists, and inspectors must understand this system. Students study actual product drawings and make design sketches of workholding and inspection devices. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: DD 101 Co-Requisites: None Recommended Prerequisites: None

DD 170, CADD/Computer Modeling Division: Technical
Graphic communication course using 3D parametric modeling techniques. Topics include 3D modeling using SolidWorks software in an engineering design environment. Students will also develop 2D drafting skills including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing, detail descriptive geometry and rapid prototyping. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

DD 290, Drafting Internship Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or better. Co-Requisites: None Recommended Prerequisites: None

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DNC Dance

DNC 101, Beg. Dance: An Exploration
Division: Humanities
This course will introduce the major disciplines of dance: ballet, jazz, and modern. Basic dance skills will be acquired through the practice of exercises, steps, and techniques. This course is designed for those with little or no background in dance. Group 2 course.
Credit Hours: 2 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

DNC 110, Modern Dance I Division: Humanities
This course is designed to introduce students to the physical training and the creative thought process involved in executing modern dance as an art form. This course will consist of technique, improvisation, and creative problem solving through movement. Modern dance and its relationship to music and the historical development of modern dance will also be explored. Group 2 course.
Credit Hours: 2 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: DNC 101 or previous experience

DNC 111, Modern Dance II Division: Humanities
This course is designed as an extension of Modern Dance I. This class will consist of increasing proficiency in modern dance through extended studies in technique, improvisation, creative problem-solving, and performance. Dance history and critical perspectives in dance will also be explored. Group 2 course.
Credit Hours: 2 **Contact Hours:** 4
Required Prerequisites: DNC 110 or previous experience
Co-Requisites: None Recommended Prerequisites: None

DNC 120, Choreography & Performance
Division: Humanities
Study choreography by participating in an instructor-led choreographed dance, created through structured improvisation and creative problem-solving techniques. Students will also create and develop their own dances through the exploration of a wide range of approaches to choreography. Performance and its relationship to community and cultural values will also be explored. The culmination of the class work will be a dance performance for the public. Group 2 course.
Credit Hours: 2 **Contact Hours:** 4
Required Prerequisites: DNC 101, DNC 110 or previous experience Co-Requisites: None
Recommended Prerequisites: None

DNC 121, Swing, Latin & Slow Dancing I
Division: Humanities
This course will introduce students to a fun form of exercise and recreation you can do for the rest of your life through swing and social dancing. Many styles of dancing will be covered including swing, jitterbug, tango, cha cha, waltz, slow dancing, two-step, Latin dancing, and many swing moves that can be incorporated into any dance situation. Please wear slippery soled shoes.
Credit Hours: 1 Contact Hours: 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

DNC 122, Hip-Hop Dance Division: Humanities
Learn dance combinations used in the Hip-Hop dance style. Develops the strength, flexibility, rhythm, balance, and safe body mechanics to dance confidently in a social atmosphere to popular Hip-Hop music. A great way to exercise and have fun at the same time. Wear clean, dry gym shoes. **Credit Hours: 1 Contact Hours: 2**
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

DNC 131, Yoga I Division: Humanities
Yoga is postural work emphasizing precise and careful body alignment and maximum spinal extension. Yoga works through the concreteness of the body to teach balance and integration. It is an effective way to stretch and strengthen the body. Using movement and breath, yoga brings a therapeutic calm to the body and mind, releasing stress and bringing relaxation. Group 2 course.
Credit Hours: 1 Contact Hours: 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

DNC 132, Yoga II Division: Humanities
Yoga techniques focus on understanding and controlling the body, the breath, and the mind through exercises (asans), breathing techniques (pranayamas), and meditation training (quieting the mind and body). Yoga poses are designed to develop strength and give maximum flexibility to the muscular, skeletal, and nervous systems with special emphasis on building a strong, supple spine. Benefits include improved circulation, hormonal balance, poise, and a more stable emotional nature. Learning proper breathing will help you cope with stress and increase your energy level. Wear loose, comfortable, layered clothing and plan to work barefooted. Bring two blankets, a mat, and a bath towel. Group 2 course.
Credit Hours: 1 Contact Hours: 2
Required Prerequisites: DNC 131 Co-Requisites: None
Recommended Prerequisites: None

DNC 135, Bikram Yoga I Division: Humanities
This is Original Hot Yoga, 105 degrees, pure, powerful, authentic, unchanged, taught exactly as Hatha Yoga Master Bikram Choudhury intends it to be taught. 26 poses, 2 breathing exercises, 90 minutes, plus heat. Prerequisite: good heart health and not pregnant. Group 2 course. **Credit Hours: 1 Contact Hours: 2**
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

DNC 136, Bikram Yoga II Division: Humanities
A continuation of the original Hot Yoga, 105 degrees, pure, powerful, authentic, unchanged, taught exactly as Hatha Yoga Master Bikram Choudhury intends it to be taught. 26 poses, 2 breathing exercises, 90 minutes, plus heat. Prerequisite: good heart health and not pregnant. Group 2 course.
Credit Hours: 1 Contact Hours: 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

ECE Early Childhood Education

ECE 101, Early Childhood Education
Division: Social Science
This course familiarizes students with the history and This course familiarizes students with the history and present state of early childhood education, from birth to 10 years of age. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. An overview of child development theories is presented in the context of the role of the educator/caregiver. Resources and careers, and contemporary issues such as school readiness and exploration of various education philosophies are also included. Early Education environment observations and a personal philosophy of education project are required. The observations are set by students to meet their schedules. Group 2 course.**Credit Hours:** 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

ECE 202, Human Development and Learning
Division: Social Science
TThis course focuses on the issues related to child development and learning. It examines the reasons for child study and its influence on families and education. The interactions between education/learning and all the developmental domains will be studied from conception up to adolescence. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 20 classroom hours of focused study related to the course content. Students will become familiar with the most recent research, and design their own field observation and projects that support and test current theories of development. In addition, students will explore how professional work with children is changing and how they can become advocates for the well-being of children and families in their community, nation and the world. Group 2 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ECE 101 or PSY 101; placement into ENG 11/111.

ECE 203, Curriculum for Child Guidance
Division: Social Science
This course examines the preparation of curriculum that supports a positive learning environment and the use of positive guidance strategies with children, birth through 10 years of age. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. Adult and child self-regulation and conflict resolution skills are learned, practiced and implemented. Current concepts and approaches that directly relate to the social, emotional and mental health of the child are explored. There is a special focus on developing positive personal interactions with children and the role positive guidance strategies have in family partnership, support and education. Field observations are required and are set by students to meet their schedules. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ECE 101, placement into ENG 11/111.

ECE 204, Early Childhood Curriculum
Division: Social Science
An active learning approach is used to develop student's skills in planning, implementing and evaluating developmentally appropriate learning experiences for children ages 1 year to 10 years. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. Various curriculum areas are covered: science, pre-math, math, drama and music, creative art, sensory, gross and fine motor, social studies and language arts. Basic skills and concepts, resource materials and teaching methods (developmental) are explored for each curriculum area. There is a strong emphasis on individualizing curriculum using the child's interests, modality of learning and intelligence theories. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ECE 101, placement into ENG 11/111.

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ECE 206, Infant Toddler Care Curriculum
Division: Social Science
This hybrid course provides an in-depth study of the physical, cognitive, social and emotional development and learning of the infant and toddler. There will be a focus on attachment and bonding and how that relates to brain development and later social and academic success. Students will develop skills to build a respectful and responsive curriculum and learning environment. They will learn how to use best practice methods with infants and toddlers and their families. Course includes time in class and hours outside class doing observation and applicable in-service work. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ECE 101, placement into ENG 11/111.

ECE 220, Early Education Administration
Division: Social Science
This course provides information and experiences to gain knowledge in program administration for establishing policies, implementing and evaluating programs, assessing, recording and reporting children's progress, scheduling activities, promoting good support systems between home and school. In addition, focus will be aimed at understanding administrative organization, leading and managing personnel, financing and budgeting and contributing to the profession. Course instruction is based on the quality principles/standards required by Child Development Associate Credential and the National Association of the Education of the Young Child (NAEYC). Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ECE 101, placement into ENG 11/111.

ECE 230, Early Literacy and Learning
Division: Social Science
This course is designed to teach students how to **r**ecognize and implement appropriate environmental strategies that support early literacy development and appropriate early experiences with books and writing for infants, toddlers and preschoolers. Each age group receives a minimum of 15 classroom hours of focused study related to the course content. Emphasis is placed on speaking and listening, as well as reading and writing readiness. This group of skills includes expressive and receptive language, concepts of print and appreciation of literature, emergent writing, letter knowledge, and phonological awareness. Upon completion of the course, students will be able to select, plan, implement, and evaluate appropriate early literacy experiences. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ECE 101, placement into ENG 11/111.

ECE 240, Integrated Arts in Curriculum
Division: Social Science
The integration of the arts in early education will be explored and implemented for children birth to 10 years of age. Each age group (infant/toddler, preschooler and school-age) receives a minimum of 10 classroom hours of focused study related to the course content. There will be a focus on the integration of studio art, music, dance and drama in early childhood curriculum planning, practice and implementation. Observation and practicum hours in an early care setting will be required. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ECE 101, ECE 204, and placement into ENG 11/111.

ECE 290A-C, Early Education Internship
Division: Social Science
Internship placement in a daycare, nursery school, early elementary grades in grade school or other agencies that deal with students, children and/or families. The student will have the opportunity to interact with individuals and assist with planning for curriculum or program activities under direct supervision. Each credit hour is equivalent to 32 internship hours and can be divided over more than one semester. At least 1 credit hour (32 internship hours) must be spent in an infant/toddler learning environment. Group 2 course.
Credit Hours: 1-4 **Contact Hours:** 1-4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ECE 101

ECO Economics

ECO 201, Principles of Macroeconomics
Division: Social Science
This principles level course provides an in-depth overview and analysis of macroeconomic theory and concepts; and applies them to the contemporary economic issues, problems, and policies in the United States and other economies. Topics include the nature and scope of economics; national income accounting; government revenues, expenditures, and national debt; unemployment, inflation, and interest rates; economic growth; and monetary, fiscal and international trade policies. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: MTH 23, placement into ENG 111. It is recommended that students take ECO 201 before ECO 202.

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ECO 202, Principles of Microeconomics
Division: Social Science
This principles level course analyzes microeconomic theory and concepts; and applies them to contemporary economic issues, problems, and policies. Topics include supply and demand analysis, productivity and the firm's costs of production, price and output determination under various market structures, government interventions in markets, factor allocation and pricing, and international trade. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: MTH 23, placement into ENG 111. It is recommended that students take ECO 201 before ECO 202.

EDU Education

EDU 100, College Success Division: Social Science
This course is designed to provide students with the strategies necessary to succeed in college. Participants will examine the characteristics of successful students as well as learn strategies for taking greater responsibility for their own learning. Additionally, the course will provide ways of developing greater intrinsic motivation, increased perseverance, and more effective time management skills, as well as help them discover and revise limiting beliefs and self-defeating behaviors. Practical skills will include a variety of note taking and study strategies as well as confident and effective test preparation. Group 2 course.
Credit Hours: 2 Contact Hours: 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

EDU 101, Introduction to Teaching
Division: Social Science
This course will serve as an introduction to teaching as a career. It will provide an overview of students' behaviors and effective teachers' responsibilities in preparation for further study in the field of education. This course includes 30 hours of classroom observation in a K-12 classroom. Instructor permission is needed for non-high school graduates. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

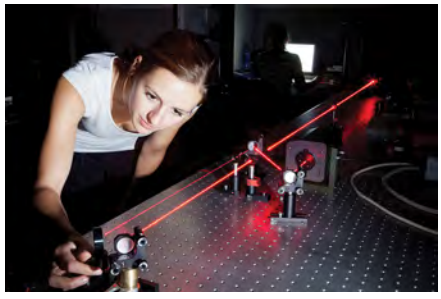
EDU 212, Educating Exceptional Children
Division: Social Science
This course addresses the complexity of understanding and educating the exceptional child (one with special needs, disabilities and differing abilities including gifted and talented). Areas covered will include exceptional child development, family development and dynamics, identification processes, methods for contributing to the child's healthy development and educational needs, community resources and referral procedures. This course will address the unique challenges related to creating developmentally appropriate accommodations and inclusion practices in the educational and early care setting. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ECE 202 or PSY 101
Co-Requisites: None Recommended Prerequisites: Placement into ENG 11/111

EET Electronics Technology

EET 102, Intro to Engineering Tech Division: Technical
This course is designed to give students an overview of Engineering Technology and the career options this profession provides. This course highlights the technical specializations within the Engineering Technology degree at NMC. Course topics also include engineering design methods, project management principles and practices, team work skills, engineering ethics, and the role of engineering in global and environmental issues. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into MTH 23 and ENG 99/108

EET 103, Electrical Studies I Division: Technical
Explore the fundamentals of electricity and electronics by developing introductory analysis, construction and troubleshooting techniques for DC and AC circuits. Safe electrical practices will be emphasized throughout the course as the student constructs circuits from schematics and diagrams using proper wiring and soldering techniques. Electrical measurements will be performed using multimeters and oscilloscopes. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: MTH 23 Co-Requisites: None
Recommended Prerequisites: None

EET 161, Fundamentals of Light & Lasers
Division: Technical
This course introduces the elements of a laser, operation of a helium-neon gas laser, laser physics, optical-cavities, properties of laser light and a survey of laser systems. Safety procedures concerning lasers and related equipment are presented in this course. Group 2 course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: MTH 23 or higher
Co-Requisites: None
Recommended Prerequisites: None



EET 180, Biomedical Equipment I Division: Technical
This course introduces the learner to the field of the biomedical equipment technology and the role of the technician. Safety, patient care, ethics, regulatory requirements, healthcare equipment technology and function will be emphasized. Proper procedures and protocols for the calibration, test and troubleshooting of medical equipment will be developed. Common diagnostic equipment will be used for signal analysis. The course will begin the preparation for the CBET certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: BIO 106, EET 204, HAH 101
Co-Requisites: None Recommended Prerequisites: None

EET 190, Biomedical Internship Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Biomedical Equipment. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 5-10 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in three seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: EET 180 Co-Requisites: None
Recommended Prerequisites: None

EET 204, Electrical Studies II Division: Technical
A systems level approach to electronics and electrical devices will be used to analyze semiconductor applications including integrated circuits, power supplies, transistors, amplifiers, and digital logic families. Circuits will be bench tested, and integrated with others to meet system requirements. Design modifications, circuit improvements, component protection and application to other areas of engineering technology will be emphasized as designs are developed into working prototypes. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 103 Co-Requisites: None
Recommended Prerequisites: None

EET 212, Elements of Photonics Division: Technical
Elements of Photonics builds upon and applies principles presented in Fundamentals of Light and Lasers. The course includes modules on operational characteristics of lasers, specific laser types, optical detectors and human vision, principles of optical fiber communications, photonics devices for imaging, storage and display, and laser welding and surface treatment. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: EET 161 Co-Requisites: None
Recommended Prerequisites: None

EET 221, Industrial Controls Division: Technical
This course studies control circuits, electrical schematics and line diagrams. Motor circuits utilizing motor starters, contactors, timers and counters are used to demonstrate control circuitry. Industrial control devices are examined, including solid-state control devices, electro-mechanical relays, proximity sensors, photoelectric sensing devices and programmable logic controllers. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 103 or ELE 105
Co-Requisites: None Recommended Prerequisites: None

EET 232, Programmable Logic Controllers
Division: Technical
This course studies programmable logic controllers (PLCs). Basic models and complete applications are applied to control inputs and outputs of PLCs. Ladder logic and device wiring techniques are studied, along with advanced program instructions such as counters, timers, sequencers and integer moves. Input/output devices are used to examine PLC program logic during the control process. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 221 Co-Requisites: None
Recommended Prerequisites: None

EET 233, PLC Applications I Division: Technical
This course is a study of the integration of program styles and components used in industry. Program structures and instructions will be used in lab projects to simulate how PLCs can be used to create a variety of useful functions. A mixture of textbook and component manuals will be used to learn the necessary information to complete these functions. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 232, ELE 142
Co-Requisites: None Recommended Prerequisites: None

EET 234, PLC Applications II Division: Technical
This course is a continuation of the study of the integration of program styles and components used in industry. Program structure and project development will be studied. Installation of different types of components integrated with PLCs will also be studied. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 233, ELE 146
Co-Requisites: None Recommended Prerequisites: None

EET 260, System Engineering in Practice
Division: Technical
This class introduces students to the practice of system design and development. Students apply specific methodologies for problem-based learning and project management. Technical content from prior courses is applied to address challenges and create solutions. Student teams create prototypes and communicate results with classroom activities supporting teamwork, project planning, requirements analysis, design, development, testing, demonstration, and reporting. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 102, EET 103, RAM 155 Co-Requisites: None Recommended Prerequisites: AVF 141, RAM 205 or WSI 200

EET 281, Biomedical Equipment II Division: Technical
This course continues the study of biomedical equipment technology and the role of the technician. Healthcare problem solving techniques will be developed through the analysis, testing and troubleshooting of medical equipment. Information technology needs and requirements will be reviewed as they pertain to the healthcare environment as well as anatomy and physiology specific to the field. Students will continue preparing for the CBET certification exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 180 Co-Requisites: None Recommended Prerequisites: None

EET 290, Engineering Tech Internship Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or better. Co-Requisites: None Recommended Prerequisites: None

EET 304, Marine Electronics Division: Technical
Marine Electronics focuses on the systems, applications, electronics, and safety requirements specific to the marine and ROV environments. The design, repair and integration of cabling, tether, communication devices, sensors, and components into electrical systems will be emphasized. Students will use test equipment and protocols to develop troubleshooting methods to analyze and integrate this technology. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 104 Co-Requisites: None Recommended Prerequisites: None

EGR Engineering

EGR 101, Introduction To Engineering
Division: Science & Math
This course is a general overview of the field of engineering. Emphasis is on curricula, categories of engineering and the role of the engineer. Required for all first-year students in the engineering program. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ENG 111

EGR 113, Engineering Graphics I
Division: Science & Math
This course is designed to satisfy the engineering graphics requirement for most engineering majors. Topics covered include the principles of orthographic projection, auxiliary views, sectional views, sketching; relationship of lines, planes, and points in space, space vectors and force systems are discussed from an engineer's point of view. Graphic methods are applied to problem solving and communication of ideas. Two and three dimensional computer graphics are used throughout the course to reinforce the basic concepts. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 122

EGR 131, Elementary Surveying
EGR 131L, Elementary Surveying Lab
Division: Science & Math
This course is designed to satisfy the elementary surveying requirement for a student entering engineering. In this course students will learn the theory involved in plane and geometric surveying including both linear and angular measurement, differential leveling, trigonometric leveling, traverse computations, electronic distant measurements, GPS mapping, topographical mapping and the design of horizontal and vertical curves as related to construction surveys. Students are expected to perform lab experiments in which they demonstrate their knowledge of the concepts learned in lecture, incorporating the basic skill learned in lecture to field settings. Care, adjustment, and use of basic surveying instruments: leveling, taping, horizontal angle measurements, traverse surveys, use of EDM's, GPS usage, topographic mapping, and layout of horizontal curves. Computer software will be used throughout the semester. Group 2 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: MTH 122 Co-Requisites: EGR 131L Recommended Prerequisites: ENG 111

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EGR 201, Statics Division: Science & Math
This is the first of a three-course sequence in Engineering Mechanics. This course covers those topics usually included under the study of statics, such as forces acting upon a particle and rigid bodies at rest, analysis of structures, frictional forces, centroids and moments of inertia. It also covers shear moment diagrams, tread analysis, trusses and beams. Vector algebra and first semester calculus is used throughout the course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MTH 141 Co-Requisites: None
Recommended Prerequisites: ENG 111, MTH 142

EGR 202, Mechanics of Materials
Division: Science & Math
This is the second in a three-course sequence in Engineering Mechanics. This course covers those topics included in the study of mechanics of materials. This includes stress and strain of engineering materials, torsion, Hooke's Law, and shear and moment diagrams, combined stresses, beam deflection, columns, pressure vessels, structural connections and buckling of structures. Vector algebra and differential calculus are used throughout this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: EGR 201 Co-Requisites: None
Recommended Prerequisites: ENG 111, MTH 142

EGR 203, Dynamics Division: Science & Math
This is the third and final course of the sequence in Engineering Mechanics. This course covers those topics usually included under the study of dynamics, such as kinematics and kinetics of particles and rigid bodies, Newton's Laws of Motion, work-energy principles, impulse-momentum, combination of work/energy and imp/mom, multiple particle applications, space mechanics, simple harmonic motion, driven harmonic motion, and damped vibrations. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: EGR 201 Co-Requisites: None
Recommended Prerequisites: ENG 111, MTH 241

EGR 220, Engineering Practice I
Division: Science & Math
Students develop the laboratory and computer skills necessary for success in engineering. Topics include benchmarking, prototyping, data acquisition devices and methods, data post processing and interpretation using engineering software, and the use of finite element analysis methods. Group 2 course.
Credit Hours: 2 Contact Hours: 4
Required Prerequisites: EGR 101, EGR 113, EGR 201, ENG 111 CoRequisites: None
Recommended Prerequisites: None

EGR 232, Introductory Thermodynamics
Division: Science & Math
This course introduces concepts of energy, energy conversion, and mechanisms of heat and work transfer in processes and in cycles. It also covers the first and the second laws of thermodynamics. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: MTH 141, PHY 221, PHY 221L
CoRequisites: None
Recommended Prerequisites: None

EGY Renewable Energy

EGY 101, Principles of Renewable Energy
Division: Construction Technology
This course covers the basic principles and history of renewable energy sources. Industry and governmental perspectives on geothermal, wind, solar, biomass, fuel cells, and other energy sources are highlighted. This course is required to achieve a Level II Certificate in Renewable Energy Technology. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: EGY 115, may be taken concurrently Co-Requisites: None
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 105, Sustainable Building Design
Division: Construction Technology
This course provides a great introduction to sustainable building practices. Through structured classroom activities, the student will learn about the structure of matter and the material world, whole system thinking, site and natural energy mapping, water resources, building orientation, materials and resources, indoor air quality, innovation and design. This course is required to achieve a Level II Certificate in Renewable Energy Technology. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 115, Residential Energy Efficiency
Division: Construction Technology
This course provides a broad spectrum of information regarding basic residential energy conservation.Through structured classroom and hands-on skill building, the student will learn about the principles of energy, building shell construction, air leakage, insulation, windows and doors, heating, lighting, cooling, water heating, health, and safety. This course, or its equivalency, is a required class for the Renewable Energy Certificate Program. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement in MTH 23 or co-enrollment in the recommended developmental Math course, placement into ENG 11/111 or co-enrollment in the recommended English course.

EGY 141, Solar Photovoltaic Tech I
Division: Construction Technology
Through structured lecture and practical skill building, students will become familiar with Solar Photovoltaic applications, solar radiation, basics of a site survey, system components, system sizing, and preparation of a solar installation. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ELE 105 Co-Requisites: None Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

EGY 143, Solar Thermal Technology I
Division: Construction Technology
This course provides an introduction to solar hot water heating systems. Through structured classroom and hands-on skill building, the student will learn the history of solar thermal heating systems, components, drainback systems, glycol systems, start up and maintenance procedures, savings and performance estimates, system control, monitoring and testing and solar space heating design. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: PLU 101 Co-Requisites: None Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

EGY 145, Geothermal Technology
Division: Construction Technology
This course introduces the basic principles of geothermal energy production and technology. Essentials on how to utilize geothermal technology as an energy source will be analyzed and demonstrated. Examples of residential and commercial applications will be shown and reviewed. Group 2 course. **Credit Hours: 3 Contact Hours: 4**
Required Prerequisites: HVA 105 Co-Requisites: None Recommended Prerequisites: MTH 23 or placement into MTH 111, ENG 111

ELE Electrical

ELE 101, Introduction to Electrical
Division: Construction Technology
This course provides an introduction to the electrical. Through structured classroom and hands-on skill building, the student will learn safety, basic electricity, Ohm's Law, basic electric circuits, meters and wire sizes. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement in MTH 111 or higher, or co-enrollment in the appropriate developmental Math course, placement into ENG 11/111 or higher or co-enrollment in the appropriate developmental English course.

ELE 105, Beg Residential Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn general information for electrical installations in the residential field to include: electrical symbols and outlets, determining the required number of lighting and receptacle outlets, conductor sizing and connections, switch control, bonding/grounding, ground-fault circuit interrupters and similar devices, and begin calculations for wiring various rooms in a common residential building. Group 2 course
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 101 or EET 103 or HVA 101 Co-Requisites: None Recommended Prerequisites: None

ELE 110, Electrical Code Studies I
Division: Construction Technology
This preparatory course reflects many of the important changes that appear in the current edition of the National Electrical Code. The changes are presented as they pertain to Single Family Dwellings, Multifamily Dwellings, Commercial Locations, Industrial Locations, and Hazardous Locations. It is designed to enable the student to learn electrical print reading and become familiar with applicable sections of the National Electrical Code. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ELE 105 Co-Requisites: None Recommended Prerequisites: This course is recommended for those seeking more in-depth knowledge of the National Electrical Code and those who intend to sit for the Michigan Electrical Journeyman Exam with the next year.

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ELE 111, Electrical Code Studies II
Division: Construction Technology
This course will help the student in learning to read and interpret the meaning of the Code, and to find information about how to do wiring installations. Upon completion of this course, the student will be able to find information from the Code needed to do residential, commercial, farm, and industrial wiring and to be successful with electrical examinations. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ELE 110 Co-Requisites: None
Recommended Prerequisites: This course is recommended for those seeking more in-depth knowledge of the National Electrical Code and those who intend to sit for the Michigan Electrical Journeyman Exam with the next year.

ELE 121, Adv Residential Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn advanced residential wiring techniques including: workshop circuits, special purpose outlets, gas and oil central heating systems, low-voltage wiring, alarms and security systems, service entrance equipment, overcurrent protection, service entrance calculations, swimming pools, home automation systems, and standby power systems. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 105 Co-Requisites: None
Recommended Prerequisites: None

ELE 125, Pre-Commercial Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn small sources of electricity, basics of alternating current, AC circuits containing inductance, AC circuits containing capacitors, AC circuits containing resistance-inductance-capacitance, three-phase power, transformers, DC machines, and AC machines. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 121 Co-Requisites: None
Recommended Prerequisites: None

ELE 131, Commercial Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn commercial building plans and specifications, reading electrical drawings, calculating the electrical load, branch circuits, wiring methods, motor and appliance circuits, feeders, special systems, and working drawings. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 105 Co-Requisites: None
Recommended Prerequisites: None

ELE 135, Adv Commercial Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn special circuits, panelboards selection and installation, the electric service, lamps and ballasts for lighting, luminaires, emergency, standby and optional standby systems, overcurrent protection, short-circuit calculations, equipment and conductor short-circuit protection, low-voltage remote-control, and the cooling system. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 131 Co-Requisites: None
Recommended Prerequisites: None

ELE 142, Industrial Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn plans and sitework, the unit substation, feeder bus system, panelboards, trolley busways, using wire tables, signaling systems, basic motor controls, motors and controllers, and motor installation. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 105 Co-Requisites: None
Recommended Prerequisites: None

ELE 146, Adv. Industrial Electrical
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn power factor, ventilating, air conditioning, and other facilities, system protection, lightning protection, site lighting, programmable logic controllers, developing a program for a PLC, fiber optics, hazardous locations, and harmonics. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ELE 142 Co-Requisites: None
Recommended Prerequisites: None

ENG English

ENG 99, Intro to College Writing
Division: Communications
This is an introductory writing course. Students will engage with the writing process as they write a variety of responses, analyses and thesis-driven essays. This course builds on skills students already have and prepares them for college composition courses. It also focuses on grammar, punctuation and sentence construction and variety. ENG 99 also covers a broad range of thematic topics to help students develop critical writing and thinking skills.
Non-transferable Hours: 3
Required Prerequisites: Students are placed in this course according to placement guidelines set by NMC.
Co-Requisites: ENG 108 Recommended Prerequisites: None

ENG 108, Critical Reading Strategies
Division: Communications
The focus of this course is on improving college-level reading skills. Students read and interact with complex texts including fiction, non-fiction memoir, articles, and books. Students also learn to employ a variety of reading strategies to enhance comprehension and critical thinking. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Students are placed in this course according to placement guidelines set by NMC.
Co-Requisites: ENG 99 Recommended Prerequisites: None

ENG 111, English Composition Division: Communications
ENG 11, English/Writing Methods
ENG 111 is the first semester of a two-semester composition sequence introducing analytical and information literacy skills that lay a foundation for success in all disciplines. ENG 111 introduces and emphasizes rhetorical knowledge (including audience and purpose), invention, and reading/writing processes. Group 1 course. ENG 11 is to be taken concurrently with ENG 111 and helps facilitate the objectives of ENG 111. Special attention is given to individual student needs in the conventions of standard written prose. Two (2) of the six (6) credit hours are non-transferable studio hours.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: Placement into ENG 111, placement into ENG 111/11, or successful completion of ENG 99/108
Co-Requisites: None
Recommended Prerequisites: None

ENG 112, English Composition Division: Communications
ENG 12, English/Writing Methods This is a writing course based on critical reading from various fields. Writing assignments reinforce skills in summary, analysis, evaluation, and synthesis. Emphasis is on argumentation, research methods, and information literacy. Group 1 course. ENG 12 is to be taken concurrently with ENG 112 and will help to facilitate the objectives of ENG 112. Special attention is given to individual student needs in the conventions of standard written prose, argumentation, and research. Two (2) of the six (6) credit hours are non-transferable studio hours.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: Successful completion of ENG 111 or ENG 111/11 CoRequisites: None
Recommended Prerequisites: None

ENG 210, Children's Literature Division: Communications
Focus is on developing criteria, terminology and resources for evaluation and selection of good quality children's literature and on developing methods for sharing that literature with children. The course surveys both picture books and novels from a variety of genres and cultures and also examines the impact of social change on children's literature. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

ENG 211, Introduction to Linguistics
Division: Communications
This course is designed to acquaint students with modern developments in the science and philosophy of language, and to improve their understanding of the intersection of culture and language. It addresses issues of sound, word formation, syntax, semantics, language acquisition, language variation and change, and more. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111.
Co-Requisites: None Recommended Prerequisites: None

ENG 220, Technical Writing Division: Communications
This course introduces students to a variety of technical writing situations in business, industry, science, and education. It emphasizes audience awareness, research methods, problem solving, critical thinking, professional ethics, and types of formal reports including proposals, analytical reports, progress reports, and technical instructions and descriptions. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ENG 111 Co-Requisites: None
Recommended Prerequisites: None

ENG 221, Creative Writing Division: Communications
Study and practice of the basic techniques of effective imaginative prose: concrete language, conflict, characterization, point of view, narrative arc, pace, and setting. Focus of fiction, but allowance for nonfiction. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft in above-described techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Text is supplemented with additional examples of fiction and nonfiction. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ENG 112 or permission of instructor. Co-Requisites: None Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 222, Advanced Creative Writing
Division: Communications
Continued study and practice of basic techniques of effective imaginative prose learned in ENG 221: concrete language, conflict, characterization, point of view, narrative arc, pace and setting. Focus on fiction, but allowance for nonfiction. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Explores ways to suggest and shape meaning in fiction. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ENG 221 or instructor permission. Co-Requisites: None Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 223, Creative Writing - Poetry
Division: Communications
Study and practice of basic elements of poetic composition, by reading and writing a variety of forms. Employs workshop format to develop reading and feedback skills. Skills developed include close reading, close observation, craft techniques, revision, discipline and practice, giving and receiving feedback, developing access to imaginative powers. Engages deeply with several works of contemporary poetry. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ENG 112 or permission of instructor. Co-Requisites: None Recommended Prerequisites: Students should have language skills at least equivalent to ENG 112.

ENG 224, Journalism Fundamentals
Division: Communications
This course examines the changing face of journalism and media today, providing students with theory and practice in four core areas: interviewing, newswriting, reporting and research. Students will learn the form and conventions of hard news, opinion/editorial, feature writing and alternative story formats across media platforms: print, on-line blog, radio and video. Students will examine the history of journalism, press law and ethic while exploring the changing roles of journalism and how its processes and products impact readers in our highly mediated contemporary society. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111 Co-Requisites: None Recommended Prerequisites: Interest in or curiosity about print and digital media and reporting; knowledge of word processing, preferably in Windows and/or Macintosh environments.

ENG 240, Introduction to Literature
Division: Communications
An introduction to a variety of literary styles, themes, and forms such as fiction, drama, and poetry. Intended to develop an understanding and enjoyment of reading as well as an understanding of current critical approaches to the study of literature. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111 Co-Requisites: None Recommended Prerequisites: None

ENG 241, World Mythology Division: Communications
This course features a study of central and recurring patterns of human concern as revealed in the mythic content of various forms of literature. Examination of archetypal structures embedded in works of culture ranging from ancient Babylonian to contemporary eras is central to course goals and outcomes. Areas to be investigated will include myths of the quest, of power, of origins, of love, and of art. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111 Co-Requisites: None Recommended Prerequisites: None

ENG 242, Introduction to Women Writers
Division: Communications
This course features an examination of essays, novels, stories, and poems written by women from various socio-economic, racial, and historical backgrounds. Examination of how women writers have reshaped definitions of literary genres and themes. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111 Co-Requisites: None Recommended Prerequisites: None

ENG 246, British Literature I Division: Communications
This course offers intensive readings of works from British authors spanning from early medieval works such as Beowulf through the Neoclassical era. Literature will be analyzed as artifacts within sociocultural and historical contexts and as representatives of styles and genres within this literary tradition. English or Humanities credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111 Co-Requisites: None Recommended Prerequisites: None

ENG 247, British Literature II Division: Communications
This course offers intensive readings of works from British authors spanning from the Romantic era through contemporary times. Literature will be analyzed as artifacts within sociocultural and historical contexts and as representatives of styles and genres within this literary tradition. English or Humanities credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111 Co-Requisites: None Recommended Prerequisites: None

ENG 254, Shakespeare Division: Communications
This course is an introduction to representative major dramatic works of Shakespeare and the Elizabethan Age, and includes lecture, film, and discussion. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

ENG 256, Environmental Literature
Division: Communications
This course will explore the changing perceptions and definitions of wilderness and nature in American literature and culture. Students will read and discuss poetry, fiction, and nonfiction by American authors, including Emerson, Thoreau, Muir, Leopold, Austin, Carson, Stegner, Jeffers, Silko, Snyder, Oliver, Abbey, and Williams. We will also explore the interaction between literature and environmental activism, and consider the impact of nature and wilderness on the American art. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111.
Co-Requisites: None Recommended Prerequisites: None

ENG 262, American Literature Division: Communications
Students in this course study the American tradition, early and modern, in prose and poetry. Selections will emphasize the cultural and intellectual background giving rise to our national literature, the major phases or movements in that literature, and how certain writers transcended those movements to create work of universal value. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111.
Co-Requisites: None Recommended Prerequisites: None

ENG 263, World Literature Division: Communications
This course exposes students to a variety of readings drawn from Africa, Asia, Europe, and Latin America, and/or Oceania. While the reading and writing assignments will certainly require close literary analysis, the class will also attempt to situate the works culturally, historically, and theoretically. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

ENG 265, Science Fiction and Fantasy
Division: Communications
The primary emphasis of this course are reading and writing about Science Fiction and Fantasy stories as they are found in a range of cultural tests like print, motion pictures, radio drama, television, and more. Students will learn to identify and discuss mythologies and related symbols, and genre and formula conventions such as icons, stereotypes, rituals, plots, motifs, settings, and more as they investigate the social history of these stories. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

ENG 266, Popular Culture Division: Communications
The primary emphases of this course center on the critical reading of and writing about popular culture and its historical development in United States and world cultures. Topics to be addressed include myth and mythmaking, iconography, stereotypes, rituals, genres and formulas, the mass media and more. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

ENG 267, Film as Literature Division: Communications
This course offers students the opportunity to examine and critique a selection of films through discussion and writing by employing techniques similar to those used in literary analysis. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

ENG 271, Adolescent Literature
Division: Communications
This course provides a study of universal and diverse themes and ideas expressed through adolescent literature. It features protagonists and authors from a variety of cultures both within and outside of the United States, and emphasizes the relationship between culture and the lives of young people. Humanities or English credit. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Placement into ENG 111
Co-Requisites: None Recommended Prerequisites: None

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ENV Environmental Science

ENV 103, Earth Science Division: Science & Math
ENV 103L, Earth Science Lab
Designed for the student who does not intend to major in a physical science. Subject matter deals with features of the planet Earth, astronomy, and weather. The laboratory portion includes a practical study of rocks and minerals as well as a study of topographic, geologic and weather maps. Field trips investigate landforms in the Grand Traverse area. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 08 or equivalent Co-Requisites: ENV 103L
Recommended Prerequisites: ENG 111, MTH 08

ENV 104, Life of the Past Division: Science & Math
ENV 104L, Life of the Past Lab
This course introduces students to the record of life on Earth. The roles of global change, origins, evolution, and extinction in life history are examined. Great Lakes and North American fossil records with Prepaleozoic micro-organisms and Paleozoic invertebrates and vertebrates are highlighted. Appearance, evolution, and disappearance of dinosaurs during the Mesozoic Era, human evolution, and the recent demise of the giant Ice Age mammals are analyzed in depth. Laboratory and class activities are included. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 08 or equivalent Co-Requisites: ENV 104L
Recommended Prerequisites: ENG 111

ENV 111, Physical Geology Division: Science & Math
ENV 111L, Physical Geology Lab
This course explores processes which transform planet Earth. Landforms, minerals, rocks, and geologic structures are examined in classroom, laboratory, and field studies, which focus on these geologic processes, and on the techniques of geology. Lab studies apply the methodology and techniques of geology by introduction of map reading, field and map study, study of surficial processes, and study of minerals and rocks. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 23 or equivalent Co-Requisites: ENV 111L
Recommended Prerequisites: ENG 111

ENV 112, Historical Geology Division: Science & Math
ENV 112L, Historical Geology Lab
Rocks and fossils of North America, the Great Lakes and the Grand Traverse region which reveal the physical, chemical, and biological evolution of the planet Earth are explored in classroom, laboratory, and field studies (including a required 4-day field excursion to Elliot Lake, Ontario). Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: ENV 112L
Recommended Prerequisites: ENV 103 or ENV 111 or GEO 105; ENG 111, MTH 111

ENV 117, Meteorology & Climatology
ENV 117L, Meteorology & Climatology Lab
Division: Science & Math
Designed to acquaint the student with the science and art of weather analysis, this course includes studies of the basic properties of gases, organization and composition of the atmosphere, basic energy flow, and general weather phenomena that result. Global climates are also investigated. The laboratory portion presents the function and effect of selected physical processes, and includes the use of weather instruments and weather maps. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 23 Co-Requisites: ENV 117L
Recommended Prerequisites: ENG 111

ENV 131, Oceanography Division: Science & Math
ENV 131L, Oceanography Lab
This course explores the origins, structure, and evolution of ocean basins and their role in global climate dynamics. It shall include an investigation of the physical properties that govern waves, currents, tides, air-sea interactions as well as the physical and chemical properties of seawater. It also explores plant and animal life within the oceans including impacts of human activities on the marine environment. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 23 Co-Requisites: ENV 131L
Recommended Prerequisites: ENG 111

ENV 140, Watershed Science Division: Science & Math
ENV 140L, Watershed Science Lab
This course is designed for the learner who wishes to gain an in-depth understanding of watersheds. It will focus on the physical and biological systems that are responsible for the quality and characteristics of a watershed. Human interactions, stewardship, management and impacts on our local water resources will also be explored. The laboratory portion of the course will place emphasis on field investigations and the analysis of data and water samples collected. Basic scientific principles will be incorporated throughout the course. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: ENV 140L Recommended Prerequisites: ENG 111, MTH 111

ENV 270A, Michigan Basin Geology
Division: Science & Math
This course is a six-day field study of the Michigan Basin. The class focuses on the Paleozoic geologic history, fossil record, and economic geology of the lower Peninsula and eastern Upper Peninsula. The relationships of bedrock layers to recent surficial geologic processes and their associated landforms will be explored. Group 1 course.
Credit Hours: 2 **Contact Hours:** 3
Required Prerequisites: Completion of any science course with laboratory, instructor permission Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 23

ENV 270B, Field Mapping Techniques
Division: Science & Math
This course is a one-week field course. It will focus on the fundamentals of map interpretation and generation. Students will gain a basic understanding of the principles of cartography and field mapping techniques employed by various disciplines in the acquisition of spatial data. Group 1 course.
Credit Hours: 2 **Contact Hours:** 3
Required Prerequisites: MTH 23, instructor permission required Co-Requisites: None Recommended Prerequisites: ENG 111, completion of any science course with laboratory.

ENV 270C, Precambrian Geology of MI
Division: Science & Math
This course is a six-day field study of the Precambrian geology of the western Upper Peninsula of Michigan. The class will focus on rock and mineral identification, economic geology, and the geologic history of Michigan's Upper Peninsula. The relationships of ancient bedrock layers to recent surficial geologic processes and their associated landforms will also be explored. Group 1 course.
Credit Hours: 2 **Contact Hours:** 3
Required Prerequisites: Completion of any science course with laboratory, instructor permission required. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 23

ESL English as Second Language

ESL 88, ESL Reading & Vocabulary I
Division: Communications
ESL Reading & Vocabulary I begins giving second language learners the literacy skills they will need to be successful in college. Acquiring new vocabulary is an important part of this course. Students will do both extensive and intensive reading as well as read for pleasure. Vocabulary development, active reading strategies, silent reading and comprehension, and English sentence structure is covered in ESL 88.
Non-transferable Hours: 3
Required Prerequisites: None Co-Requisites: ESL 89 Recommended Prerequisites: Students may be placed in this course based on TOEFL scores and/or appropriate placement scores. Writing samples will aid in placement.

ESL 89, ESL Writing & Grammar I
Division: Communications
ESL Writing & Grammar I will lay the foundations of English writing for students learning English as a second language. Students will learn strategies for summarizing others' work, writing well organized sentences and paragraphs, and writing basic thesis-driven essays. ESL 89 will expand students' understanding of English grammar which will improve their writing on a sentence level.
Non-transferable Hours: 3
Required Prerequisites: None Co-Requisites: ESL 88 Recommended Prerequisites: Students may be placed in this course based on TOEFL scores and/or appropriate placement scores. Writing samples will aid in placement.

ESL 98, ESL Reading & Vocabulary II
Division: Communications
ESL Reading & Vocabulary II is designed to give second language learners the literacy skills they need for college level reading by building on skills they already have. Emphasis on acquiring vocabulary from academic word lists will help prepare students for reading intensive courses. Students will do both extensive and intensive reading on a variety of academic topics.
Non-transferable Hours: 3
Required Prerequisites: None Co-Requisites: ESL 99 Recommended Prerequisites: Students may be placed in this course based on TOEFL scores, appropriate placement scores, or passing a lower level Reading and Vocabulary I class. Writing samples will aid in placement.

ESL 99, ESL Writing & Grammar II
Division: Communications
ESL Writing & Grammar II gives the second language learners the skills they need to approach college level writing. It builds on skills students already have to prepare them for college composition courses (ENG 111-11). Learners will write thesis driven essays and complete smaller writing assignments as well as learn to comprehend and perform advanced grammatical sentence structures. Students will learn to use library research to support their ideas in writing.
Non-transferable Hours: 3
Required Prerequisites: None Co-Requisites: ESL 98
Recommended Prerequisites: Students may be placed in this course based on TOEFL scores, appropriate placement scores, or passing a lower level Writing and Grammar class. Writing samples will aid in placement.

FRN World Language - French

FRN 101, Elementary French I Division: Communications
This course represents a comprehensive introduction to the French language for the true beginner. Students will develop the ability to communicate in French in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

FRN 102, Elementary French II Division: Communications
FRN 102 is a continuation of FRN 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: FRN 101 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission Co-Requisites: None
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

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FRN 201, Intermediate French I
Division: Communications
FRN 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of French culture is presented in this course, allowing students to transform themselves into truly active and proficient language users. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: FRN 102 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission Co-Requisites: None
Recommended Prerequisites: You will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

FRN 202, Intermediate French II
Division: Communications
FRN 202 is a continuation of FRN 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking within cultural contexts. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: FRN 201 with 2.0 or better, placement test or instructor permission; FRN 201 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission Co-Requisites: None
Recommended Prerequisites: Students will be required to read, write, listen, and speak in French. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

GEO Geography

GEO 101, Introduction to Geography
Division: Social Science
This course emphasizes both the physical and the cultural aspects of geography. Physical factors such as weather and climate, soil, vegetation and landforms are considered as they determine the natural resources of a region. Various aspects of human culture such as religion, language and economic systems are studied to gain an understanding of the ways in which people have used and misused their resources. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: MTH 08, students scoring below ENG 111 on the placement test should plan on additional study time.

GEO 105, Physical Geography Division: Social Science
Physical geography studies selected elements of the physical environment: weather and climate, landforms, soil and vegetation. Particular emphasis is placed upon the nature and distribution of physical features throughout Michigan with respect to humankind. The lab includes field trips and emphasizes the application of physical principles through hands-on study of minerals, rocks, and soils; in conjunction with map and aerial photo interpretation. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: GEO 105L Recommended Prerequisites: MTH 23, students scoring below ENG 111 on the placement test should plan on additional study time.

GEO 105L, Physical Geography Lab
Division: Social Science
The lab emphasizes the application of selected physical elements through means of field work, map and aerial photo interpretation. Group 1 lab course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: GEO 105 Recommended Prerequisites: None

GEO 108, Geography of U S & Canada
Division: Social Science
The diverse regions of Anglo-America will be investigated in this course. We will consider the relationship between the natural environment, the cultural background, economic conditions, and local problems of the U.S. and Canada. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Students scoring below ENG 111 on the placement test should plan on additional study time.

GEO 109, World Regional Geography
Division: Social Science
This course is a study of world regions. For each region we will consider the relationship between the natural environment, cultural background, economic conditions, and local problems that relate to world issues. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

GEO 115, Introduction to GIS Division: Social Science
This course explores the fundamentals of Geographic Information Systems (GIS) for map reading, interpretation and analysis, in conjunction with the principles of cartography. Computer and Internet technologies are utilized for the generation, manipulation, storage and retrieval of maps and associated geographic attributes. Topics covered include: basic GIS concepts, display of data and attributes, queries, metadata, tabular relationships, data editing, projections and datums, and basic cartography. Group 1 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: MTH 23 Co-Requisites: None Recommended Prerequisites: Intermediate computer skills (Windows) and Internet experience required.

GRM World Language - German

GRM 101, Elementary German I
Division: Communications
This course represents a comprehensive introduction to the German language for the true beginner. Students will develop the ability to communicate in German in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

GRM 102, Elementary German II
Division: Communications
GRM 102 is a continuation of GRM 101 and focuses on the expansion of the communication skills of reading, writing, listening, and speaking. Cultural topics are integrated into each unit. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: GRM 101 with a minimum grade of 2.0, required score on the NMC language placement test or instructor permission Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen and speak in German. You will need a minimal ability using technology to take advanage of outside-of-class requirements.

GRM 201, Intermediate German I
Division: Communications
GRM 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of German culture is presented in this course allowing students to transform themselves into truly active and proficient language users. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: GRM 102 with a minimum grade of 2.0, required score on the NMC language placement test or instructor permission Co-Requisites: None Recommended Prerequisites: You will be required to read, write, listen, and speak in German. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

GRM 202, Intermediate German II
Division: Communications
GRM 202 is a continuation of GRM 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking with cultural contexts. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: GRM 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission. Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen, and speak in German. You will need a minimal ability using technology to take advantage of out-side-of-class requirements.

HAH Allied Health

The following courses are appropriate for students in pre-professional medical studies in many health careers, and for those health professionals who wish professional continuing education course work. The content of these courses provides a broad background and can be a useful tool in the medical field. Students who wish credits from these courses transferred to other college or university health programs should consult with a NMC counselor to facilitate the process. Admission to a NMC Health Occupations program is not required to enroll in most of these elective courses.

HAH 100C, Informatics Essentials
Division: Health Occupations
This course will introduce students to informatics in health care and, in particular, nursing. Students will enhance their ability to use modern informatics such as computer and Internet resources as well as Electronic Medical Record (EMR) software, in the health care environment. This course will be offered in a hybrid online and face-to-face format. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: Admission to ADN, PN, or LPN Completion nursing programs Co-Requisites: None Recommended Prerequisites: HNR 102, may be taken concurrently.

HAH 101, Medical Terminology
Division: Health Occupations
The student will learn the basic construction of medical words through the use of medical prefixes, suffixes, combining vowels and root words. This foundation will facilitate the understanding of new medical vocabulary encountered in other course work or work situations. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

HAH 120, Infection Control Division: Health Occupations
This course details the structure of infectious organisms and mechanisms of disease transmission, including host defenses against disease and specific diseases of concern to dental and medical personnel. In addition, the course provides an overview of MIOSHA (Michigan Occupational Safety and Health Act) regulations and occupational safety measures as they relate to the dental and medical fields. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

HAH 200, Emergency Assess.& Intervention
Division: Health Occupations
A comprehensive study of the concepts and practices of first aid techniques. The course provides training for emergency care through assessment, critical thinking, implementation, documentation, and evaluation. It also addresses situations when injury or sudden illness becomes a threat to life, or problems develop that endanger physical or psychological well-being. Certification for CPR for the Professional Rescuer, HAZMAT, and Medical First Responder may be earned in cooperation with state and/or national agencies. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

HDA Dental Assistant

HDA 101, Introduction to Dentistry
Division: Health Occupations
Students are introduced to the role of the dental assistant and the dental team and opportunities for employment. Students will be informed of the requirements for certification and registration and the various organizations and associations within dentistry and dental assisting. Other areas studied will include dental specialties, dental terminology, applied psychology in the dental office, office preparedness to manage medical and dental emergencies, instrument and equipment identification and charting. The student will have an opportunity to view a dental office to see the set up and to observe the roles of each person on the dental team. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

HDA 112, Dental Materials Division: Health Occupations
Students learn the preparation, manipulation, and use of dental materials commonly found in the dental office. There will be discussion regarding the equipment needed, mixing techniques, and proper usage of waxes, restorative materials, impression materials, gypsum products, cements, metals and therapeutic materials. Preparation of each material will be demonstrated. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: HDA 113
Recommended Prerequisites: HAH 120, HDA 120

HDA 113, Dental Materials Lab
Division: Health Occupations
This course familiarizes the student with the handling of dental materials commonly used in the dental office. Opportunities are provided in the laboratory to develop skills in mixing techniques, impression taking, construction of study models, bleach and acrylic trays, and cleaning and polishing appliances. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: HDA 112
Recommended Prerequisites: None

HDA 120, Dental Anatomy Division: Health Occupations
The student will learn the anatomy and physiology of the oral cavity, teeth and head. Students will learn the histology of the teeth and surrounding structures, the bones of the skull, the nerves and blood supply of the head and neck, the muscles of mastication, and the names and functions of the teeth and oral structures. This class will also provide detailed information on the anatomy of the individual teeth. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

HDA 140, Oral Pathology/Pharmacology
Division: Health Occupations
The purpose of this course is to familiarize the student with disease processes related to the oral cavity and to enable the student to identify these diseases. The student will become familiar with various drugs and their uses in dentistry, prescription writing and documentation, the sources of drugs, routes of administration, and the conditions that modify the reactions of drugs. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: HDA 120

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HDA 150, Dental Office Management
Division: Health Occupations
Students are acquainted with the procedures necessary for efficient dental office management. Topics include appointment book control, accounts receivable and payable, payroll, dental record keeping, third party payment, patient recall, inventory control, telephone techniques, and use of computer hardware and software unique to the dental office. This course is offered in a self-paced format. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

HDA 160, Dental Emergencies
Division: Health Occupations
This course acquaints the student with the types of emergencies that may arise in the dental office. The students will learn the procedures to follow when medical and dental emergencies occur, the importance and significance of obtaining accurate and complete patient histories, the proper emergency equipment necessary in a dental office to manage these emergencies and the maintenance of that equipment, and the taking and recording of vital signs. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

HDA 170, Preventive Dentistry
Division: Health Occupations
This course deals with educating dental patients in proper oral hygiene and nutrition. The topics of discussion will include vitamins, minerals, fats, carbohydrates, proteins, food groups, fluoride treatments, oral examinations, pit and fissure sealants, public health dentistry, and oral hygiene instructions. Student demonstration and participation is emphasized. A dietary analysis will be learned and demonstrated by students. Two community presentations will be designed and presented by each student. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

HDA 240, Chairside Procedures
Division: Health Occupations
This course provides the foundation for dental assistant clinical procedures performed in both general and specialty dental offices. Topics include theory and application of four-handed dentistry; application of infection control procedures; an overview of procedures and techniques unique to dental specialties; and background information and technical skills performed by the Registered Dental Assistant. In addition, local dental specialists serve as guest speakers. Group 2 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: HDA 241
Recommended Prerequisites: HAH 120, HDA 101, HDA 120, HDA 160, HDA 242, HDA 243

HDA 241, Chairside Procedures Lab
Division: Health Occupations
This is the clinical component of Chairside Procedures. Students learn and practice operative and specialty chairside techniques in a fully-equipped dental clinic. Students assist our staff dentist during simulated dental procedures. Expanded duties for dental assistants are also introduced in this course. Group 2 course.
Credit Hours: 2 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: HDA 240
Recommended Prerequisites: None

HDA 242, Dental Radiography
Division: Health Occupations
The fundamentals of radiology as applied to dentistry will be presented. Special consideration will be given to radiation physics, hazards, biological effects, protection and quality control methods. Basic interpretation and radiographic anatomy will also be included. While extraoral techniques are discussed, emphasis will be given to the proper techniques for exposing, processing, and mounting traditional and digital intraoral radiographs of diagnostic quality. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: HDA 243
Recommended Prerequisites: HAH 120, HDA 120, HDA 160, all may be taken concurrently.

HDA 243, Dental Radiography Lab
Division: Health Occupations
Clinical component of Dental Radiography lecture. Students will be introduced to a variety of radiography techniques and will learn how to expose, process and mount radiographs of diagnostic quality. Requirements include multiple sets on dental manikins and four FMX sets on dental patients utilizing digital and traditional techniques. Group 2 course.
Credit Hours: 1.5 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: HDA 242
Recommended Prerequisites: None

HDA 282, CDA/RDA Written Exam Prep
Division: Health Occupations
The purpose of this course is to prepare students and working dental assistants for the CDA and RDA written exams. Included are review sessions covering General Chairside, Infection Control, and Radiography for both exams and additional specific topics that relate directly to Michigan's expanded functions for dental assistants. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: HAH 120, HDA 101, HDA 112, HDA 113, HDA 120, HDA 140, HDA 150, HDA 160, HDA 242, HDA 243

HDA 286, RDA Clinical Exam Prep
Division: Health Occupations
This course will provide dental assistant students with study/application sessions for the clinical portion of the state licensure exam. Expanded functions of special interest are dental amalgams, temporary crowns, and dental dams. Must be a current dental assisting student or graduate of a post-secondary dental assisting program approved by the State Board of Dentistry. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: HDA 282 Co-Requisites: None
Recommended Prerequisites: None

HDA 290, Dental Assistant Internship
Division: Health Occupations
Students are assigned to dental offices in the community. 300 hours of hands-on experience includes chairside assisting in general offices, office management, laboratory techniques and expanded functions. A minimum of 200 hours must be completed in a general practice and the additional 100 hours can be in a specialty practice. Each student must also observe for four hours in each of the following: endodontics, oral surgery, orthodontics and periodontics. This course includes 6 hours of internship meetings with the instructor and classmates. During the internship experience, students must show progression from "O" (observed) to "W" (with assistance) to "A" (assisted alone) on their journal entries. Group 2 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: HDA 240, HDA 241
Co-Requisites: HDA 286 Recommended Prerequisites: None

HNR Nursing

HNR 101, Fundamentals of Nursing-Lectur
Division: Health Occupations
The students learn the foundation for professional nursing practice. Emphasis is placed on the principles and skills needed to apply the clinical judgment required for safe patient-centered care. Communication is emphasized as an essential aspect of the professional role. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: Admission to the nursing program; BIO 228 with a grade of 2.5 or better, may be taken concurrently Co-Requisites: HNR 102, HNR 106
Recommended Prerequisites: None

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HNR 102, Fund of Nursing-Clinical
Division: Health Occupations
Through laboratory and/or clinical experience students learn about the professional identity of the nurse while acquiring and applying basic nursing knowledge, judgment, and skills in order to provide safe patient-centered care. Group 2 course.
Credit Hours: 4 **Contact Hours:** 12
Required Prerequisites: Admission to the nursing program; BIO 228 with a grade of 2.5 or higher, may be taken concurrently Co-Requisites: HAH 100C, HNR 101, HNR 106, HPD 110 Recommended Prerequisites: None

HNR 106, Pharmacology I Division: Health Occupations
Students learn an overview of pharmacology with emphasis on clinical applications within the context of the nursing process. The course explores pharmacological principles, including indications, modes of action, side effects, contraindications and medical calculations for the safe administration of medications. Specific nursing judgment and collaborative responsibilities for drug administration are emphasized. Legal statutes and standards regulating drug administration within the scope of nursing professional identity are presented. Individualized patient variables across the lifespan will also be a focus of study. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: Admission to the nursing program, BIO 228 with grade of 2.5 or better, may be taken concurrently Co-Requisites: HNR 101, HNR 102
Recommended Prerequisites: None

HNR 107, Pharmacology II Division: Health Occupations
Students learn an overview of pharmacology with emphasis on clinical applications within the context of the nursing process. The course is organized by medication classification. It explores indications, modes of action, side effects, contraindications and interactions for the safe administration of select drugs. Specific individualized patient care, nursing judgment, and collaborative responsibilities to drug administration are emphasized. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: HAH 100C, HNR 101 & HNR 106 with a grade of 2.5 or above; HNR 102 with an S
Co-Requisites: HNR 125, HNR 126
Recommended Prerequisites: None

HNR 125, Lifespan Nursing Lecture
Division: Health Occupations
Presentation of nursing management of health care issues related to uncomplicated pregnancy, birth, and neonatal period. Introduction of nursing management of common health alterations found in both chronically and acutely ill clients across the lifespan. Emphasis will be made on utilizing evidence-based practice to identify appropriate nursing interventions to achieve the desired outcome for the client based on their developmental level across the lifespan. Group 2 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: BIO 228, HAH 100C, HNR 101, & HNR 106 with a grade of 2.5 or higher; HNR 102 with an S
Co-Requisites: HNR 107, HNR 126
Recommended Prerequisites: None

HNR 126, Lifespan Nursing-Clinical
Division: Health Occupations
Clinical experiences providing opportunities to apply principles studied in HNR 125. Clinical learning environments will include the opportunity to apply medical-surgical, pediatric, and obstetric nursing interventions in a variety of settings, including acute care and simulation experiences. Group 2 course.
Credit Hours: 5 **Contact Hours:** 15
Required Prerequisites: BIO 228, HAH 100C, HNR 101, & HNR 106 with grades of 2.5 or higher; HNR 102 with S
Co-Requisites: HNR 107, HNR 125
Recommended Prerequisites: None

HNR 145, Practical Nursing Roles & Issu
Division: Health Occupations
Reviews ethical/legal responsibilities of the LPN. Presents issues and trends related to LPN practice, nursing organizations, continuing education; and licensure. Discusses occupational opportunities and provides information on employment search, job-seeking skills and transition issues. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: HNR 125 & HNR 126 with a grade of 2.5 or higher, may be taken concurrently Co-Requisites: None Recommended Prerequisites: None

HNR 221, Complex Patient Mgmt IA Lec Division: Health Occupations Presentation of nursing interventions and management concepts required for adult patients with complex medical and/or surgical disorders. Emphasizes advanced assessment, analysis, nursing judgment, and nursing accountability. The focus is on adult patients with multiple complex requirements. Geriatric considerations are presented and integrated throughout. Group 2 course.
Credit Hours: 1.5 Contact Hours: 1.5
Required Prerequisites: HNR 251 with 2.5 or higher, HNR 252 with an S *Co-Requisites*: HNR 241, HNR 242
Recommended Prerequisites: None

HNR 222, Complex Patient Mgmt IB Lec Division: Health Occupations A continuation of presentation of nursing interventions and management concepts required for adult patients with complex medical and/or surgical disorders. Emphasizes advanced assessment, analysis, nursing judgment, and nursing accountability. The focus is on adult patients with multiple complex requirements. Geriatric considerations are presented and integrated throughout. Group 2 course.
Credit Hours: 1.5 Contact Hours: 1.5
Required Prerequisites: HNR 221 and HNR 241 with a grade of 2.5 or higher; HNR 242 with an S *Co-Requisites*: HNR 248, HNR 261
Recommended Prerequisites: None

HNR 241, Adv Maternal Child Nursing-Lec
Division: Health Occupations
This course provides information on complex problems facing families coping with complications during the childbearing/childrearing process, including an identification of at-risk families. These concepts will be applied to review of complications occurring during childhood and the prenatal, intrapartum and postpartum periods. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: HNR 251 & HNR 252 with a grade of 2.5 or higher Co-Requisites: HNR 221, HNR 242
Recommended Prerequisites: None

HNR 242, Adv Maternal Child Nursing-Cli
Division: Health Occupations
This course provides for the clinical application of the principles presented in the co requisite: HNR 241. Maternity clinical time will occur in an inpatient unit and pediatric clinical time will be in an acute or community pediatric setting observing and caring for pediatric patients. Students will complete a detailed family assessment, be involved in clinical simulations, and participate in these experiences by observing and/or directly providing care to at-risk families coping with childbearing and/or childrearing stressors/issues. Group 2 course.
Credit Hours: 2 **Contact Hours:** 6
Required Prerequisites: HNR 251 & HNR 252, with a grade of 2.5 or higher Co-Requisites: HNR 221, HNR 241
Recommended Prerequisites: None

HNR 248, Complex Patient Mgt I-Clinical
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 247. Emphasis is upon refinement of organization, decision-making, critical thinking, and priority-setting skills in the care of multiple clients with complex medical/surgical disorders. Group 2 course.
Credit Hours: 4 **Contact Hours:** 12
Required Prerequisites: HNR 221 & HNR 241 with a grade of 2.5 or higher; HNR 242 with an S
CoRequisites: HNR 222, HNR 261
Recommended Prerequisites: None

HNR 251, Mental Health Nursing - Lec
Division: Health Occupations
This course is designed to enable the student to better understand behavior exhibited by persons with mental disorders. Classifications, causes, and symptoms of mental diseases are presented and treatments such as individual, group, and activity therapies are explored. Emphasis is placed on the ways by which the nurse determines, develops, implements, and evaluates a therapeutic environment for the client. The implementing of theories of human behavior is the scientific aspect of mental health-psychiatric nursing; the purposeful use of the self in the performance of care is the artful aspect. The goal is preventative and corrective impact upon mental illness and the restoration of optimal mental health for individuals. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: HNR 107 & HNR 125 with a grade of 2.5 or higher; HNR 126 with a grade of S CoRequisites: HNR 252
Recommended Prerequisites: None

HNR 252, Mental Health Nursing-Clinical
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 251. A variety of clinical settings addressing mental health issues in acute care, long-term care, and in community agencies are utilized. Emphasis is placed upon the exercise of critical thinking in addressing mental health issues and concerns. Additionally, students identify and analyze community resources of use to persons with mental health issues. Group 2 course.
Credit Hours: 1 **Contact Hours:** 3
Required Prerequisites: HNR 107 & HNR 125 with a grade of 2.5 or higher; HNR 126 with a grade of S Co-Requisites: HNR 251
Recommended Prerequisites: None

HNR 261, Complex Patient Mgmt II-Lec
Division: Health Occupations
Introduces principles of leadership and management as these relate to providing nursing care to a group of patients. The principles of delegation, communication, and priority-setting are reviewed and a variety of nursing management challenges are discussed, including team building, managing change, conflict resolution, power and authority, political action, economic aspects of health care, legal/ethical issues, and emergency preparedness. Job-seeking skills, NCLEX-RN preparation, and issues related to role transition are discussed. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: HNR 221 and HNR 241 with a grade of 2.5 or higher; HNR 242 with a grade of S Co-Requisites: HNR 222, HNR 248, HNR 262
Recommended Prerequisites: None

HNR 262, Complex Patient Mgmt II Clinic
Division: Health Occupations
Clinical experience providing opportunities to apply principles presented in HNR 261. Emphasis is placed upon organizational skills, time management, critical thinking, and the exercise of clinical judgment in managing the care for a normal RN caseload of patients. Students perform nursing care in the clinical area 24 hours per week for eight weeks with the goal of promoting a successful role transition from student to entry-level professional nurse. Group 2 course.
Credit Hours: 4 **Contact Hours:** 12
Required Prerequisites: HNR 222 with a grade of 2.5 or higher; HNR 248 with S Co-Requisites: HNR 261
Recommended Prerequisites: None

HPD Professional Development

HPD 110, BLS for Health Care Providers
Division: Health Occupations
Provides basic life support training, certification, and re-certification for students in the healthcare field who will need these skills in clinical practice. Students will take an online class through the American Heart Association (AHA), complete the post test, and print the certificate. Once the post test is successfully completed, students will sign up for a lab time to complete a practical exam to demonstrate the skills they learned. The certificate will be required to take the practical exam. Group 2 course.
Credit Hours: 0.2 **Contact Hours:** 0.2
Required Prerequisites: Admission to the ADN or PN programs or the Dental Assisting program, or by instructor permission. Co-Requisites: None
Recommended Prerequisites: None

HST History

HST 101, Western Civilization to 1500AD
Division: Humanities
This is the first course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the birth of civilization through the Renaissance. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 102, Western Civilization from 1500
Division: Humanities
This is the second course in a year-long study of western civilizations from the birth of civilization through the First World War. The main instructional goal is to have students demonstrate an understanding of the diverse societies and culture of the western world. It's important that students recognize that western civilization includes many diverse cultures and has interacted with many other diverse cultures throughout its development. In addition, students will analyze the distinctive characteristics of western civilizations, identify the achievements and limitations of western civilizations, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. This course covers the period from the Reformation through the First World War. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 111, U S History to 1865 Division: Humanities
This is the first course in a year-long study of U.S. History from Native American origins to the modern world. A main instructional goal is to have students demonstrate an understanding of how diverse societies and cultures have contributed to the development of the United States. In addition, students will analyze the distinctive characteristics of the development of the United States, identify the achievements and limitations of these developments, and develop an awareness of how contemporary problems were caused by past forces. Students will learn how American society developed from Native American origins through the Civil War, and how society has impacted both individuals and groups in America. As students achieve this goal, they will develop skills in communications and critical thinking. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 112, U S History Since 1865 Division: Humanities
This is the second course in a year-long study of U.S. History from Native American origins to the modern era. A main instructional goal is to have students demonstrate an understanding of how diverse societies and cultures have contributed to the development of the United States. In addition, students will analyze the distinctive characteristics of the development of the US, identify the achievements and limitations of these developments, and develop an awareness of how contemporary problems were caused by past forces. As students achieve these goals, they will develop skills in communication and critical thinking. Students will learn how American society developed from Reconstruction to the modern era, and how society has impacted both individuals and groups in America. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 211, Native American History Division: Humanities
A history of the Native American experience from the pre-Columbian period to the post World War II era. Major emphasis is placed upon the social, political, and economic role of the Native American community in American society and its unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. Students will develop skills in analysis, critical thinking, historical reasoning and writing. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 212, African-American History Division: Humanities
This course is a history of the African-American experience from African origins to the Modern era in America. Major emphasis is placed upon the social, political, and economic role of the African-American community in American society and its unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 213, American Women's History
Division: Humanities
A history of American women's experience from Native American origins to the Modern Era. Major emphasis is placed upon the social, political, and economic role American women in American society and their unique role as a part of that society. Students will also demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skill in analysis, critical thinking, historical reasoning, and writing. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 225, American Civil War Division: Humanities
This course is a study of the American Civil War. The instructional goal of this course is to have students demonstrate through discussions and essays the causes of the Civil War in antebellum America, how the war was waged, why the North won and the South lost the war, how the war affected American society, and how the war led to Reconstruction. Students will demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal they will develop skills in communications and critical thinking. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 228, The Vietnam War Division: Humanities
This course is a study of the history of the Vietnam War. The instructional goal of this course is to have students demonstrate through discussions and essays how America became involved in Vietnam, how the war was waged, the war's effect on American society, and how the war affected Vietnam. Students will also demonstrate an awareness of how Vietnamese culture affected the war and how Vietnam has affected America's contemporary society. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 230, A History of Michigan Division: Humanities
This course is a history of Michigan from Native American origins to the modern era. The instructional goal of this course is to have students demonstrate through discussion and essays the distinctive characteristics of Michigan history, the common characteristics of Michigan history as compared to other states, the identification of achievements and limitations of Native American societies within Michigan, and an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HST 235, 20th Century Europe Division: Humanities
This course is a study of the history of Europe in the 20th Century with emphasis on Germany, England, France, and Russia. The instructional goal of this course is to have students demonstrate through discussions and essays the distinctive characteristics of European civilizations, the common characteristics of European civilizations, and the identification of achievements and limitations of European civilizations. Students will demonstrate an awareness of how contemporary problems were caused by past forces. As students achieve this goal, they will develop skills in analysis, critical thinking, historical reasoning, and writing. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HUM Humanities

HUM 101, Introduction to Humanities
Division: Humanities
An interdisciplinary study of Western Culture focusing on the interrelationships of art, literature, and philosophy as they reveal the major ideas and values of Classical Greek, Roman, Medieval, and Renaissance civilizations. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HUM 102, Introduction to Humanities
Division: Humanities
An interdisciplinary study of Western Civilization focusing on the interrelationships of art, literature, and philosophy as they reveal the major ideas and values of the Reformation, Baroque, Neo-Classic, Romantic, 19th Century, and Modern periods. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HUM 116, World Cultures Division: Humanities
The purpose of this course is to introduce major trends of non-Western culture. HUM 116 explores the culture of Asia, Africa, and the Americas utilizing an interdisciplinary and thematic approach focusing on social/political/historical issues, cultural and religious rituals, painting, sculpture, architecture, film, music, and customs and traditions of each region. Lectures focus on how cultures shape the world today, with appropriate references to historical events and trends. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

HVA Heating, Ventilation, Air Conditioning

HVA 101, Introduction to HVAC/R
Division: Construction Technology
This course covers safety concerns associated with the HVAC field, identification and use of trade tools and basic blueprint reading. Students are introduced to different types of pipe and tubing used for equipment and will learn threading and soldering techniques. A strong emphasis is placed on electrical theory and application as well as learning how to read electrical diagrams. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111 and MTH 111, both may be taken concurrently.

HVA 106, Fundamentals of Heating
Division: Construction Technology
This course focuses on the variety of heating systems in the HVAC career field. Students are introduced to the principles of combustion and the importance of combustion analysis. Gas furnaces, heating controls, oil fired equipment, humidification and electric heating systems are also explored. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: HVA 101 Co-Requisites: None
Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 122, Refrigeration Fundamentals
Division: Construction Technology
This course introduces students to the relationship between matter and energy as it relates to refrigeration process and discusses the Laws of Thermodynamics and effects of pressures and vacuums on a system. A thorough coverage of the basic refrigeration cycle is discussed along with types of refrigerants and system components they will encounter. Students will also learn basic servicing and testing techniques on refrigeration systems. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: HVA 101 Co-Requisites: None
Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 126, Residential and Commercial A/C
Division: Construction Technology
This course focuses on different types of air conditioning systems, ventilation and de-humidification equipment used in residential and light commercial applications. Students will learn about air source and geothermal heat pumps, mechanical and electrical troubleshooting techniques for air conditioning systems and explore indoor air quality and planned maintenance issues for all types of equipment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: HVA 122 Co-Requisites: None
Recommended Prerequisites: Placement in ENG 111 and MTH 111.

HVA 132, Commercial A/C & Refrigeration
Division: Construction Technology
This course focuses on larger commercial systems encountered in the HVAC field for air conditioning and refrigeration applications. Emphasis is placed on chilled water and hydronic heating systems, boilers, air handling equipment and cooling towers. Students will also learn about larger scale refrigeration systems used in supermarket and cold storage applications, ice machine operation and discussion of control systems used throughout the field. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: HVA 126 Co-Requisites: None
Recommended Prerequisites: Placement into MTH 111 and ENG 111.

HVA 136, EPA Certification
Division: Construction Technology This course examines the impact of refrigerants on the environment and focuses on federal regulations regarding the use, recovery and disposal methods. Students are given the opportunity to earn their Type I, Type II or Universal Certification through this course. Upon successful completion of each test, the student will earn levels of certification recognized by the HVAC/R industry nationwide. Group 2 course.
Credit Hours: 3 Contact Hours: 3
Required Prerequisites: HVA 126 may be taken concurrently
Co-Requisites: None *Recommended Prerequisites*: Placement in ENG 111 and MTH 111

LWE Law Enforcement

Students must meet with Police Academy Director prior to enrolling in all LWE courses.

LWE 102, Police Operations Division: Social Science
The student is introduced to educational and training requirements for employment in law enforcement, police community relations, the functions and objectives of a police department and the police response and responsibilities to the community. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 195, Police Practicum Division: Social Science
The course will provide Law Enforcement students with the practical experience of observing five various shifts with officers. This should insure that candidates will understand what law enforcement officers actually do. Recording the experiences will also assist the student in report writing. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

LWE 210, Cultural Awareness/Diversity
Division: Social Science
Students explore ethics, cultural diversity, interpersonal skills and the laws as they apply to today's modern policing. Title VII or the 1964 Civil Rights Act, Elliot Larson Civil Rights Act, Americans with Disabilities Act, ethnic intimidation, and sexual harassment will also be addressed. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 212, Criminal Investigation Division: Social Science
Students will be introduced to criminal investigation procedures including theory of an investigation, conduct at crime scenes, collection and preservation of physical evidence, methods used in police science laboratory, fingerprints, ballistics, documents, serology, photography, and related forensic sciences. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 214, Firearms Division: Social Science
This course will assist the students in the development of safety skills and the appropriate use of firearms in completing the Michigan Commission on Law Enforcement Standards basic firearms course. Included will be an orientation to firearms, policies, procedures, and liability of firearms use and hands-on firearms range techniques. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 215, Defensive Driving Division: Social Science
Defensive Driving will cover motor vehicle law, its application and jurisdiction and vehicle stops. This course will also include the teaching of driving skills needed by a law officer. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 6
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 216, Traffic Enforcement & Invest
Division: Social Science
Traffic Enforcement and Investigation will include traffic control enforcement, the law and prosecution of operating under the influence of alcohol. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 218, Physical Training/Wellness
Division: Social Science
This course is designed to give the students a complete understanding of wellness/physical fitness. The goal of the class is to develop a mentality that fitness is long term. Includes course lectures on the following topics: Fitness and wellness, benefits and guidelines for exercise, coronary risk factors, stress management, nutrition, weight control, low back care, motivation and behavior change, and various ways to perform fitness tasks. This class also includes workouts, and testing students against Cooper Standards. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 225, Defensive Tactics Division: Social Science
Students learn subject control with new mandatory guidelines from MCOLES (Michigan Commission on Law Enforcement Standards). Students will understand survival mindset, tactical communication, fear/anger management, and post force incident responsibilities. Student will demonstrate proficiencies in 14 defensive tactics outcomes specific to the career of Law Enforcement and will be assessed through written, Practical and Scenario based testing. Student must be registered with LWE coordinator prior to class enrollment and be in excellent physical condition. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 226, Michigan Criminal Law Division: Social Science
The study of substantive criminal law as a means of defining and preserving social order. Sources of criminal law; classification of crimes against persons, property and public welfare; principles of criminal liability; elements necessary to establish crime and criminal intent; specific crimes and defenses; and constitutional limitations are examined. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

LWE 227, Criminal Procedures Division: Social Science
Criminal Procedures will study the administration of criminal justice, the nature and scope of police power, the concept of exclusion, laws of arrest, search and seizure and interrogation, the acquisition of evidence, and judicial protection of the accused. Student must be registered with LWE coordinator prior to class enrollment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: LWE 226

LWE 228, Speed Measurement/PBT
Division: Social Science
This course will teach the legal and practical aspects of radar and PBT (preliminary breath tester) operations. Class discussions will primarily be based on relationship between excessive speed, drinking and highway crashes. The course will also explore departmental policies and procedures concerning radar and PBT use. Students will understand and demonstrate basic accident investigation and related accident evidence collection. Student must be registered with the LWE coordinator prior to course enrollment. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Must be approved by MCOLES and registered with the Director of the Police Academy prior to enrollment. Co-Requisites: None
Recommended Prerequisites: None

MDK Maritime Deck

MDK 100, Survival at Sea Division: Maritime
This course of instruction covers the following: concentrated instruction and training for the U.S. Coast Guard certification as Proficiency in Survival Craft and Rescue boats (PSC); including the fundamentals of seamanship, small boat handling with power and sail; construction equipment, and marking of the standard lifeboat; construction, equipment, and operation of inflatable life rafts; abandon ship procedures, man overboard procedures, and survival swimming; the launching and retrieval of lifeboats; sailboat nomenclature and operation. STCW.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None
Recommended Prerequisites: None

MDK 104, Rigging & Ship Maintenance Lab
Division: Maritime
The purpose of this course is to provide the cadet an opportunity to acquire practical experience in general seamanship: including marlinespike seamanship, line handling; splicing line, splicing wire rope; rigging, block and tackle nomenclature and use; vessel maintenance, the practical application of the procedures and equipment needed in vessel upkeep.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 106, Watchstanding I Division: Maritime
The purpose of this course is to provide an opportunity for the cadet to acquire practical experience in shiphandling with vessels sufficiently large to duplicate shiphandling problems encountered with much larger vessels. Cadets are exercised in line handling, towing, anchoring techniques, landing techniques, and shipboard safety. Cadets will then advance through the use of simulation to shiphandling exercises dealing with the general principles of vessel control and the problems of handling a vessel in narrow channels. STCW.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 112, Rules of the Nautical Road Division: Maritime
Comprehensive study of the International Rules of the Road (COLREGS) including their origin, purpose, history, technical provisions, and application. Included is a comparative study of both international and inland rules, their interpretation and practical application as well as a study of case histories and legal interpretations resulting from collisions at sea. STCW .
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 121, Navigation I Division: Maritime
An introduction to the principles of piloting and marine navigation. Includes chart projection, the magnetic compass, chart usage, buoyage systems, aids to navigation, fixes and running fixes, and the use of standard tables. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MDK 122 Recommended Prerequisites: None

MDK 122, Navigation I Lab Division: Maritime
This lab is taken concurrently with MDK 121 and concentrates on applying the principles of piloting to plotting on the chart. Chart projection and use will be introduced. Dead reckoning, terrestrial fixes, set and drift, lines of position, and the use of navigational instruments will be covered. STCW.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MDK 121 Recommended Prerequisites: None

MDK 149, Damage Control & Safety Division: Maritime
This course is designed to give the cadet a comprehensive knowledge of shipboard safety with particular emphasis on firefighting and damage control. Subject areas include: personal safety, pollution, U.S. Coast Guard rules and regulations, temporary damage repair, shoring principles and practical shoring problems. STCW.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 200, Ship Business & Labor Relation
Division: Maritime
This course provides instruction in the organization, administrative functions, and management of a merchant vessel as well as the systems of operation of ship's business. It includes the study of union contracts, grievance procedures and labor management relations.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 206, Watchstanding II Division: Maritime
The purpose of this course is to begin to develop a cadet's piloting and watch management skills. The use of the Shiphandling Simulator/Academy Vessels will allow the development of the Bridge Team Concept through piloting exercises.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

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MDK 210, Sea Project Deck Division: Maritime
During this course the cadet is aboard TS State of Michigan or a Great Lakes commercial vessel. The cadet follows a prescribed course and studies: vessel operations, safety and navigation equipment and techniques. In addition the cadet spends a minimum of eight hours per day under the supervision of licensed officers gaining experience in various duties and responsibilities.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: Must complete first academic year with a 2.0 or better in all required courses; All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 221, Lakes Piloting Division: Maritime
Study of the Great Lakes and principal ports; this includes currents, depths, aids to navigation, prevailing winds and their effects, recommended courses, shoals, reefs, and high traffic areas. Historic analysis will explain current practices.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 222, River Piloting Division: Maritime
An in-depth study of the rivers, channels, and the aids to navigation in these rivers and channels. The focus will be on the rivers that make up the Great Lakes connecting bodies such as the St. Mary's, St. Clair, Detroit Rivers and the Welland Canal.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 242, Ship Stability Division: Maritime
A study of the principles of stability; righting moment and righting arm; calculation of metacentric height; inclining experiment; stability computers and tables; practical stability and trim considerations. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 250, Stability for the Engineer Division: Maritime
Principles, terms, and procedures used in the determination of transverse, longitudinal, and damage stability of ships. Investigation of the physical laws affecting a floating body. Effects of cargo operation, free surface, fuel consumption, and flooding on vessel stability. Scrutiny of case studies involving both partial or total loss of stability.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 311, Sea Project Deck Division: Maritime
This course is a continuation of MDK 210 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the U.S. Coast Guard and the criteria established by the Maritime Administration. STCW.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: Completion to second academic year with a 2.0 or better in all required courses; All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 312, Sea Project Deck Division: Maritime
This course is a continuation of MDK 311 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements prescribed by the US Coast Guard and the criteria established by the Maritime Administration. STCW.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 324, Navigation III Division: Maritime
An introduction into nautical astronomy concerning: the practical application of celestial navigation, the solving of the spherical triangle, star identification, measurement of time and the use of the instruments. This course will cover plane, mid-latitude and mercator sailings and how to apply them to navigational problems through the various time zones. Sunrise, sunset, twilight, moonrise and moon-set calculations for a moving vessel will be covered.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111

MDK 330, STCW Elementary First Aid Division: Maritime
This course meets the mandatory minimum requirements specified under STCW as related to medical first aid and basic safety training for all merchant mariners. This course is part of the STCW certification process. Cadets will learn to take immediate action upon encountering an accident or other medical emergency. STCW.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 331, Electronic Navigation Division: Maritime
An in depth study of the various electronic navigation systems with emphasis on RADAR. Covers the theory, operation, use, advantages, disadvantages and general maintenance for each system. REQUIRED COURSE that must be completed successfully before the student may receive an original " RADAR Observer Certificate". STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MDK 332 Recommended Prerequisites: ENG 111, MTH 111

MDK 332, Electronic Navigation Lab Division: Maritime
A practical course to understand the use and operation of a marine radar. This includes: How to avoid collision situations using Rapid Radar Plotting (situational awareness), the use and operation of the gyrocompass, Loran "C", GPS and ECDIS. The required course must be successfully completed before the student may receive an original "Radar Observer Certificate".
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MDK 331 Recommended Prerequisites: ENG 111, MTH 111

MDK 333, Automatic Radar Plotting Aids
Division: Maritime
This course presents the principals and operation of automatic radar plotting aids. It includes the legal aspects of ARPA including IMO and USCG standards, the theory in input and processing characteristic of ARPA, the theory of operation, control functions and adjustments, the acquisition and tracking of contacts, the limitations and potential errors of ARPA and special ARPA related features. STCW.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MDK 331 Recommended Prerequisites: ENG 111, MTH 111

MDK 341, Ship Construction Division: Maritime
A study of hull construction as applied to all types of vessels. Includes construction nomenclature, criteria of design, methods of construction, materials used in construction and stress calculations. STCW.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111

MDK 345, Dry Cargo Stowage Division: Maritime
Principles and problems of the stowage and carriage of cargoes. Bulk cargo, container cargo, refrigerated cargo, grain cargoes and dangerous cargoes. Cargo handling operations both loading and offloading equipment. Cargoes stowage plans will be developed and reviewed. Students will critique loads they were involved with during their time aboard ship. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111

MDK 404, Marine Supervisory Lab Division: Maritime
This course will provide senior cadets with the experience of supervising subordinate cadets. This experience will include job planning, sequencing of tasks, tools and equipment needed, and personnel required to complete the job. The student will experience what it will be like to be responsible for the crew both in terms of safety and output.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 411, Marine Communications Division: Maritime
This course is designed to acquaint the student with communication systems commonly found in the Marine Industry. It includes the basic layout of the Global Maritime Distress and Safety System (GMDSS), communication equipment requirements, licensing requirements, principles and procedures for marine communications, the characteristics of radio wave propagation, frequencies, and modulation. Included also is the Morse Code Flashing Light, and general Distress Signals. STCW.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 122

MDK 431, ECDIS Division: Maritime
The purpose of this course is to meet the training requirements in STCW, as amended, for the operational use of Electronic Chart Display and Information Systems (ECDIS). This course provides the knowledge, skill and understanding of ECDIS emphasizing both the application and learning of ECDIS in a variety of underway contexts. This is achieved through use of a sophisticated navigation simulation integrated with a type-approved ECDIS.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111; MTH 111 or higher

MDK 444, Cargo Systems Division: Maritime
An in-depth study of the Great Lakes self-unloading vessel, container vessels, tankers, passenger vessels, regulations concerning hazardous materials, government regulations and the relationship between vessel and shoreside operations.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MDK 445, Liquid Cargo Stowage Division: Maritime
A study of the tanker industry and the operational aspects of the tank vessel, pollution, prevention, precautions and procedures; layouts of different types of tankers; operations sequence and oil tanker construction and terminology. USCG and OPA '90 regulations will be covered. STCW.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111

MDK 446, Bridge Team Management Division: Maritime
Bridge team management will be taught using small group discussions and case studies. Areas that will be addressed will be route planning, watch management, pilotage of specific routes and ship handling from a 3rd mates perspective. The three hour class will start with a 30 minute group discussion of the class objective, then exercises followed by a critique of the exercises. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111

MDK 448, Pilot/Mate License Prep Division: Maritime
A complete review of all professional subjects studied in the Maritime program pragmatically developed to reflect the essentials of the U.S. Coast Guard examinations. The final grade for this course is dependent on taking the U.S. Coast Guard exam. Cadets must complete all MDK courses with a 2.0 or better. (This class is for GLMA cadets only).
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111, MTH 111

MDK 454, GMDSS Division: Maritime
The purpose of this course is to meet the training requirements in STCW code, as amended, for the General Operator's Certificate for the Global Maritime Distress and Safety System (GMDSS). A student successfully completing this course and passing the prescribed examination will be licensed and enabled to efficiently operate a ship station's GMDSS equipment, and to have primary responsibility for radio communications during Distress incidents.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: ENG 111 and MTH 111; elementary computer skills

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MFG Manufacturing Technology

MFG 104, Fluid Power Division: Technical
The Fluid Power course is designed to provide students with a basic understanding of the concepts and applications of fluid power technology and the necessary skills for further study in the field. The course is an overview of fluid power technology applications; the general concept of fluid power systems; an introduction to energy input, energy output, energy control, and systems auxiliary components; as well as the design and function of components. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into MTH 111 and ENG 99/108 recommended for entry.

MFG 111, Math for Manufacturing Division: Technical
This course will apply principles of mathematics, geometry, and basic trigonometry to applications in manufacturing. Topics will include proportions, calculation of machine speed and feed and geometric relationships of triangles and circles. Problem solving will require the use of the Pythagorean Theorem and the sine, cosine, and tangent functions to solve right triangles. The Law of Sines and Law of Cosines will be used to solve oblique triangle applications. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MTH 23 or placement into MTH 111 Co-Requisites: None Recommended Prerequisites: None

MFG 113, Machining I Division: Technical
The student will be introduced to measurement and the safe use of layout and bench tools, drill press operations, and basic lathe facing and turning operations. Basic vertical milling operations will also be included. Group 2 course.
Credit Hours: 3 **Contact Hours:** 5
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and math equal to MTH 23. Students will greatly benefit from having competency up to MTH 111.

MFG 114, Machining II Division: Technical
This course will introduce students to machining procedures beyond the basic operations. The student should have previously acquired basic machining knowledge and skills. Lathe procedures will include threading and cutting tapers. Milling operations will include the offset boring head, and broaching. Precision grinding of parallel and angular surfaces using gauge blocks and a sine bar will be introduced. Students will study the process and perform hands on operations. Group 2 course.
Credit Hours: 3 **Contact Hours:** 5
Required Prerequisites: MFG 113 Co-Requisites: None Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and Math equal to MTH 23. Students will greatly benefit from having competency up to MTH 111.

MFG 203, Manuf./Engineering Processes
Division: Technical
The Manufacturing and Engineering Processes course will provide students with an overview of various processes used in the design and development of new products. Students will be introduced to the engineering steps and processes required to take a product from concept through production. This is a project-based class in which students will design and fabricate a component aligned with their area of interest. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: DD 101, MFG 113
Co-Requisites: None Recommended Prerequisites: ENG 99/108, MTH 23, print reading, precision measurement, basic machining knowledge and skills, and basic algebra and trigonometry competency.

MFG 217, CNC Operations - Lathe Division: Technical
This course will introduce students to CNC (Computer Numerial Control) turning machines or CNC lathes. CNC lathe procedures will include set up from a list of guidelines to properly and safely make a part to blueprint specifications. Students will spend lab time going over machine demonstrations with individual practice and support, supplemented with classroom and online learning going over safety procedures and machine set up operations. Group 2 course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: DD 101, MFG 113
Co-Requisites: None Recommended Prerequisites: ENG 99/108, MTH 23, print reading, precision measurement, basic machining knowledge and skills, and basic algebra and trigonometry competency.

MFG 219, CNC Mill Operations Division: Technical
This course includes the operation of CNC (Computer Numerical Control) mills including calling up programs, loading and unloading parts, part inspection, and monitoring tool wear. This course will provide an introduction to planning and writing programs for CNC mills and using standard G and M codes. Learners will set up work pieces in machines, enter programs, set tool offsets, enter work offsets, and complete part projects. Group 2 course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MFG 113 with a minimum grade of 2.0 or industry experience up to instructor's discretion. Co-Requisites: None Recommended Prerequisites: Print reading, precision measurement, basic machining knowledge and skills, competencies in Communications equal to ENG 99/108 and math equal to MTH 23. Students will greatly benefit from having competency up to MTH 111. Print reading, precision measurement, basic machining knowledge and skills, and basic algebra and trigonometry competency.

MFG 290, Manufacturing Tech Internship
Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or better. Co-Requisites: None Recommended Prerequisites: None

MFG 304, Marine Hydraulics Division: Technical
Marine Hydraulics focuses on the systems, applications, hydraulics, and safety requirements specific to the marine and offshore Remote Operated Vehicle (ROV) environments. The design, repair and maintenance of launch and recovery equipment, hoses, sensors and components associated with ROV hydraulics systems will be emphasized. Students will use test equipment and protocols to develop trouble shooting methods to analyze and integrate this technology. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: MFG 104, MTH 111
Co-Requisites: None Recommended Prerequisites: None

MGT Management

MGT 241, Principles of Management Division: Business
This applications-oriented course will teach students the basics of day-to-day managerial work-planning, organization, leading, and controlling. Realistic scenarios are explored in areas of leadership, communication, planning, conflict, strategy, problem solving, and working in teams. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MGT 246, Entrepreneur Marketing/Finance
Division: Business
This course provides the student with a micro-buisness experience in which team will start, manage, and close an enterprise in 15 weeks. An in-depth focus and experience on marketing and finance issues unique to entrepreneurs will be provided. Topics include niche marketing, guerilla marketing, strategic partnerships, social media, e-marketing to international markets, capital resource acquisition, cash flow, pro-forma planning, strategic ownership models, sales skills and strategy. These topics are put into play by the assignment of a community business mentor. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MGT 245 Co-Requisites: None Recommended Prerequisites: ACC 121, MKT 201

MGT 251, Human Resources Management
Division: Business
Human Resource managers are especially challenged today navigating employment waters that require expertise in employment legislation, recruitment, selection, training and development, compensation, labor relations, safety and health. Theory and practice of these topics are explored with special emphasis on day-to-day applications in the workplace. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MGT 290, Management Internship Division: Business
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Management. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this supervised onthe-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support feedback, review of professional employment documents and an internship exit interview, participate in three seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or better. Co-Requisites: None Recommended Prerequisites: None

MKT Marketing

MKT 201, Principles of Marketing Division: Business
This course surveys the wide scope of marketing as it influences both profit and nonprofit firms with emphasis on the marketing concept as a business philosophy. Ethics, globalization, and technological advances in marketing will be explored. Elements of the marketing mix and the elements of the promotional mix will be studied and incorporated into a marketing plan. Target marketing and segmentation of consumer markets along with consumer buying behavior will be studied in this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 208, Digital Marketing Division: Business
Students will learn how to develop a digital marketing strategy which may include display ads, search marketing, content marketing, email marketing and social media marketing. Developing an awareness of digital marketing strategies leads to an informed, critical internet consumer. Basic email and internet usage skills required. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: ENG 111 minimum placement

MKT 241, Principles of Advertising Division: Business
This course will prepare the learner with an understanding of the real economic, social, and cultural impact of advertising and conversely, the impact of society's values on advertising. The strategic function of advertising within the broader context of business and marketing will be discussed in this course. The creative aspects of advertising will be studied, and students will develop an advertising campaign or related project. The global effect of marketing and advertising on business and national economies will be addressed along with ethical issues related to truth in advertising in today's society. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: BUS 101, ENG 111 minimum placement

MKT 290, Marketing Internship Division: Business
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in Marketing. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students will meet with the Experiential Coordinator as needed throughout the semester for internship support feedback, review of professional employment documents and an internship exit interview. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or better. Co-Requisites: None
Recommended Prerequisites: None

MNG Maritime Engineering

MNG 100, Intro to Marine Engineering Division: Maritime
This course is a general introduction to the shipboard Engine Room. The duties and responsibilities of the engine room personnel will be covered. The course will include an introduction to the engine room propulsion systems (Diesel and Steam), and a study of the operation of the ship's steering gear and deck machinery. This course provides a foundation for the deck and engineering cadet to build upon in his/her program of study.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None
Recommended Prerequisites: None

MNG 104, Engine Systems Graphics Division: Maritime
The course will acquaint the student to the proper use of measuring systems and drafting equipment. The course will introduce the techniques used in the production of multi-view projection, orthographic representation, auxiliary views, section views, and dimensioning. The student will be familiar with the correct (ANSI) symbols used in piping, electrical, and fluid power schematics. The student will be exposed in the use of CAD to produce the listed topics. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 110
Recommended Prerequisites: None

MNG 105, Shipboard Information Systems
Division: Maritime
This course will introduce the student to the PC and its use as typically found aboard a Merchant Vessel. Basic computer setup, maintenance, and system troubleshooting are covered. Operating systems, communications programs, databases, word processors, spreadsheets, internet research, and CBT programs are discussed and demonstrated. The future of computers in the marine industry is explored. Special emphasis is given to group communications, group dynamics and problem solving and recognition, by developing process.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 110, Engineering Mechanics Division: Maritime
Survey of the construction, operation, and maintenance of shipboard systems. The major emphasis will be on piping, valves, control valves, and pumps. Practical application of the above items will be supported in the lab portion of this course with computer simulation exercises. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 104 Recommended Prerequisites: None

MNG 234, Electronic Fundamentals Division: Maritime
This course bridges the gap between theoretical physics and practical hands on technology. Industrial electrical safety, shock hazards and emergency procedures are stressed. The cadet receives practical hands on experience with both analog and digital meters and oscilloscopes. Digital and analog circuits are created both in the lab and as computer simulations. Practical considerations of circuit construction in the field are discussed in terms of ABS, USCG, and IEEE regulations and requirements.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

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MNG 250, Unloading Systems Division: Maritime
This course will introduce the cadet to the shipboard Unloading Systems used aboard Great Lakes Bulk Carriers. The cadet will study the operation and maintenance of this unloading equipment. A review of Pollution Regulations will also be covered. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 260, Maritime Machining Division: Maritime
This is a basic course that when completed a student will know the fundamentals and be able to operate common machine tool equipment like an engine lathe, band saw and vertical milling machine. Also covered will be measuring and inspection tools, drill press and surface plate.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 271, Maritime Welding Division: Maritime
MNG 271L, Maritime Welding Lab
A welding theory and practice course. Manipulative skills are emphasized for the Gas Metal Arc and Shielded Metal Arc Welding processes. Plasma Arc and Oxy-Fuel Cutting are also introduced. Appropriate reading assignments are included.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: Completion of first academic year; All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 271L Recommended Prerequisites: ENG 111, MTH 111

MNG 275, Refrigeration Division: Maritime
This course provides instruction in the operation and maintenance of refrigeration and air conditioning equipment used on merchant vessels. It covers the theory of refrigeration and the practical operation of refrigeration plants. The student is introduced to the Environmental Protection Agency (EPA) rules governing halogenated refrigerants (CFCs). A discussion of the proper procedures to recover, recycle, and reclaim (CFCs) is also discussed. Lecture is reinforced with the use of hands on labs. STCW
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 314, Diesel Engineering Division: Maritime
A comprehensive course dealing with the development of the diesel engine as it applies to marine propulsion. This course is designed to cover the construction, operation, and maintenance of the marine diesel engine and its support systems. Lecture is reinforced with extensive use of hands-on labs and computerized simulations. STCW.
Credit Hours: 7 **Contact Hours:** 7
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 317, Engineering Sea Project I Division: Maritime
During this course the cadet is on board the TS State of Michigan. The cadet follows a prescribed course of study in vessel operations with particular emphasis on engine room and auxiliary equipment, including safety requirements. In addition, the cadet spends eight hours a day under the supervision of a licensed officer gaining experience in various engineering duties and responsibilities. STCW.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 318, Engineering Sea Project II Division: Maritime
This course is a continuation of MNG 317 and is designed to provide the cadet with advanced knowledge and sailing time to meet the licensing requirements of the U.S. Coast Guard, STCW and the criteria established by the Maritime Administration. STCW.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 319, Engineering Sea Project III Division: Maritime
This course is a continuation of MNG 318 and is designed to further enhance the cadet's professional knowledge and sailing time to meet the licensing requirements of the U.S. Coast Guard, STCW and the criteria established by the Maritime Administration. STCW.
Credit Hours: 6 **Contact Hours:** 6
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 321, Marine Boilers Division: Maritime
This course is an intensive study of Marine Boilers and covers all types of Water Tube boilers. Emphasis is placed on construction, operation and maintenance of equipment. Sub systems such as fuel handling and combustion chemistry, air handling; water preparation and chemistry, automated combustion systems and water regulation systems are covered in detail. Special emphasis is placed on USCG regulations and STCW competencies. STCW.
Credit Hours: 3.5 **Contact Hours:** 3.5
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 322, Marine Turbines Division: Maritime
This course is an in-depth study of marine turbine propulsion plants. It covers theory, construction, operation, maintenance and inspection procedures typically associated with marine use. Associated systems such as lubrication, exhaust and condensate systems are also covered. Drive trains, reduction gear, stern tubes shafting and propellers are also discussed. STCW.
Credit Hours: 2.5 **Contact Hours:** 2.5
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 323, Marine Steam Lab Division: Maritime
This is a hands-on course intended to reinforce MNG 321 and MNG 322. Students will disassemble, inspect, and reassemble machinery typical of what is found aboard ship. Machinery condition will be noted and recommendations made. Machinery records will be updated. STCW.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: None Recommended Prerequisites: None

MNG 335, Electric Machines and Controls
Division: Maritime
This course covers the theory, application, operation, and maintenance of rotating machines as typically found aboard U.S. Merchant Ships and related industrial applications. Generators (DC and AC), motors (DC, multiple and single phase AC), transformers, and related equipment are covered. Special attention is given to magnetic relay and electronic logic control circuits. Regulations specific to CFR title 46 and IEEE are reviewed. STCW.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 336 Recommended Prerequisites: None

MNG 336, Electric Mach. & Controls Lab
Division: Maritime
This course is a companion class to MNG 335. Course material is reinforced with practical hands-on experience with universal electrical lab machinery. The operating characteristics of typical rotating machines are studied. Special attention is given to problems associated with multiple generator AC distribution. Safe and effective troubleshooting techniques are practiced on live 110/208 volt electrical control systems. STCW.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 335 Recommended Prerequisites: None

MNG 455, Watchstanding Division: Maritime
This course uses the Engineering Simulators to strengthen the watch standing skills of the engineering cadet. The cadet will be required to operate shipboard systems, manage engine room personnel, and become familiar with preparing reports required in the operation of a modern engine room.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 466, MNG 496 Recommended Prerequisites: None

MNG 466, Engine Room Business Division: Maritime
This course is intended to acquaint the Cadet to the every day management and administrative activities confronting the Marine Engineer. The Cadet will be introduced to management and personnel skills necessary to deal with people problems peculiar to the marine environment. General issues of alcohol, drug abuse, and sexual harassment in the marine environment will be discussed, and placed in perspective with USCG and STCW protocols.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 455, MNG 496 Recommended Prerequisites: None

MNG 496, License Preparation - Engine
Division: Maritime
A complete review of all professional subjects studied in the Maritime Engineering program. This course is designed to cover the essentials of the Third Assistant Engineer's examination administered by the U.S. Coast Guard. The final grade for this course is dependent on taking the U.S. Coast Guard license exam.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: All prerequisites for all GLMA courses are satisfied by following the approved curriculum guide and any deviation from the curriculum guide needs to be approved by the department head. Co-Requisites: MNG 455, MNG 466 Recommended Prerequisites: None

MNS Naval Science

MNS 100, Naval Science Division: Maritime
This course is required of all Maritime Academy cadets and is an introduction to Naval Science specifically oriented toward Merchant Marine officers. It is intended to familiarize students with the role of the Merchant Marine in national defense and policy and with the various concepts of cooperation between the Navy and the Merchant Marine Industry. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

MNS 200, Naval Science II Division: Maritime
This course is required of all Maritime Academy cadets who are Midshipmen in the Merchant Marine Reserve/U.S. Naval Reserve program. It familiarizes the student with naval missions and heritage as well as to assist the Merchant Marine officer make the transition from civilian to sailor. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: MNS 100 Co-Requisites: None Recommended Prerequisites: None

MNS 250, Leadership and Ethics Division: Maritime
This course is required of all Maritime Academy cadets who are midshipmen in the Merchant Marine Reserve/U.S. Naval Reserve program. It introduces students to western moral traditions and ethical philosophy with a variety of topics, such as military leadership, core values, and professional ethics that will prepare them for their role and responsibilities as a leader in the U.S. Navy of the 21st century. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: MNS 200 or instructor permission Co-Requisites: None Recommended Prerequisites: None

MTH Mathematics

Students are REQUIRED to have and learn to use a TI-84 graphing calculator for ALL math classes.

MTH 08, Pre-Algebra Division: Science & Math
This course provides a review of basic arithmetic skills. It begins by reviewing traditional by-hand calculations, including multiplication and long division. Integers are introduced (signed numbers) and then all operations are combined, including exponents and grouping symbols, using the correct order of operations. The concepts of prime factorization, LCM and GCD are introduced to lead in to fraction arithmetic. Fraction arithmetic includes addition, subtraction, multiplication, and division of fractions and mixed numbers as well as combined operations using the order of operations. Basic proportions and unit prices are used to solve problems. Decimals, and their relation to fractions, with both negative and positive signs are studied. All basic operations are applied to decimals. Then percentages and ratios and proportions are studied. We finish the course by learning about measurement systems and unit analysis, along with basic geometry including the Pythagorean Theorem. Every unit of study features applications as well as pure theory. By-hand calculations are taught and used at all levels.
Non-transferable Hours: 4
Required Prerequisites: Placement into MTH 08. Co-Requisites: None Recommended Prerequisites: Basic arithmetic skills.

MTH 23, Beginning Algebra Division: Science & Math
This is a basic course in algebra covering the following topics: operations on integers, rational numbers, numbers in scientific notation, and polynomials; exponent rules; dimensional analysis; solving linear equations; applications of linear equations in geometry, mixture, percents, and motion; graphing and analysis of graphs, particularly lines, in the coordinate plane; factoring; solving quadratic equations by factoring, applications of quadratic equations in geometry, mixture, percents and motion. The course concludes with an introduction to simplifying multiplying and dividing rational expressions and solving proportions. Good math writing form is stressed.
Non-transferable Hours: 4
Required Prerequisites: A grade of 2.0 or better in MTH 08 or appropriate placement score CoRequisites: None Recommended Prerequisites: None

MTH 111, Intermediate Algebra Division: Science & Math
Intermediate Algebra covers elementary set notation, a description of the Real number system, its major subsets, and an introduction to the Complex number system. Simplifying exponents, and algebraic expressions. Solving linear, quadratic, rational, and radical equations. Linear inequalities and systems of equations are also solved. The function concept is referenced throughout including the graphical, symbolic and numerical representations. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: A grade of 2.0 or better in MTH 23 or appropriate placement score Co-Requisites: None Recommended Prerequisites: Placement into ENG 111

MTH 120, Mathematical Explorations
Division: Science & Math
This course is designed to meet the MTA graduation requirements in math for students whose programs of study have no further math requirements. This course is designed to develop quantitative reasoning skills as applied to personal and social issues. Topics will convey to the student the beauty and utility of mathematics, and its applications to modern society. Core topics include logic, models of growth (linear & exponential), personal finance, basic statistics and probability. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: A grade of 2.0 or better in MTH 23 or appropriate placement score CoRequisites: None Recommended Prerequisites: Placement into ENG 111

MTH 121, College Algebra Division: Science & Math
This course covers algebra topics including functions, mathematical models, solving equations algebraically and graphically, polynomial functions, logarithmic functions, exponential functions, inverse functions, and linear and non-linear systems of equations. Applications are integrated throughout. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120 and MTH 131) or appropriate placement score Co-Requisites: None Recommended Prerequisites: Placement into ENG 111

MTH 122, Trigonometry Division: Science & Math
This course covers the definitions and graphic representations of the trigonometric functions. Triangles, angle measure, equations, identities, and inverse functions are discussed in detail. Law of Sines, Law of Cosines, and equations of the conic sections will also be covered. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: A grade of 2.0 or better in MTH 121 or higher (excluding MTH 131) or appropriate placement score Co-Requisites: None Recommended Prerequisites: Placement into ENG 111

MTH 131, Intro to Prob & Stats Division: Science & Math
Descriptive statistics, experimental design, an introduction to probability concepts and inferential statistics are included in the course. Descriptive statistics includes graphs of both numerical and categorical data, measures of central tendency, and measures of variation. The normal density function, linear regression, and the binomial model are included. One and two sample problems involving confidence intervals and significance tests are studied for the sample mean and the sample proportion. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: A grade of 2.0 or better in MTH 111 or higher (excluding MTH 120) or appropriate placement score Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

MTH 141, Calculus I Division: Science & Math
This is the first course in a traditional calculus sequence, emphasizing the development of the mathematical thought process. The topics covered include limits (definitions and limit proofs), continuity, derivatives of algebraic and trigonometric functions, applications of the derivative, the indefinite and definite integral, the fundamental theorem of calculus, and applications of integration. Group 1 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: A grade of 2.0 or better in MTH 122 or higher (excluding MTH 131) or appropriate placement score Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

MTH 142, Calculus II Division: Science & Math
This course is a continuation of Calculus I. The topics include differentiation and integration involving exponential, logarithmic, and inverse trigonometric functions. There is an introduction of various integration methods. L'Hospital's Rule, improper integrals, parametric equations, polar coordinates, and infinite sequences and series are also investigated. Group 1 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: A grade of 2.0 or better in MTH 141 or equivalent Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

MTH 241, Calculus III Division: Science & Math
The course covers multivariable calculus including three-dimensional analytical geometry, vector valued functions, partial differentiation, and multiple integration (with applications of each), and vector calculus. Group 1 course.
Credit Hours: 5 **Contact Hours:** 5
Required Prerequisites: A grade of 2.0 or better in MTH 142 or equivalent Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

MTH 251, Differential Equations Division: Science & Math
This course introduces the concepts of differential equations. Topics include: solving first and second order differential equations, and systems of linear differential equations. Solutions are found using analytical, numerical, or graphical techniques relating to quantitative modeling. Laplace transforms and solving non-linear differential equations are introduced. Complex numbers and their usefulness in solving differential equations is identified. Linear algebra is introduced including the topics of; vector spaces, subspaces, spanning sets, linear dependence and independence, basis and dimensions, eigenvalues, eigenvectors, and linear transformations. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: A grade of 2.0 or better in MTH 142 or equivalent Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

MUS Music

MUS 90, Applied Music-Remedial Instruc
Division: Humanities
MUS 90 is remedial instruction for students wanting to take 100 level applied instruction in voice, piano, organ, guitar, or any of the traditional wind, percussion or string instruments, but lack either music reading, technical skills, artistic skills or tone production skills. An audition and interview, or if no music is prepared, only an interview will take place to determine the competency levels of a student. This course does not apply toward graduation. MUS 90 level instruction can be repeated until remediation is complete. Students will meet with an assigned faculty member for weekly instruction at a pre-arranged time and place. Materials specific to the students' needs will be assigned. The Applied Faculty will recommend to the acting Department Chair when the competencies have been met.
Credit Hours: 1-2 **Contact Hours:** 1-2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

MUS 100A, Intro to Music Theory I Division: Humanities
Intro to Music Theory I is designed for students who are pursuing music as an academic major or minor, particularly for those who need further work before entering MUS 101. This course focuses on the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music, using practices listed above. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: MUS 105A, MUS 106 Recommended Prerequisites: A basic understanding of music theory is recommended.

MUS 100B, Intro to Music Theory II Division: Humanities
Intro to Music Theory II is designed for students who are pursuing music as an academic major or minor, particularly for those who have completed MUS 100A or its equivalent and are not yet prepared to enter MUS 101. This course builds on the fundamentals of MUS 100A and includes a focus on more complex rhythmic and harmonic structures. Students are required to complete and analyze music, using practices and skills learned in the course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MUS 100A Co-Requisites: MUS 105B, MUS 107 Recommended Prerequisites: None

MUS 101, Theory of Music Division: Humanities
Theory of Music is a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The first year includes the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: MUS 103, MUS 106 Recommended Prerequisites: An understanding of music fundamentals.

MUS 102, Theory of Music Division: Humanities
This course in Theory of Music is the second semester of a four-semester/two-year sequence of coursework designed for students who are pursuing music as an academic major or minor. The first year includes the basic materials of music: the structures of tonality, harmonic progression, and the technique of harmonization. Students are required to complete and analyze music using practices listed above. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MUS 101; MUS 101, MUS 103, MUS 106; or equivalent competency Co-Requisites: MUS 104, MUS 107 Recommended Prerequisites: None

MUS 103, Sight Singing & Ear Training
Division: Humanities
This is the first of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major or minor. The content of this course is the building of skills in reading music, and developing aural competency in interval relationships, scales, and triads, through a variety of musical practices. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: MUS 101, MUS 106 Recommended Prerequisites: None

MUS 104, Sight Singing & Ear Training
Division: Humanities
This is the second of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major or minor. The content of this course is a continued building of skills as listed in MUS 103 through a variety of musical practices. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 101, MUS 103, MUS 106; or equivalent competency Co-Requisites: MUS 102, MUS 107 Recommended Prerequisites: None

MUS 105A, Intro to Ear Training I Division: Humanities
This coursework is designed for students who are pursuing music as an academic major or minor, particularly for those who need further work before entering MUS 103. The content of this course is the building of skills in reading music, and developing aural competency in interval relationships, scales, and triads, through a variety of musical practices, principally the voice. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: MUS 100A, MUS 106 Recommended Prerequisites: A basic understanding of music theory is recommended.

MUS 105B, Intro to Ear Training II Division: Humanities
This coursework is designed for students who are pursuing music as an academic major or minor, particularly for those who have completed MUS 105A or its equivalent and are not yet ready for MUS 103. This course will build on the skills learned in MUS 105A and will focus on developing more advanced skills, in reading music, aural competency in interval relationships, scales, and triads, through a variety of musical practices, principally the voice. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 100A, MUS 105A, MUS 106 Co-Requisites: MUS 100B, MUS 107 Recommended Prerequisites: None

MUS 106, Class Piano I Division: Humanities
Piano study for the beginning or near-beginning student. Cultivation of technical-musical awareness and keyboard playing ability, individually and in ensemble. Group 2 Course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: An understanding of music fundamentals.

MUS 107, Class Piano II Division: Humanities
This course is the second of a four-semester/ two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: MUS 106 or equivalent competency Co-Requisites: None Recommended Prerequisites: None

MUS 110, Music Appreciation Stand Lit
Division: Humanities
This course is a survey of the history of Western Music from medieval Europe to the present. Each music era of Western culture will be examined in regards to significant composers and compositions. This course places a strong emphasis on learning to listen and also provides students the opportunity to become familiar with the basic elements of music. No musical background or training is assumed or required. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

MUS 111, Music Appreciation Jazz Division: Humanities
Jazz Appreciation is a survey of the stylistic and historical elements of jazz from its earliest beginnings and influences through the contemporary jazz scene. Emphasis is placed on listening to the significant jazz artists and styles of each period of jazz. The class will also introduce students to the many musical characteristics, techniques, and terms found in the jazz tradition, as well as their historical significance. No musical background or training is assumed or required. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

MUS 112, Class Guitar I Division: Humanities
This course is designed for the student who wishes to acquire basic knowledge and techniques for guitar playing. The instruction introduces the basic information of music notation, as well as mechanical skills for the development of individual playing ability. The format is a structured approach covering hand position, fundamentals of reading music and chord knowledge. Repertoire will include Folk music, popular music and the Blues, and will utilize both strumming and picking techniques. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

MUS 114, NMC Grand Traverse Chorale
Division: Humanities
This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: Choral experience or instructor permission. Co-Requisites: None
Recommended Prerequisites: None

MUS 115, NMC Grand Traverse Chorale
Division: Humanities
MUS 115 is a continuation of rehearsal and performance as begun in MUS 114. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 114, choral experience or instructor permission. Co-Requisites: None
Recommended Prerequisites: None

MUS 116, NMC Chamber Singers Division: Humanities
This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 3
Required Prerequisites: Choral experience or instructor permission. Co-Requisites: None
Recommended Prerequisites: None

MUS 117, NMC Chamber Singers Division: Humanities
MUS 117 is a continuation of rehearsal and performance as begun in MUS 116. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 3
Required Prerequisites: MUS 116, choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 118, NMC Concert Band Division: Humanities
This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: Previous band experience or instructor permission Co-Requisites: None Recommended Prerequisites: None

MUS 119, NMC Concert Band Division: Humanities
MUS 119 is a continuation of rehearsal and performance as begun in MUS 118. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 118, previous band experience or instructor permission Co-Requisites: None Recommended Prerequisites: None

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MUS 120, NMC Jazz Band Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: Previous band or jazz band experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 121, NMC Jazz Band Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 120, previous band or jazz band experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 122, Ensembles in Applied Music I
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study individually and in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. The course is designed for a year's participation and permission of the instructor is required. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

MUS 129, History of Rock and Roll Division: Humanities
This course will study the development of rock music styles from its roots to the present. We will watch historical footage and listen to musical examples of each musical period. Students will develop the ability to hear a direct relationship between the historical origins of rock music and the music currently popular. The class will include the analysis of the significant musical qualities and influential musicians of the different periods and styles of rock. The history and development of rock music will also be examined in the context of the political, historical, and social forces at work in the modern and post-modern world. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

MUS 130-135 and 137-139, Ensembles in Applied Music
Division: Humanities
This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

MUS 136A, Ensembles - Vocal Jazz I
Division: Humanities
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: Previous choral experience or instructor permission. Co-Requisites: None
Recommended Prerequisites: None

MUS 136B, Ensembles - Vocal Jazz I
Division: Humanities
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: MUS 136A, previous choral experience or instructor permission. Co-Requisites: None
Recommended Prerequisites: None

MUS 140-160 and 162-168, Applied Music – Private Lessons
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform, at a minimum, for one Music Convocation each semester. Group 2 course.
Credit Hours: 1-2 **Contact Hours:** 1-2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

MUS 201, Theory of Music Division: Humanities
The third semester of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major. Harmonic analyzation, traditional and non-traditional compositional techniques and musical form make up the course content. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MUS 102, MUS 104, MUS 107; or equivalent competency Co-Requisites: MUS 203, MUS 206
Recommended Prerequisites: None

MUS 202, Theory of Music Division: Humanities
The fourth semester of a four-semester/two year sequence of coursework designed for students who are pursuing music as an academic major. The course content is a continuation of MUS 201 with the addition of the study of 20th Century compositional and beginning counterpoint. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: MUS 201, MUS 203, MUS 206; or equivalent competency Co-Requisites: MUS 204, MUS 207
Recommended Prerequisites: None

MUS 203, Sight Singing & Ear Training
Division: Humanities
The third semester of a four-semester/two-year sequence of course work designed for students who are pursuing music as an academic major. The content of this course includes the building of skills in reading music, melodic and harmonic dictation and aural competency through a variety of musical practices, principally the voice. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 102, MUS 104, MUS 107 or the equivalent competency Co-Requisites: MUS 201, MUS 206 Recommended Prerequisites: None

MUS 204, Sight Singing & Ear Training
Division: Humanities
The fourth semester of a four-semester/two-year sequence of course work designed for students who are pursuing music as an academic major. A continuation of MUS 203, this course deals with the building of advanced skills in reading music, melodic and harmonic dictation and aural competency through a variety of musical practices, principally the voice. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 201, MUS 203, MUS 206 or equivalent competency Co-Requisites: MUS 202, MUS 207
Recommended Prerequisites: None

MUS 206, Class Piano III Division: Humanities
This is the third of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: MUS 107, equivalent competency or instructor permission. Co-Requisites: MUS 201, MUS 203
Recommended Prerequisites: None

MUS 207, Class Piano IV Division: Humanities
This is the fourth of a four-semester/two-year sequence of the study of piano. Objectives are the cultivation of technical-musical awareness and keyboard playing ability. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: MUS 206, equivalent competency or instructor permission Co-Requisites: MUS 202, MUS 204 Recommended Prerequisites: None

MUS 214, NMC Grand Traverse Chorale
Division: Humanities
MUS 214 is a continuation of rehearsal and performance as begun in MUS 115. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 115, choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 215, NMC Grand Traverse Chorale
Division: Humanities
MUS 215 is a continuation of rehearsal and performance as begun in MUS 214. This large, mixed (SATB) choral ensemble is open to all students with past choral experience. The Grand Traverse Chorale provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on large masterworks. Performance excellence is principal to the purpose of the ensemble. The Grand Traverse Chorale performs throughout the semester and frequently performs with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 214, choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 216, NMC Chamber Singers Division: Humanities
MUS 216 is a continuation of rehearsal and performance as begun in MUS 117. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 3
Required Prerequisites: MUS 117, choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: MUS 117, choral experience, or instructor permission.

MUS 217, NMC Chamber Singers Division: Humanities
MUS 217 is a continuation of rehearsal and performance as begun in MUS 216. This mixed (SATB) choral ensemble is open to all students with past choral experience. The Chamber Singers provides its members with an educational experience and personal enrichment made possible through singing of quality choral literature selected from Antiquity through the 21st Century with an emphasis on newer works and works for small choral ensembles. Performance excellence is principal to the purpose of the ensemble. The Chamber Singers perform throughout the semester and frequently perform with the Traverse Symphony Orchestra. Group 2 course.
Credit Hours: 1 **Contact Hours:** 3
Required Prerequisites: MUS 216, choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 218, NMC Concert Band Division: Humanities
MUS 218 is a continuation of rehearsal and performance as begun in MUS 119. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 119, previous band experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 219, NMC Concert Band Division: Humanities
MUS 219 is a continuation of rehearsal and performance as begun in MUS 218. This course will provide a survey of significant concert and symphonic band repertoire. Students will learn performance techniques on their instrument as are relevant to the concert band medium. Students will also learn the role that their instrument plays within the context of a concert band. Generally, two to four concerts will be performed each semester. Students must have a high school level competency on a wind or percussion instrument. An audition or personal interview with the conductor will be required for placement in the ensemble. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 218, previous band experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 220, NMC Jazz Band Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 121, previous band or jazz band experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

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MUS 221, NMC Jazz Band Division: Humanities
A course for the performer with a focus on big band jazz ensemble techniques and styles. A wide range of jazz styles are covered including swing, be-bop, ballads, rock/fusion and Latin. Some improvisation is briefly explored and always encouraged, although it is not the main focus of this course. A minimum of one concert will be performed each semester and all members are required to attend and participate in all scheduled performances. Group 2 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: MUS 220, previous band experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 231-235 and 237-239, Ensembles in Applied Music
Division: Humanities
A continuation of Ensembles, with emphasis on performance and repertoire. This course prepares students for public performance and develops abilities in ensemble techniques. Students study in small ensembles (duets, trios, quartets, quintets, and octets) under faculty direction. Students are expected to perform, at a minimum, for one Music Convocation each semester. Course number suffix A designates fall semester and suffix B designates spring semester. Permission of instructor is required. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

MUS 236A, Ensembles - Vocal Jazz II
Division: Humanities
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: MUS 136B, pervious choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 236B, Ensembles - Vocal Jazz II
Division: Humanities
A small ensemble of men's and women's voices rehearses and performs vocal jazz works. Develop skills in vocal jazz styles, blending harmonies, microphone technique, and jazz theory. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: MUS 236A, previous choral experience or instructor permission. Co-Requisites: None Recommended Prerequisites: None

MUS 240-266, Applied Music – Private Lessons
Division: Humanities
Private lessons for strings, brass, woodwinds, guitar, piano, voice, organ, and percussion are offered. Student may enroll for 1.0 credit (for a 30 minute, weekly lesson) or for 2.0 credits (for a 60 minute, weekly lesson). Music Majors should enroll for 2.0 credits. After registering for Applied Lessons, please contact Jeffrey Cobb, Director of Music Programs (jecobb@nmc.edu, or 995-1338), before or during the first week of classes for placement with an applied music instructor. A pre-arranged lesson time with the assigned instructor is arranged and studies/compositions, as appropriate, are prepared for continuing musical development. Students are expected to perform for, at a minimum, one Music Convocation each semester. Group 2 course.
Credit Hours: 1-2 **Contact Hours:** 1-2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

PHL Philosophy

PHL 101, Introduction to Philosophy
Division: Humanities
Introduction to Philosophy is an introduction to some of the major areas, ideas, and thinkers of philosophy. Students will read selections from major philosophers in Western Philosophy, as well as texts representing non-traditional or non-Western sources, such as Native American, Asian and Feminist thought. Students will also be introduced to some of the main problems and concepts in areas such as Epistemology, Metaphysics, Ethics, and Aesthetics, as well as investigate other issues of movements, such as Existentialism or Feminism. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHL 105, Critical Thinking Division: Humanities
This course is about listening, reading, speaking, and writing more effectively. Students learn ways to assess information and to form sound evaluative judgments about what is seen, read, and heard. Critical questions provide a structure for critical thinking that supports a continuing search for better opinions, decisions, and judgments. Exercises in understanding and composing logically sound arguments are emphasized. Students learn what is fair and reasonable in an argument's structure. Examples are taken from various areas such as law, medicine, and politics, as well as from everyday life. Fallacies in rhetoric, such as name calling and begging the question, are identified and understood. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHL 121, Western Religions Division: Humanities
Western Religions is a study of the historical development, main religious teachings, leading personalities, ethical values, and worship practices of the major religious traditions of the western world: Judaism, Christianity, and Islam. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHL 122, Eastern Religions Division: Humanities
Eastern Religions is a study of the historical development, main religious teachings, leading personalities, ethical values, and worship practices of the major religious traditions of India, China, and Japan: Hinduism, Buddhism, Confucianism, and Taoism. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHL 201, Ethics Division: Humanities
Ethics is a thoughtful analysis of a variety of value systems found in societies today. It explores the nature and meaning of good and evil and how these concepts relate to concepts of right and wrong. Through the use of critical judgment and philosophical thought, the course explores ethical theories from classical to modern times and includes consideration of ethics that are part of Eastern philosophical traditions as well as sources from other non-traditional frameworks and paradigms. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHL 202, Contemporary Ethical Dilemmas
Division: Humanities
Contemporary Ethical Dilemmas examines the moral and ethical issues confronting modern societies locally and globally. Possible topics to be examined may include: the natural environment, the ethical treatment of animals, biomedical ethics; abortion and issues of human reproduction such as stem-cell research and cloning; business ethics; criminal justice and capital punishment; racism, sexism, and other forms of discrimination, welfare and economics distribution. This course relies on the discipline of philosophy for its methods of inquiry with critical thinking serving as a guiding concept. Traditional approaches to ethics will be incorporated throughout the course. Eastern/Asian and Native American philosophy may also be considered for contrast with standard western approaches to ethical and social issues. This course considers various topics and specific cases in order to provide an overall view of how ethical reasoning might be applied to current issues. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHL 203, Environmental Ethics Division: Humanities
Environmental Ethics is an introduction to the major approaches to environmental ethics, including anthropocentrism, biocentrism, deep ecology, and ecofeminisim, as well as several others based on both Western and non-western philosophical and religious traditions. Since environmental ethics draws on a variety of disciplines, some of the perspectives presented will draw heavily on scientific arguments which emphasize methods based on reason, logic, objectivity, and repeatability. Other perspectives will draw on intuition, emotion, imagination, artistic, historic, and religious views, as well as everyday experience. A variety of perspectives will be examined for the purpose of both forming and informing one's own environmental ethic. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Completion of ENG 11/111 or placement into ENG 111.

PHY Physics

PHY 105, Physics of the World Around Us
PHY 105L, Physics/World Around Us Lab
Division: Science & Math
This course is an introduction to the fundamental principles developed to describe the physical universe. In particular, the subjects of mechanics, heat, electricity and magnetism, waves, and light are surveyed. The development of conceptual understanding and critical-thinking skills is emphasized. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 23 Co-Requisites: PHY 105L Recommended Prerequisites: ENG 111

PHY 121, General Physics I Division: Science & Math
PHY 121L, General Physics I Lab
This is the first course in a two semester sequence in General Physics. Topics include kinematics, Newton's Laws, conservation of momentum, conservation of energy, rotational motion, oscillations, and fluids. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: MTH 122 Co-Requisites: PHY 121L Recommended Prerequisites: ENG 111

PHY 122, General Physics II Division: Science & Math
PHY 122L, General Physics II Lab
This course is a continuation of PHY 121. Topics include thermodynamics, waves, electricity, electric circuits, magnetism, and optics. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: PHY 121, PHY 121L, MTH 122 Co-Requisites: PHY 122L Recommended Prerequisites: ENG 111

PHY 221, Problems & Princ.of Physics I
PHY 221L, Prob./Prin. of Physics I Lab
Division: Science & Math
This course is the first semester of a two-semester course sequence primarily intended for those students preparing for engineering, science, or math careers. Topics include kinematics, Newton's Laws, conservation of momentum, conservation of energy, rotational motion, oscillations, and fluids. The development of conceptual understanding and problem-solving skills are emphasized. Computers are used for data acquisition and analysis. The laboratory covers the preceding topics in parallel with the lecture whenever possible. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 141, may be taken concurrently Co-Requisites: PHY 221L, PHY 221R Recommended Prerequisites: ENG 111

PHY 221R, Prob.& Princ. of Physics I Rec
Division: Science & Math
This course is a recitation to accompany lecture PHY 221. Group 1 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: PHY 221, PHY 221L Recommended Prerequisites: None

PHY 222, Prob. & Princ. of Physics II
PHY 222L, Prob./ Prin. of Physics II Lab
Division: Science & Math
This course is a continuation of PHY 221. Topics include thermodynamics, waves, electricity, electric circuits, magnetism and optics. The laboratory covers the preceding topics in parallel with the lecture whenever possible. The development of conceptual understanding and problem solving skills is emphasized. Group 1 lab course.
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: PHY 221, PHY 221L, PHY 221R, MTH 141 Co-Requisites: PHY 222L, PHY 222R Recommended Prerequisites: ENG 111

PHY 222R, Prob. & Princ. of Physics II R
Division: Science & Math
This course is a recitation class to accompany PHY 222. Group 1 course.
Credit Hours: 1 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: PHY 222, PHY 222L Recommended Prerequisites: None

PLS Political Science

PLS 101, Intro to American Politics
Division: Social Science
This course is an introduction to the study of politics and political institutions in America. Emphasis is given to the constitutional framework, federalism, political participation, the role of the media in the political process, the electoral system, American political parties, the presidency, Congress, the Supreme Court, and the bureaucracy. Civil rights and civil liberties are a theme throughout. This course includes an examination of the politics of race, ethnicity, and cultural diversity in America. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into ENG 111/11

PLS 132, Comparative Politics Division: Social Science
This course provides a comparative analysis of political systems in developed and developing countries. Students learn about different forms of political organization as instituted and practiced in various countries. Students examine different methods of comparing political systems and learn to apply these methods in causal theories of political change. This course combines a focus on the basic structures of political systems with a thought-provoking analyses of the causal factors that influence the development of those systems and the impact these systems have on the people that live within them. Issues related to democracy, civil liberties, political rights, human rights, and economic development are analyzed throughout the course. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into ENG 111/11

PLS 211, International Relations Division: Social Science
Students analyze the nature of international relations and global politics today. This course offers a broad overview of political and economic issues in the international arena. Students assess the dynamics of conflict and cooperation through various case studies and analyses. Topics include such things as conflict in the Middle East, ethnic conflict and nationalism the world over, the threat of global terrorism in the 21st century, the rise of China as an assertive world power, the increasing importance of organizations such as the United Nations and the World Trade Organization, cultural and economic globalization, and global ecological issues. Course includes an examination of the basic analytical approaches to the study of international relations. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into ENG 111

PLS 222, Intro to Political Theory
Division: Social Science
Introduction to Political Theory examines the foundational questions of normative political theory as developed by political philosophers of the ancient through contemporary periods. The course focuses on a wide array of political and ethical issues. Topics of consideration include: the rights of the individual v. the rights of the community; the nature of human equality and the reality of human inequalities; conceptions of justice put forth by various philosophers; and questions of what it means to achieve freedom in one's social and political life. Students can expect to read almost exclusively from primary sources. Examples of thinkers studied in this course include Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Kant, Marx, Mill, Nietzsche, Arendt, and Rawls. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into ENG 111

PLS 233, U.S. Foreign Policy Division: Social Science
This course examines U.S. foreign policy, with a focus on the challenges the United States has faced since WWII. Students analyze the goals of policy-makers and the obstacles encountered as they attempt to achieve those goals. Issues for in-depth analysis include: cold war foreign policy; terrorism and fundamentalism; foreign policy responses to recent trends of economic globalization; WMD, arms control and non-proliferation issues; the U.S. invasions and occupations of Afghanistan and Iraq; a rising China and the challenges this presents to U.S. hegemony; and many others. This course uses political science models to analyze real world events in U.S. foreign policy. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: PLS 101 or PLS 211. Recommended competencies: Placement into MTH 23 and ENG 11/111.

PLU Plumbing Technology

PLU 101, Introduction to Plumbing
Division: Construction Technology
This course provides an introduction to plumbing. Through structured classroom and hands-on skill building, the student will learn the tools of the trade, plumbing safety, how to solder and braze copper tubing, piping skills and trade mathematics. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into MTH 23 and ENG 11/111 or co-enrollment in the recommended developmental Math and English course.

PLU 105, Plumbing Components
Division: Construction Technology
Through structured classroom and hands-on skill building, the student will learn to work with copper pipe and fittings, cast-iron pipe and fittings, carbon steel pipe and fittings, corrugated stainless steel tubing, fixtures and faucets, drain waste and vent systems and water distribution systems. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: PLU 101 Co-Requisites: None
Recommended Prerequisites: None

PLU 121, Commercial Plumbing
Division: Construction Tech
Through structured classroom and hands-on skill building, the student will learn to read commercial drawings, install hangers, supports, structural penetrations, and fire stopping, installation and testing DWV piping. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: PLU 105 Co-Requisites: None
Recommended Prerequisites: None

PLU 125, Plumbing Installation
Division: Construction Tech
Through structured classroom and hands-on skill building, the student will learn installation of roof, floor, and drain areas, types of valves, installing and testing water supply piping, installing fixtures, valves, and faucets, basic electricity, installing water heaters, fuel gas systems and servicing plumbing fixtures. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: PLU 121 Co-Requisites: None
Recommended Prerequisites: None

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PSY Psychology

PSY 100, Career Exploration & Planning
Division: Social Science
Planning a career can be challenging because of the unknown. This course is designed to introduce the student to career and life planning theories and concepts and assist in applying these principles to their own lives. A variety of techniques will be used to accomplish this including self-assessment of skills, values, interests, personality type, and strengths. Development of goal setting and decision making skills will be included to assist students in taking charge of their career direction. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

PSY 101, Introduction to Psychology
Division: Social Science
This course provides a broad, general introduction to psychology, its basic subject matter, and its approaches to gathering and evaluating evidence about the causes and correlates of behavior. It includes: a) awareness of major psychological approaches to the study of the behavior of organisms; b) knowledge of its important contributors; c) knowledge of research findings, and concepts; d) understanding of its methodology and limitations. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Placement into ENG 11/111

PSY 211, Developmental Psychology
Division: Social Science
This course presents human development from conception to death including the historical and anthropological basis for studying development. The course includes hereditary factors as well as physical, social, linguistic, intellectual, and personality development. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: PSY 101 Co-Requisites: None
Recommended Prerequisites: Placement into ENG 11/111

PSY 221, Psychology of Personality
Division: Social Science
This course provides a presentation of the concepts, perspectives and terminology of major theorists in the field of personality psychology, as students explore the many psychological, physiological, social and cultural factors that affect personality development. Students are encouraged to evaluate personality theories in relation to current research and application. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: PSY 101 Co-Requisites: None
Recommended Prerequisites: Placement into ENG 11/111

PSY 223, Intro to Social Psychology
Division: Social Science
This course is an introduction to social psychology theory and research, covering the interactions of individuals and the relationships of individuals to groups. This course includes such topics as social influence, attitudes, socialization, aggression, prejudice, attraction, obedience, conformity, altruism, person perception, and personality. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: PSY 101 or SOC 101
Co-Requisites: None Recommended Prerequisites: Placement into ENG 11/111

PSY 225, Human Sexuality Division: Social Science
Human Sexuality offers an introduction to all facets of the field, and involves discussions of theory, research, and practical information. The purpose of the course will be to develop a critical awareness of the dominant issues in the field and to refine the student's sense of sexual responsibility and integrity. This will be accomplished by exploring the biological, social, cultural, psychological, and personal elements of sexuality. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: PSY 101, placement into ENG 11/111

PSY 231, Psychology of Adjustment
Division: Social Science
First, this course will provide the student with a broad introduction to the psychology of adjustment which investigates the processes involved in the dynamic interactions of the individual with his or her environment. Second, this course is designed to present procedures by which the student can harness the principles of learning and rational self-counseling in order to achieve personal goals. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: PSY 101 Co-Requisites: None
Recommended Prerequisites: Placement into ENG 11/111

PSY 250, Abnormal Psychology Division: Social Science
In this course students will create a working vocabulary of the basic concepts of psychopathology, critically analyze theories and therapies, develop empathy toward the mentally ill and their families, and uncover strategies for living emotionally healthy lives. They will communicate their understanding in a variety of ways and develop strategies for self-assessment of progress toward course outcomes. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: PSY 101 Co-Requisites: None
Recommended Prerequisites: Placement into ENG 111

RAM Robotics and Automation

RAM 155, Microcontroller Programming
Division: Technical
This course introduces students to microcontroller systems and programming using Python language. Students construct a wheeled robot and learn to program the device. Standard coding structures including statements, loops, and functions are used to control the unit. Debugging and troubleshooting skills are developed as robot capabilities are implemented. The robot is used in subsequent Engineering Technology courses. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: MTH 111, may be taken concurrently Co-Requisites: None Recommended Prerequisites: Basic keyboarding and computer skills.

RAM 205, Microcontroller Systems Division: Technical
This course is a continuation of RAM 155 - Microcontroller Programming. Students implement additional abilities for their robot created during RAM 155, utilizing custom sensors, actuators, and interfaces. Activities require the application and extension of both hardware and software skills developed in prerequisite Engineering Technology courses. Students determine requirements, build hardware, code software, troubleshoot, evaluate, and iterate as they create solutions. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 103, RAM 155
Co-Requisites: None Recommended Prerequisites: None

RAM 255, Microcontroller Automation Division: Technical
This course is an introduction to the Internet of Things (IoT). Students will prototype sensors, actuators, and interfaces to create automated solutions that communicate via the Internet. Students will capture data, apply analytics, and present business value. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: RAM 155 Co-Requisites: None
Recommended Prerequisites: None

SOC Sociology

SOC 101, Introduction to Sociology
Division: Social Science
This course is an introduction to the study of human group behavior through social interaction with special emphasis on culture, the socialization process, social stratification, collective behavior, social institutions, and social change. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into ENG 11/111

SOC 201, Modern Social Problems
Division: Social Science
This course presents an introductory sociological analysis of causes, changes in, and attempts to effectively treat some of the major problems in contemporary American society. These include: hunger, environmental problems, poverty, crime and delinquency, family problems, and homelessness. Service Learning projects are encouraged. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Placement into ENG 11/111

SOC 211, Marriage and the Family
Division: Social Science
This course covers topics such as diverse forms of families, ethnic diversity in family patterns, and contemporary issues families face. It includes attraction and partner selection, love, intimacy and sexuality, marriage, parenting and family problems. At the macro level, it emphasizes the structure of family as a social institution and its connections with other institutions in society including government and the economy. Issues of gender and inequality within families are also covered. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: SOC 101 strongly recommended, Students need college-ready study, reading and writing skills for this course. Students will analyze evidence and data sources, read and interpret charts and graphs and write extensively on these. Placement in MTH 23 and ENG 111. Honors projects are also available.

SOC 220, Gender and Society Division: Social Science
This course examines gender as a system of stratification. It approaches issues of gender in society from both a social, structural, and a social psychological perspective. Issues related to gender inequality in selected institutions such as economy, family, media, education, and politics are studied. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: PSY 101 or SOC 101, and placement into ENG 11/111.

SOC 231, Deviance and Criminal Behavior
Division: Social Science
This course is an introduction to the study of deviance and deviant behavior. The sociological study of deviance refers to the analysis of any behavior that violates social norms. This course will examine and analyze instances of non-criminal and criminal deviance and social responses to deviant behavior. Theoretical approaches that seek to explain social deviance are also discussed and evaluated. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: SOC 101, placement into ENG11/111

SPN World Language - Spanish

SPN 101, Elementary Spanish I
Division: Communications
This course represents a comprehensive introduction to the Spanish language for the true beginner. Students will develop the ability to communicate in Spanish in everyday practical situations while acquiring some of the necessary skills for reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 102, Elementary Spanish II
Division: Communications
SPN 102 is a continuation of SPN 101 and focuses on the expansion of the communications skills of reading, writing, listening, and speaking. Cultural topics are integrated in each unit. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: SPN 101 with a minimum grade of 2.0 or required score on the NMC placement test or instructor permission. Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

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SPN 201, Intermediate Spanish I
Division: Communications
SPN 201 is designed to further develop language proficiency in reading, writing, listening, and speaking. A deeper exploration of Hispanic culture is presented in this course, allowing students to transform themselves into truly active and proficient language users. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: SPN 102 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission. Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 202, Intermediate Spanish II
Division: Communications
SPN 202 is a continuation of SPN 201 and focuses on the application of the communication skills of reading, writing, listening, and speaking within cultural contexts. Group 1 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: SPN 201 with a minimum grade of 2.0 or required score on the NMC language placement test or instructor permission. Co-Requisites: None Recommended Prerequisites: Students will be required to read, write, listen, and speak in Spanish. You will need a minimal ability using technology to take advantage of outside-of-class requirements.

SPN 227A, Spanish for Environmental Mgmt
Division: Communications
This course focuses on global environmental issues as an entry point for further development of Spanish technical vocabulary, conversational skills and global competencies. Through an exploration of current freshwater issues in Spanish-speaking countries, and an experience studying overseas, students will address relevant issues concerning environmental resource management, and engage in community projects. Group 1 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: 3-4 years of high school Spanish Co-Requisites: WSI 290 Recommended Prerequisites: SPN 201; Listening Skills-understand sentence-length utterances; Reading Skills-able to understand main ideas and/or some facts from the simplest connected text; Speaking Skills-able to handle successfully a limited number of uncomplicated communicative tasks by creating with the language in straightforward social situations; Writing Skills-able to meet limited practical writing needs.

SRG Surgical Technology

SRG 101, Intro to Surgical Technology
Division: Health Occupations
In this course students will learn the primary functions of the surgical technologist in multiple roles within the operating room environment. Points of focus will include effective communication, professional interactions with the patient and surgical team, proper personal protective equipment, introduction to asepsis, safety precautions, All-Hazard preparation, instrumentation, equipment, supplies, stapling devices, suture, and infection control and wound healing. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: BIO 227, HAH 101, HPD 110-all with a grade of 2.0 or better; SRG 102 and SRG 103, may be taken concurrently Co-Requisites: SRG 101L Recommended Prerequisites: BIO 228

SRG 101L, Intro to Surg Tech Lab
Division: Health Occupations
In this course students will learn and practice in the laboratory environment the skills required to perform in the surgical setting. Emphasis will be placed on introductory skills, instrumentation, equipment and procedures relevant to general, gynecological, and genitourinary procedures. Students will be evaluated on their sterile and aseptic technique as well as case management skills. Group 2 course.
Credit Hours: 2 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: SRG 101 Recommended Prerequisites: None

SRG 102, Surgical Microbiology
Division: Health Occupations
Students in this course will learn about the cell, cell organelles and processes, and transport. This course will also cover varying types of organisms that cause infection, the infection process, and microbe identification. The body's natural defense system as well as common bacteria, viruses, and fungi that cause disease will be covered including the response. Group 2 course.
Credit Hours: 1.5 **Contact Hours:** 1.5
Required Prerequisites: SRG 101 and SRG 103, both may be taken concurrently Co-Requisites: None Recommended Prerequisites: None

SRG 103, Surgical Pharmacology
Division: Health Occupations
In this course students will learn the pharmaceuticals used in surgical practice to include their actions, use, effects, contraindications and administration. The anesthesia process will be covered in defining the stages of general anesthesia as well as the different types of agents used. The course will cover the equipment, safe practices, sterile technique and terminology used in relation to pharmacology. Students will also cover practices relating to alternative therapies such as herbal medication, acupuncture, massage, and music therapy and their effect on the surgical patient. Group 2 course.
Credit Hours: 1.5 **Contact Hours:** 1.5
Required Prerequisites: SRG 101 and SRG 102 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 121, Surgical Procedures I
Division: Health Occupations
Students in this course will study the relevant surgical anatomy and physiology, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures in the areas of general, obstetrics and gynecological, genitourinary, and orthopedic surgery. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: SRG 101, SRG 101L, SRG 102, SRG 103; SRG 122, and SRG 123 both may be taken concurrently Co-Requisites: SRG 121L
Recommended Prerequisites: None

SRG 121L, Surgical Procedures I Lab
Division: Health Occupations
Students in this course will learn and practice in the laboratory environment the skills required to perform in the surgical setting. Emphasis will be placed on advanced skills concerning instrumentation, equipment and procedures relevant to orthopedic, ENT, plastic, reconstructive, minimally invasive, and vascular procedures. Students will also practice patient transport, transfer, urinary catheterization, skin prep, patient positioning and draping procedures. Students will be evaluated on their sterile technique and case management skills. This course will also include a clinical observation component of the relevant areas of the perioperative environment. Group 2 course.
Credit Hours: 3.5 **Contact Hours:** 7
Required Prerequisites: None Co-Requisites: SRG 121
Recommended Prerequisites: None

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SRG 122, The Surgical Patient
Division: Health Occupations
In this course students will define patient-centered care to determine the differing needs of the various patient populations that visit the surgical department. Important areas that will be described include appropriate communication, cultural and spiritual competence, and grief advocacy. This course will cover the aspects of the death in the operating room along with the organ transplant process. Students will also cover patient transport, transfer, urinary catheterization, skin prep, patient positioning and draping procedures. Group 2 course.
Credit Hours: .5 **Contact Hours:** .5
Required Prerequisites: SRG 121, SRG 121L; SRG 123 may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 123, Biomed Sciences and MIS
Division: Health Occupations
Students in this course are introduced to the basic concepts of physics to include the elements of motion, energy, light, sound and electricity and how they apply to surgical practice. Further study will include aspects of minimally invasive surgery including laparoscopy and robotic surgery. Students will also be introduced to the cases performed in interventional radiology and how they are integrated within surgical practice. The course will conclude with the study of diagnostic interventions integral in surgical practice as well as diagnosing pathologies preoperatively. Group 2 course.
Credit Hours: 1.5 **Contact Hours:** 1.5
Required Prerequisites: SRG 121, SRG 121L; SRG 122 may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 201, Surgical Procedures II
Division: Health Occupations
Students will study the relevant surgical anatomy and physiology, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures. Surgical procedures covered will include the areas of otorhinolaryngology, neurology, and ophthalmic surgery. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: SRG 121, SRG 121L, SRG 122, SRG 123; SRG 202 and SRG 204 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 202, Surg Procedures II Clinical
Division: Health Occupations
In this course students will be in the clinical environment practicing to and performing essential skills required in the perioperative environment. While under the supervision of a surgical technologist or RN the student will observe, scrub, and assist on procedures as directed by the surgical team. Group 2 course.
Credit Hours: 5 **Contact Hours:** 15
Required Prerequisites: SRG 201 and SRG 204 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 204, Professional Career Prep I
Division: Health Occupations
In this course students will work with the Office of Career Services to complete a career portfolio and employment training. Major topics in this course include resume creation both written and online portfolios, interview preparation, job search strategies, and professional attire. Group 2 course.
Credit Hours: .5 **Contact Hours:** .5
Required Prerequisites: SRG 201 and SRG 202 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 221, Surgical Procedures III
Division: Health Occupations
Students in this course will study the relevant surgical anatomy and physiology, factors unique to surgical procedures, pathophysiology, supplies, equipment, and instrumentation needed for a variety of procedures. Surgical procedures covered include the disciplines of neurology, vascular and cardiothoracic surgical procedure categories. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: SRG 204; SRG 222 and SRG 224 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 222, Surg Procedures III Clinical
Division: Health Occupations
In this course students will continue working in the surgical environment under the direction of a surgical technologist or RN. The student will observe, scrub, and assist on more complex surgical cases as directed by the surgical team. The progression from student to entry level surgical technologist is the goal for the completion of this course along with the successful completion of the 120 scrubbed case requirements. Group 2 course.
Credit Hours: 6 **Contact Hours:** 18
Required Prerequisites: SRG 221 and SRG 224 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SRG 224, Professional Career Prep II
Division: Health Occupations
In this course the students will focus on exam preparation for the certification exam given by the National Board of Surgical Technology and Surgical Assisting (NBSTSA) that will be taken electronically on campus the last week of the program. Testing strategies and studying techniques will be a large focus point as well as written and online practice exams. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: SRG 221 and SRG 222 both may be taken concurrently Co-Requisites: None
Recommended Prerequisites: None

SVR Surveying

SVR 110, Fundamentals of Surveying Division: Technical
Using a variety of surveying equipment and software, students will learn methods and techniques to observe, analyze and integrate field measurements in surveying applications. This includes the proper care and setup of instruments, units of measurement, horizontal and zenith angles, directions, distances, elevations, interpreting and generating contour lines, map reading, field notes and the presentation of data on a completed map. Students will directly apply this knowledge in field activities. Group 2 course
Credit Hours: 5 **Contact Hours:** 8
Required Prerequisites: MTH 121 can be taken concurrently
Co-Requisites: None
Recommended Prerequisites: None

SVR 120, CAD for Surveying Division: Technical
Using AutoCAD Civil 3D, this course provides students a single software environment to complete survey mapping projects. Students will learn the basics of how the field measurement data collected from surveyors' instruments are processed into a dynamic Civil 3D model. Included are traverse plotting, site plans, contour mapping, legal descriptions, platted subdivisions, cross sections, and development of plan and profile drawings. Students will directly apply this knowledge in laboratory assignments. Group 2 course
Credit Hours: 4 **Contact Hours:** 5
Required Prerequisites: MTH 121 can be taken concurrently
Co-Requisites: None
Recommended Prerequisites: None

SWK Social Work

SWK 121, Introduction to Social Work
Division: Social Science
In this class we will gain basic knowledge about the varying and diverse areas of social work including the health care systems, rural and urban settings, criminal justice systems, systems that work with the elderly, various private and public agencies and schools. We will explore and build an understanding of client populations who may be in need of social work services. In addition, we will assess our own experiences, interests and knowledge that may guide us in the field of social work. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: SWK 170
Recommended Prerequisites: None

SWK 170, Service Internship Orientation
Division: Social Science
Orientation and preparation for introductory internship experiences in social work areas. For example, introduction to use of supervision, supervisory evaluation, self-evaluation and varying agency structures and functions. Opportunities for internships will also be introduced. This class is done in class and seminar format. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: SWK 121 Recommended Prerequisites: None

SWK 211, Social Interviewing Skills
Division: Social Science
Introduction to types, purposes and stages of interviewing. Basis empathy skill development will be for observation, listening, non-verbal communications, rapport building, information giving and information gathering. Beginning training in recording and documentation. Emphasis will be on self-monitoring and working with culturally diverse, oppressed or psychologically maladaptive clients. In addition, we will explore building relationships with clients that is focused on the strengths of the client. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: SWK 121, SWK 170, completion of ENG 111/11 or placement into ENG 111

SWK 221, Introduction to Social Welfare
Division: Social Science
This course explores the historical development of social welfare in the United States, how it has defined social services and implications of they have had on society today. It also reviews modern social welfare systems and the existing attitudes, philosophies and the implications of economic, political and cultural conditions. Varying major theories of behavior are also explored as they relate to social work and the clients in need of services. The course also explores the importance of social workers in social action through understanding the different political perspectives influencing the formation of welfare policy. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: SWK 121, SWK 170 Co-Requisites: None Recommended Prerequisites: PLS 101, ENG 11/111 or higher

SWK 290, Social Work Internship
Division: Social Science
This course helps to prepare students for the generalist practice in the field of social work. This is a field instruction course that students will engage in direct practice of social work education. Students will complete 120 hours in a human service agency. This placement will provide an opportunity to observe social workers while they work, as well as assisting in general service delivery under close supervision. Students must complete the 120 hours in one semester. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: SWK 121, SWK 170 Co-Requisites: None Recommended Prerequisites: SWK 211

VCA Visual Communications/Art

VCA 100, Materials and Techniques Division: Humanities
This course introduces students to commercial drawing techniques with an emphasis on perspective, pencil, pen & ink, marker, water color and gouache when illustrating a variety of different products and illustration formats. Creative media experimentation is encouraged through the assignments. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

VCA 125, Typography I Division: Humanities
This course serves as an introduction to typographic history, letterforms, mechanics, terminology and usage. Students will complete projects that lead them to an understanding of the fundamental and technical aspects of this abstract art including font selection and typesetting. As part of this course students will also learn the basics of Adobe InDesign. Desktop publishing software used to create single and multi-page files, format text using style sheets, manage color, import and create graphics and tables and prepare files for print production. The Adobe Certified Associate Exam for InDesign is included in the cost for this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 150 Co-Requisites: None Recommended Prerequisites: Intermediate keyboarding skills, intermediate to advanced understanding of vector drawing, desktop publishing software and the Macintosh system.

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VCA 126, Typography II Division: Humanities
This class serves as continuation to typography history, trends, display faces, and grids with an emphasis on book typography, binding, and structuring methods. Students will complete projects that lead them to an understanding of intermediate typography, current typographic trends and comparative analysis of typefaces that relate to the field of Visual Communications as well as printed and electronic media. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 125 Co-Requisites: None Recommended Prerequisites: Intermediate keyboarding skills, intermediate to advanced understanding of vector drawing, desktop publishing software and the Macintosh system.

VCA 127, Digital Imaging Division: Humanities
Students will learn Adobe Photoshop, a bitmap manipulation tool used to create images for both print and the web. Students will learn how to incorporate color, use layers, create special effects, use filters, and use a variety of selection techniques for proper image editing. Students will also learn the basics of using a digital camera and scanner as well as color management, how to restore damaged images, automate tasks, and how to prepare files for print. The Abode Certified Associate Exam for Photoshop is included in the cost for this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: CIT 100, Basic keyboarding skills highly recommended. Use of the Macintosh or Windows operating system highly recommended.

VCA 146, Interactive Animation Division: Humanities
This course's focus will be on creation of animation using both traditional methods and Adobe Animate software. Students will learn the basics of animation and storytelling, file management and organization, as well as interactive navigation. Students will also learn how to incorporate sound and video in projects and learn how to prepare their files for use on the Web. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 127, VCA 150 Co-Requisites: None Recommended Prerequisites: VCA 125

VCA 147, Web Design I Division: Humanities
This course will focus on creative website design including site planning, interactive navigation, web fonts, information design theory, file management, and user experience (UX). Students will learn industry best practices and develop a basic process by which any web design challenge should be approached. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 127, VCA 150 Co-Requisites: None Recommended Prerequisites: VCA 125

VCA 150, Digital Graphics Design I Division: Humanities
This course covers the basics of using Adobe Illustrator to create vector objects and layouts for print and interactive environments. Students will learn how to create and manipulate shapes, work with type, color, gradients, fills and strokes. Students will learn how to work with spot and process colors, create die lines for packaging and other basic design principles. Students will also learn to prep files for print and choose the correct color space for various applications. The Adobe Certified Associate Exam for Illustrator is included in the cost for this course. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: CIT 100, Recommended competencies: Basic keyboarding skills highly recommended. Use of the Macintosh or Windows operating system highly recommended.

VCA 200, Visual Communications II Division: Humanities
Through this course you will gain insight and an introduction to the theory of graphic design through practice in researching, brainstorming, creative problem solving, comping, design brief writing and production of print and digitally driven graphics projects like: logo marks, identity developments, posters, collateral and greeting cards. Students embrace print and digital pre-production techniques and receiving constructive criticism of work and practice. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 125 Co-Requisites: VCA 220 Recommended Prerequisites: ENG 112

VCA 220, Visual Communications III Division: Humanities
Through this course, you will gain insight and introduction to the theory of advertising design and art direction through practice in researching, brainstorming, marketing, creative problem solving, copywriting and editorial planning of print and digital advertising, advertising campaigns, television storyboards and product branding. Traditional and digital best practices will be explored as students work on campaign voice and receiving/giving constructive criticism using industry terminology. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 125 Co-Requisites: VCA 200 Recommended Prerequisites: ENG 112

NMC.
Find it here.

VCA 225, Visual Communications Studio
Division: Humanities
By the end of this course, students will have participated in two hands-on "real world" design projects in which you will act as copywriter, art director, designer, filmmaker, photographer or illustrator. Service learning projects are for various regional not-for-profit clients. You will learn all aspects of pre-press work, digital workflow, production, and printing via field trips to area service providers and professionals while also learning to work with clients and the self-driven responsibilities of teamwork. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 200 and VCA 220 or instructor permission. Co-Requisites: None Recommended Prerequisites: None

VCA 230, Visual Communications V Division: Humanities
In this course you will excel in setting occupational/educational aspirations and offering/receiving constructive criticism of your work. You will design and produce a body of work for your portfolio, tailored to your individual goals, be it in Illustration, Graphic Design, Motion Graphics or Art Direction. Progressive Visual Communications theory and practice will also be studied through projects in packaging design, point-of-purchase displays, info-graphics, mobile app development and more. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 200, VCA 220 or instructor permission. Co-Requisites: None Recommended Prerequisites: None

VCA 235, Visual Comm Portfolio Division: Humanities
Students explore various methods of preparing professional portfolios, as well as the packaging and marketing of their portfolio works in preparation for further education and/or job interviews related to their career goals in visual communications. Along with the portfolio, each student prepares a resume, digital portfolio, and considers other self-promotional pieces to complete his/her portfolio package. The emphasis of this course is that each student compiles a professional looking and complete portfolio package based on his/her occupational and educational goals. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 200, VCA 220 Co-Requisites: None Recommended Prerequisites: None

NMC.
Find it here.

VCA 246, Interactive Animation II Division: Humanities
This course will focus on the advanced exploration of interactive navigation, animation and storytelling that is created for and exists on the web. Advanced Design theory, greater interactivity, file architecture, web loading, hosting and uploading for Animate and more exposure to Motion software will emphasis creative and narrative language. Students should be self-motivated, this advanced section involves independent projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 146 Co-Requisites: None Recommended Prerequisites: Intermediate to advanced understanding of bitmap or vector drawing, typography and the Macintosh platform.

VCA 247, Web Design II Division: Humanities
This course will focus on advanced creative website development and design including site planning, interactive navigation, information design theory, file management, and user experience (UX). Students will explore app design and real-world web projects to deepen their understanding of interactive information design. Students should be self motivated since this advanced course involves independent projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 147 Co-Requisites: None Recommended Prerequisites: None

VCA 250, Time Based Media Division: Humanities
A multisensory, theory driven exposure and exploration of time-based visual communication environments. The role of typography, image, sound, space, luminosity and narrative are assessed and used to create sequences of film and moving image. Students are exposed to tools, theories, aesthetics and techniques used in film editing with Final Cut Pro X, Motion and Digital HD film cameras like Blackmagic and GoPro. Course includes Apple Certification and the Apple FCPx End User Exam. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 127 Co-Requisites: None Recommended Prerequisites: VCA 125

VCA 252, Time Based Media II Division: Humanities
A multisensory, theory driven continuation and exploration of time-based visual communication environments. The role of motion graphics, sound design, promo films and narrative are assessed and used to create more advanced sequences of moving image. Students are exposed to advanced tools, theories, aesthetics and techniques used in film editing medium using Final Cut Pro X 10.1 and Motion. Students should be self-motivated, this advanced section involves independent projects. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: VCA 250 Co-Requisites: None Recommended Prerequisites: None

VCA 290, Visual Comm Internship Division: Humanities
This course is the capstone for the AAS degree in Creative Management Art Direction. This internship provides on-the-job experience for the student who wishes to pursue a career in visual communications. Customized to meet the learning needs of the student and the job requirements of the sponsoring firms, students spend 180 hours in paid or non-paid, supervised on-the-job training experiences. In addition students participate in bi-weekly reports and weekly online methodology discussion boards with the instructor/peers. Students must apply one month prior to the semester they wish to complete class. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: Students must have completed all VCA courses with a minimum 2.5 GPA and departmental approval Co-Requisites: None Recommended Prerequisites: The student should possess good written, graphic and oral communication skills, and have a portfolio of work/resume to show employers.

WPT Welding Process Technology

WPT 111, Welding Theory I Division: Technical
First level lecture for all students enrolled in a Welding Technology Degree or Certificate Program. Course will cover theory and technique for Shielded Metal Arc Welding, Gas Metal Arc Welding, and Oxy Fuel Processes for welding, brazing, and cutting. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: WPT 112 Recommended Prerequisites: None

WPT 112, Welding Lab I Division: Technical
First level lab for all students enrolled in a Welding Technology Degree or Certificate Program. Practical application of Shielded Metal Arc Welding, Gas Metal Arc Welding, and Oxy Fuel Processes for welding, brazing, and cutting. Welds will be performed in all positions and subjected to destructive quality testing. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: None Co-Requisites: WPT 111 Recommended Prerequisites: None

WPT 113, Welding Theory II Division: Technical
Second level lecture for all students enrolled in a Welding Technology Degree or Certificate Program. Course will cover theory and technique for Pulsed Gas Metal Arc Welding, Flux Cored Arc Welding, Gas Tungsten Arc Welding, and Arc Cutting Processes. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: WPT 111 Co-Requisites: WPT 114 Recommended Prerequisites: None

WPT 114, Welding Lab II Division: Technical
Second level lab for all students enrolled in a Welding Technology Degree or Certificate Program. Practical application of Shielded Metal Arc Welding, Pulsed Gas Metal Arc Welding, Gas Tungsten Arc Welding, and Plasma Arc Cutting. Welds will be performed in all positions and subjected to destructive quality testing. Group 2 course.
Credit Hours: 4 **Contact Hours:** 8
Required Prerequisites: WPT 111 and WPT 112 Co-Requisites: WPT 113 Recommended Prerequisites: None

WPT 161, Welding Qualification Prep
Division: Technical
Students will learn performance qualification according to American Welding Society standards and have the opportunity to take AWS welder qualification tests in the process or processes of their choice. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: WPT 114 Co-Requisites: None Recommended Prerequisites: None

WPT 211, Welding Fabrication I Division: Technical
First level fabrication class for all students enrolled in the Welding Technology A.A.S. program. Students will learn to apply manufacturing principles and techniques in order to complete assemblies to print specifications. Proper use of common industrial tools and machinery, including CNC cutting table, will be stressed. Group 2 course.
Credit Hours: 3 **Contact Hours:** 5
Required Prerequisites: WPT 113, WPT 114 Co-Requisites: None Recommended Prerequisites: None

WPT 212, Welding Fabrication II Division: Technical
Second level fabrication class for all students enrolled in the Welding Technology A.A.S. program. Students will take control of a fabrication project from the planning to finishing stages. Emphasis on design, project planning, and efficient execution. Group 2 course.
Credit Hours: 3 **Contact Hours:** 5
Required Prerequisites: WPT 211 and WPT 260 Co-Requisites: None Recommended Prerequisites: None

WPT 213, Weld Quality Testing Division: Technical
Class to cover theory and practical use of common methods of non-destructive examination. Processes include dye penetrant, ultrasonic, magnetic particle, and radiographic testing. Familiarity with prevalent codes and standards will be emphasized. Group 2 course.
Credit Hours: 3 **Contact Hours:** 5
Required Prerequisites: WPT 211 Co-Requisites: None Recommended Prerequisites: DD 101, DD 110

WPT 260, Intro to Welding Automation
Division: Technical
This course provides students an opportunity to learn the theory behind common forms of automation utilized throughout the welding industry. Lab assignments will focus on equipment set-up and operations along with analysis of results. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: MFG 111, WPT 142
Co-Requisites: None Recommended Prerequisites: ENG 111

WPT 290, Welding Internship Division: Technical
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit at a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: None

WSI Water Studies

WSI 105, Intro to Freshwater Studies
Division: Water Studies Institute
This course is designed to provide an exploration to the field of water studies, with specific focus on freshwater. Students will discuss the impact of water related challenges and opportunities in the context of the great lakes of the world. Focus will be given to the new and emerging career and educational pathways associated with water resources and their management. In addition to regular class lectures, invited experts from business, education and community organizations will introduce relevant topics of local and global significance including policy, law, sustainable development, history, engineering, health, and commerce. Group 2 course
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: MTH 23, ENG 111, may be taken concurrently

WSI 200, GL Research Technologies
Division: Water Studies Institute
Advancements in Great Lakes research and monitoring techniques allow for an increased ability to access and assess remote locations through the use of enabling technologies and platforms including: Research Vessels, Remotely Operated Vehicles (ROV), SONAR systems (single beam, mulitbeam, scanning) and oceanographic buoy systems. Focus will be directed at understanding the basics of how each component is used and gain firsthand experience operating systems and collecting information. Field activities will take place in local water bodies, Grand Traverse Bay and onboard the R/V Northwestern. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Recommended competencies: Ability to work/learn aboard R/V Northwestern and in the field. Completion of MTH 111 and ENG 111 or appropriate placement scores.

WSI 210, Underwater Acoustics and Sonar
Division: Water Studies Institute
This course provides a foundation for the use of acoustics in the marine environment while focusing on best practices for underwater search, survey and visualization programs. Multiple sonar systems are presented and are representative of current industry equipment, operations and practices. Emphasis is placed on understanding field applications where sonar platform, water depth and temperature, target range and size, acoustic frequency and object reflectivity/absorption have an effect on target detection, resolution and data accuracy. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: MTH 111 Co-Requisites: None
Recommended Prerequisites: PHY 105; placement into ENG 111

WSI 211, Sonar for Search & Recovery
Division: Water Studies Institute
This course provides training in the best use practices of multiple acoustic platforms for use in search and recovery operations typical to law enforcement, homeland security and first responders from multiple agencies. Group 2 course.
Credit Hours: 1.5 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: Prior use of sonar equipment in search and recovery applications.

NMC.
Find it here.

WSI 212, Sonar for Marine Engineering
Division: Water Studies Institute
This course provides both classroom theory and hands-on practicum/field operations performed individually and in groups. Emphasis areas include demonstrating techniques of sonar operations critical to sonar performance, sonar data collection and data interpretation for use in marine engineering, survey and underwater construction activities. Group 2 course.
Credit Hours: 2 **Contact Hours:** 3
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: Prior use of sonar equipment in marine engineering applications.

WSI 215, Marine GIS & Data Processing
Division: Water Studies Institute
This course builds upon the basics of GIS taught in GEO 115 - Introduction to GIS, with a focus on basic spatial analysis techniques using standard and maritime/marine datasets. More advanced cartographic methods and spatial data management techniques are introduced using ArcGIS Desktop, Hypack, and other computer tools. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: ENV 115 or GEO 115 with a 2.0 or better Co-Requisites: None Recommended Prerequisites: Students must have intermediate computer and internet skills, typically acquired in ENV115 or GEO115 or similar.

WSI 230, Water Policy & Sustainability
Division: Water Studies Institute
This course is designed to provide a basic understanding of the fundamental principles of water law and policy and human relationships, use, threats, and conflicts over water and aquatic resources. The course emphasizes a new integrative approach to water issues based on the nexus of the water commons to health, food, quality of life, energy, climate change, ecosystem, and economy. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: ENG 111 and MTH 23, both may be taken concurrently Co-Requisites: None Recommended Prerequisites: PLS 101, WSI 105

WSI 240, ROV Systems and Operations
Division: Water Studies Institute
This course introduces the technology of remotely operated vehicles (ROV) as a system used for subsea activities including scientific study and research, subsea exploration and industrial applications. International Marine Contractors Association (IMCA) and Association for Diving Contractors International (ADCI) guidelines will be used for training. Students will gain firsthand experience operating the ROV for the purpose of collecting information from docks, piers, and research vessels. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: EET 103, MTH 111 Co-Requisites: None Recommended Prerequisites: ENG 111; Recommended competencies: Students should have basic computer skills and be comfortable working around water from either a boat or dock/pier.

WSI 290, Freshwater Studies Internship
Division: Water Studies Institute
The internship in Freshwater Studies is a field experience for students interested in developing competencies to address significant water-related issues impacting our region and the world. Students engage in research activities with local and global community partners to collaborate in the implementation of best water management practices. The program is customized according to students' background and specific career goals. Activities can include activities involving the monitoring of: water quality, invasive species, water distribution systems, and ecosystems. Group 2 course.
Credit Hours: 1 **Contact Hours:** 1
Required Prerequisites: None Co-Requisites: None Recommended Prerequisites: None

WSI 300, Remote Sensing and Sensors
Division: Water Studies Institute
This course provides a foundation in the use of electronic sensors for remote observations. The focus will be on applications for marine and near-shore environments, though any sensor system/platform may be discussed. Basic sensor science will be applied to the study of remote sensing instruments, including marine acoustics, terrestrial acoustics, visible, laser/LIDAR, multispectral, and hyperspectral. Sensor development and evolution will be studied, as well as related current events including instruments used in deep-sea, commercial, military, and space science industries. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: PHY 121 Co-Requisites: None Recommended Prerequisites: WSI 200, placement into ENG 111

WSI 310, Sonar Systems and Operations
Division: Water Studies Institute
This course provides advanced training for the use of sonar systems in the subsea environment. Students will utilize multiple sonar systems for the purpose of profiling and imaging nearshore infrastructure; positioning and navigation of subsurface equipment; and interpreting collected sonar data for use in marine subsurface applications. Specific sonar systems utilized will include side scan sonar, scanning sonar and USBL systems. Group 2 course.
Credit Hours: 4 **Contact Hours:** 6
Required Prerequisites: WSI 200, WSI 210 Co-Requisites: None Recommended Prerequisites: None

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WSI 315, Advanced Marine Survey & Data
Division: Water Studies Institute
This course provides a foundation in the coordination of maritime surveys from a pre-deployment standpoint. Students will be expected to have a strong understanding of the remote sensing science including capabilities and limitations of the sensor systems to be used. A major focus of the course will be to develop student skillsets for processing and merging marine and terrestrial datasets from a wide range of sources and systems. Significant time will be devoted to proper manipulation of data using commercial and freely-available tools. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: PHY 121, WSI 215
Co-Requisites: None
Recommended Prerequisites: WSI 300

WSI 390, Marine Tech Internship
Division: Water Studies Institute
The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course.
Credit Hours: 2 **Contact Hours:** 2
Required Prerequisites: None Co-Requisites: None
Recommended Prerequisites: 60 credits of program specific courses with a GPA of 2.0 or better.

WSI 400, Marine Technology Capstone
Division: Water Studies Institute
This course requires the synthesis and integration of knowledge and skills acquired across the Marine Technology curriculum for completion of a team oriented project and will require significant written, oral and visual deliverables including a final presentation. These field based projects will demonstrate a comprehensive approach to mission planning, technical equipment competency, budgeting, data collection/processing and dissemination to an audience. Group 2 course.
Credit Hours: 4 **Contact Hours:** 4
Required Prerequisites: WSI 200, WSI 210, WSI 215, WSI 240, WSI 310, WSI 433; WSI 300, WSI 315, may be taken concurrently Co-Requisites: None Recommended Prerequisites: None

NMC.
Find it here.

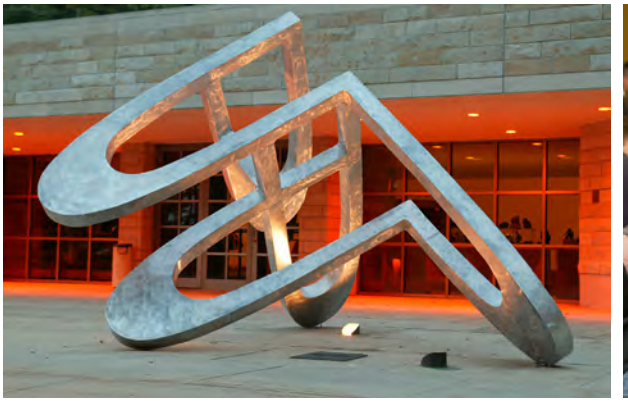
WSI 405, Marine Industry Division: Water Studies Institute
This course focuses on contemporary issues and current events in the marine industry. It is intended to explore the global marine technology market while providing industry perspective from the marine sector including consequences of pollution, safety regulations, policy development, technology advances, and economics. Students will evaluate trends and conditions expected to influence the industry over the next five years. Group 2 course.
Credit Hours: 3 **Contact Hours:** 3
Required Prerequisites: Completion of 60 credit hours within major, Must include WSI 200, WSI 210, WSI 240
Co-Requisites: None Recommended Prerequisites: None

WSI 433, Marine Project Management
Division: Water Studies Institute
This class covers the practice of project management, specific to underwater marine environment (ROV/AUV/Sonar Technologies). The course will emphasize the core principles of project management, including scope development, schedules, resource planning, budgets, risk management strategies and communication methods. The curriculum aligns with the Project Management Institute “Body of Knowledge” and meets the instructional criteria required to become a Certified Associate in Project Management (CAPM). Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: RAM 205, WSI 200, WSI 210, WSI 215, WSI 240 Co-Requisites: None Recommended Prerequisites: EET 304, MFG 304, WSI 300

WSI 440, Advanced Marine Platforms
Division: Water Studies Institute
This course focuses on the use of complex marine platforms in multiple marine environments including autonomous underwater vehicles, unmanned underwater vehicles and remotely operated vehicles. Students will learn mission planning, platform mobilization, launch & recovery techniques, remote guidance and advanced troubleshooting of autonomous and remote systems. Subsea applications will include scientific study and research, subsea exploration and industrial applications. Group 2 course.
Credit Hours: 3 **Contact Hours:** 4
Required Prerequisites: WSI 200, WSI 210, WSI 215, WSI 240 and instructor permission Co-Requisites: None
Recommended Prerequisites: None

NMC

Student Handbook



Student Rights and Responsibilities (Policy D-602.01)

The purpose of the Student Rights and Responsibilities statement is to define a student's basic rights within the college community, state what actions students may expect from the college to protect those rights, and explain the college's expectations of its student members, including the standards by which student behaviors are measured. This statement describes unacceptable student behavior and outlines the procedures by which students are disciplined if they engage in unacceptable conduct. www.nmc.edu/about/policies/board-staff/D-602.01.html

Academic Policies

Northwestern Michigan College is committed to open access to higher education and to your academic success. Our intent is to offer support and remediation for students who are considered at risk of academic failure.

Attendance

Attendance is critical to student academic progress. Even though attendance expectations may differ from course to course, you are expected to be present, prepared, and be active participants in your classes. Students will receive a written attendance policy from the instructor at the first class meeting. A student who is repeatedly absent from class without good reason may be withdrawn from the course by the instructor.

Credit for Prior Learning

Students who have achieved competency in certain skill or course work areas may receive credit for classes or waivers of prerequisite classes. This competency could be gained through life, work, or military experience; vocational training at an area vocational, career or skill center; or completion of high school advanced placement courses. Assessment of proficiences may be demonstrated through the following options:

- AP (Advanced Placement) credit achieved through high school courses;
- CLEP (College Level Examination Program);
- ACE (American Council on Education) for veterans;
- DSST (Dantes Subject Standardized Test);
- Competency Assessment in some NMC courses;
- Course waiver;
- Articulation credit for work at the Traverse Bay Area Career Tech Center

Students who wish to pursue credit or waivers for competencies should go to www.nmc.edu/records or contact the NMC Registrar in the Records and Registration Office in the Tanis Building. Students wanting information or to register for the CLEP exam should call (231) 995-1360.

Transfer Credit Equivalences

Quarter credits or other units of credit transferred in will be converted to semester credits. To convert quarter hours, multiply the quarter hours by 2/3 to equate to semester hour. The converted quarter hours must equal the required semester credits for the purpose of satisfying graduation requirements.

Adding Classes

Courses are set up in sessions which vary by the number of weeks they meet (15-week, 8-week, 5-week, etc.). Students may add available courses up through the day before the session begins. Once the session begins, permission to add may be required from the Academic Chair or Office Manager (not the instructor). Not all academic areas will allow registration after the session has started.

Dropping Classes

Students may officially drop classes during the designated Registration/Add/Drop/Refund dates for the semester.

These dates include a drop without record period which means the course will not be reflected on the official transcript, and a drop with record period which means a grade of "W" (Withdrawn) will be assigned to the course and noted on the official transcript. A grade of "W" will not affect the NMC grade point average. It is the student's responsibility to drop their course(s), notify their instructor(s) of the drop, and be aware of any financial obligations.

Students dropping some or all of their classes may complete the process through NMC Self Service if there are no holds present on their record. This may also be done by completing an Enrollment/Drop/Add Form and submitting it to the Enrollment Services office. This may be done in person (Tanis Building) or by email to records@nmc.edu. The date the form is received in the Enrollment Services office will be considered the official date of the withdrawal. Questions about this process may be directed to Enrollment Services at (231) 995-1049.

Dropping a class is not permitted during the last 25 percent of the session in which the course is offered.

Students who wish to drop classes online and have a hold present on their record may call (231) 995-1049 for options. In most cases, the hold may be temporarily removed to allow the drop.

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Grades

THE FOLLOWING ARE STANDARD GRADES AT NORTHWESTERN MICHIGAN COLLEGE:

4.0 - outstanding
3.5 - excellent
3.0 - good
2.5 - above average
2.0 - average
1.5 - below average
1.0 - deficient
0.0 - failed
S - satisfactory
U - unsatisfactory
I - incomplete
W - withdrawn
FA - failed to attend
AU - audit

S/U (satisfactory/unsatisfactory) may be given to designate the level of performance in courses which evaluate completion of specified competencies. (For designated courses only.)

I (incomplete) may be given in unusual cases and at the discretion of the instructor if it is believed that the student has a valid reason for not having completed the course work and can fulfill the requirements of the course during the next semester. An incomplete not made up by the end of the next semester automatically becomes a 0.0. Incompletes may be extended one additional semester at the discretion of the instructor.

W (withdrawn) will be given to students who are officially withdrawn from their class after the add period and before the last twenty-five percent of the session.

FA (failed to attend)—may be given by an instructor if a student registered for a course but did not attend and did not officially drop.

AU (audit) may be issued at the time of registration upon full payment of tuition and fees if a student wishes to attend a class without college academic credit or a grade. Changing from audit to credit may take place during the period allowed for adding a class at the beginning of the semester. Changing from credit to audit may take place before the last twenty-five percent of the session. All pertinent dates are listed in the class schedule.

GOOD STANDING

You are considered to be in academic good standing when you have a minimum overall grade point average of 2.0.

GRADE POINT AVERAGE

Grade point average (GPA) is a weighted average of grades. A grade for a course is multiplied by the credit hours for that course to obtain "points." Total points are then divided by total credit hours to determine the grade point average. A GPA calculator is available online.

When a course is repeated, both the most recent grade and the previous grade will appear on the transcript (official academic record). However, only the last grade will be counted in the NMC cumulative GPA. Grades of S, U, I, W, FA, and AU are not used in the computation of grade point averages. Consult with the Advising Center with questions.

DEAN'S LIST

Students who have completed six or more credits and achieved a semester grade point average (GPA) of 3.5 or higher qualify for the Dean's List. Each student receives a congratulatory letter from the Vice President for Educational Services. Dean's List students will have their names listed in the lobby between the Biederman and Tanis buildings, and posted online.

GRADE POINT RE-EVALUATION

Northwestern Michigan College offers you an opportunity to improve upon a cumulative grade point average by repeating a course or courses, or by petitioning for a grade point re-evaluation under special circumstances. These options provide you with the opportunity to achieve a cumulative grade point average that is truly representative of your capabilities. You may pursue this option by calling the Advising Center for petitions and further information: (231) 995-1040. Transfer institutions may or may not recognize GPA re-evaluation.

For more information on GPA re-evaluation, visit www.nmc.edu/records and click on "grades."

Academic Probation

Any student whose cumulative grade point average is below a 2.0 is considered academically at risk and will be placed on academic probation. The purpose of academic probation is to assure careful academic planning and referral to support services while the student attempts to improve his or her academic record.

SUPPORT & INTERVENTION FOR STUDENTS ON ACADEMIC PROBATION

Any student who is on probation must meet with an academic advisor prior to registering for any semester or session until the status of probation is removed. This enables the student to build a realistic academic program and receive appropriate referrals to support services that afford the maximum possibility for success. Students who are on probation may not take more than 12 semester credits during fall/spring semester, or six credits during the summer session. The status of academic probation is removed when the student's cumulative grade point average becomes 2.0 or higher.

Academic Suspension

When a student has been on academic probation for two semesters and is unable to maintain a current grade point average of 2.0 or higher the following semester, that student will be suspended from academic enrollment for a period of one semester (excluding summer.) This means the student will sit out for one full semester, either fall or spring. The official transcript will reflect this action.

REINSTATEMENT FOLLOWING ACADEMIC SUSPENSION

A student who has been academically suspended is encouraged to petition the Registrar for reinstatement when the waiting period is over if he/she feels that sufficient changes have occurred to enable academic success. This petition must be made in writing at least two weeks prior to the start of the semester for which the student is seeking re-entry. Include in the petition:

1. Circumstances that you feel will lead to better academic performance
2. Your goals at NMC; for example, major filed of study and career plans
3. Your plans regarding employment if you are reinstated

Grade Alert

Learning is dependent upon regular feedback regarding student performance. Students and instructors are both responsible for this communication. Students achieving less than a 2.0 in any 15-week class may receive notification to their NMC email around the midpoint of the academic session encouraging them to contact their instructor.

Repeating Courses

Northwestern Michigan College offers you an opportunity to improve upon a cumulative GPA by repeating a course or courses. All courses and grades will appear on the transcript (official academic record); however, only the last grade will be counted in the cumulative grade point average. Most courses at NMC can be taken a maximum of three times. Exceptions are activity courses such as physical education and applied music. Financial Aid may have further restrictions and should be consulted.

Transcripts

Official transcripts of a student's academic record are released only at the request of the student. Northwestern Michigan College has partnered with Parchment to ensure security for all transactions, and allows current students and alumni to submit online orders for certified eTranscripts or paper transcripts.

Transcripts are issued only if all financial obligations have been settled with NMC and there are no active holds on the student record that prevent the release of transcripts. Refer to the Records and Registration webpage for more information, ordering instructions, and fees.

Inclement Weather Policy

It is the policy of Northwestern Michigan College to maintain normal operations on regularly scheduled days, except in very rare cases when severe weather conditions prevent this.

It is further the policy of NMC that each staff member and student will make his or her own determination concerning attendance on unfavorable travel days.

Given unfavorable weather conditions, NMC may delay or close, in which case the following actions will be taken:

- For daytime classes, a decision to delay the opening of the college or close entirely will be communicated before 5:30 a.m.
- For evening schedules, delays or closings will be announced by 3 p.m. There is a possibility that NMC would cancel all day classes and hold evening classes.
- If the college delays opening, students should report to class at the designated opening time. If a student's class begins before the designated opening time, that class would be canceled unless one-hour of instruction remains after the designated opening time. Up-to-date information regarding class cancellations and college closures will be communicated on the NMC web page at www.nmc.edu/student-services/class-cancellations.
- College delays or closures will be reported to area radio and television stations (a list of stations is available in the Public Relations and Marketing office) campus video monitors, NMC's general information number (231) 995-1000, and NMC website.
- College delays or closures will be reported via email to all faculty, staff and students via NMC email accounts, and via text message to those students who are subscribed to receive alerts on their cell phones.
- For weekend academic courses, the college closure/delay decision will first be enforced. If, on the other hand, a faculty member determines he/she cannot make it to campus for their particular class, the faculty member teaching the weekend course will update his/her voicemail greeting with the class cancellation information. Weekend students should then call their instructor's voicemail rather than the 24-hour phone line.

Non-Discrimination Policy

Northwestern Michigan College does not discriminate in admission, campus activities, education, employment, housing, public accommodation or public service on the basis of age, color, creed, disability, handicap, height, marital or familial status, national origin, political affiliation, race, religion, sex, sexual orientation, service in the military, veteran's status, weight, or any other legally protected status under federal, state, or local law. No act of retaliation shall occur to any person making a charge, filing a complaint, testifying or participating in any discrimination investigation or proceeding. In addition, although not mandated by law, it is the policy of Northwestern Michigan College to prohibit discrimination in employment, educational programs and activities and admissions on the basis of sexual orientation, gender identity and gender expression. www.nmc.edu/nondiscrimination

Harassment Policy

Northwestern Michigan College (NMC) prohibits sexual misconduct, which includes but is not limited to: rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, and domestic violence. Sexually violent acts, termed sexual misconduct by NMC are violations of NMC's Student Rights & Responsibilities, and can be crimes as well.

The College shall promptly and thoroughly investigate complaints of discrimination and/or harassment. Complaints of discrimination and/or harassment will be treated as confidentially as possible. The College will conduct fair, thorough, impartial, and timely investigation of the allegation(s) presented in a complaint. Procedures detailing the investigation and resolution processes of NMC can be found online: www.nmc.edu/policies (D-702.01 - Discrimination and Harassment Complaint Procedure).

For additional information, contact the Vice President for Student Services and Technologies at (231) 995-1671. Employees may contact the Director of Human Resources at (231) 995-1342.

Right to Know

In 1990, Congress passed into law the Student Right-to-Know and Campus Security Act. The legislation is designed to provide better consumer information to students and their families by requiring institutions of higher education to compile and report completion or graduation rates, job placement statistics, crime statistics, as well as general information about the college. Job placement statistics, crime statistics, and general information about the college is available at www.nmc.edu and the student newspaper, or may be obtained in the Admissions Office, Tanis Building, (231) 995-1054. For completion or graduation rates contact the NMC Registrar at (231) 995-1058. All Board of Trustee and Student Government meetings are open to students.

Campus Security & Safety Policy

The safety of students, faculty, staff and visitors is of vital concern to Northwestern Michigan College. Everyone in the campus community is involved in creating a safe environment and is encouraged to report all safety concerns by calling campus security, (231) 883-9099. Emergency outdoor phones are identified by a blue light; all incidents will be documented and investigated. NMC has a staff of campus security personnel who work closely with the Traverse City Police Department. On a regular basis, information and presentations are made available to students and employees on issues of importance to campus safety. The campus safety report is published online at www.nmc.edu/safety and is in compliance with the Student Right-to-Know and Campus Security Act. Visit www.nmc.edu/safety to view a daily crime log. Click on crime log.

Campus Safety Report

Mission: to establish a system of communication and response to provide for the safety of students and employees.

A. Report Procedures: To report criminal actions, emergencies, or suspicious situations, call:
   Emergencies **911**
   Campus Security ..... **(231) 995-1111**
   Emergency outdoor phones are identified by a blue light and can be used to make on-campus calls. To make an emergency call, press the red button, state your location and the situation. Police personnel will respond.
B. Access to Campus Facilities: All campus buildings are open from 7 a.m. to 10 p.m., Monday through Friday, and at other times on weekends depending on need. Residence halls are open from 7 a.m. to 12 midnight every day. Residents have keys and guests are required to register with the residence hall staff after midnight. All guests must be escorted by the resident they are visiting.
C. Authority of Institutional Security Personnel: The NMC Campus Security personnel have the authority to confront the individuals related to an incident, require identification, and when necessary, contact the Traverse City Police Department. Officers keep a daily record of activities and all incidents are promptly reported to the Campus Liaison Officer.
D. Information Programs: On a regular basis students and employees receive information on campus security and crime prevention and are invited to attend presentations on such subjects as sexual assault and rape; fire prevention; crime prevention; bomb threats; and alcohol and drug abuse prevention.
E. Occurrence Statistics: The NMC Campus Security and Safety Department has compiled these statistics for incidents on NMC's four campuses from January 1, 2017 to December 31, 2017. Go to www.nmc.edu/security to view statistics for the past three years.

Offenses On Campus

O - On Campus **R** - On Campus Residential **N** - Non-Campus Property

	O	R	N
Murder / Non Negligent	0	0	0
Negligent Manslaughter	0	0	0
Sex Offenses: Forcible	0	0	0
Sex Offenses: Non forcible	0	0	0
Robbery	0	0	0
Aggravated Assault	0	0	0
Burglary	0	0	0
Motor Theft	0	0	0
Arson	0	0	0
Liquor Law Violations: Referred for action	10	10	0
Liquor Law Violations: Arrest	2	2	0
Drug Law Violations: Referred for action	10	10	0
Drug Law Violations: Arrest	5	5	1
Illegal Weapons Violations: Referred for action	0	0	0
Illegal Weapons Violations: Arrest	0	0	0
Hate Crime	0	0	0
Domestic Violence	1	1	0
Dating Violence	0	0	0
Stalking	0	0	0

The Michigan State Police make available the list of registered sex offenders at www.michigan.gov/msp select "Michigan Sex Offender Registry."

This information is published in compliance with the Student Right-to-Know and Campus Security Act, Public Law 101-542, as amended by the Higher Education Technical Amendments of 1991, Public Law 102-26.

Drug-Free Learning Environment Policy

It is the intent of Northwestern Michigan College to provide a drug-free workplace and learning environment for students, faculty and staff. Furthermore, NMC intends to comply with the provisions of the Drug-Free Schools and Communities Act of 1989. All students, employees, and visitors are expected to observe all federal, state and local laws and college regulations governing the use and possession of alcohol and illicit drugs. All students, employees and visitors are specifically forbidden to use or possess alcoholic beverages, or to be under the influence of any controlled substance while on college property (except as provided by policy for use of alcohol on campus) or violate conditions of Controlled Substance Act.

Tobacco-Free Policy

In the interest of providing a safe, clean and healthy environment for students, employees and visitors, NMC has prohibited smoking on all campuses.

Student Sexual Assault Policy

I. Legal and Behavioral Definition of Sexual Assault

Northwestern Michigan College (NMC) prohibits sexual misconduct, which includes but is not limited to: rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, and domestic violence. Sexually violent acts, termed sexual misconduct by NMC are violations of NMC's Student Rights & Responsibilities, and can be crimes as well. All reported incidents will be investigated and, if necessary, disciplinary sanctions will be imposed. Procedures detailing the investigation and resolution processes of NMC can be found online: www.nmc.edu/policies (D-602.05 - Student Sexual Assault).

II. Reporting Sexual Assault

The following campus offices may be contacted to report a sexual assault:

Vice President of Student Services and Technologies ..... (231) 995-1671
Office of Residence Life ..... (231) 995-1400
Office of Student Life ..... (231) 995-1118
Student Health Services ..... (231) 995-1255
Local law enforcement 911
Campus Safety and Security ..... (231) 995-1111

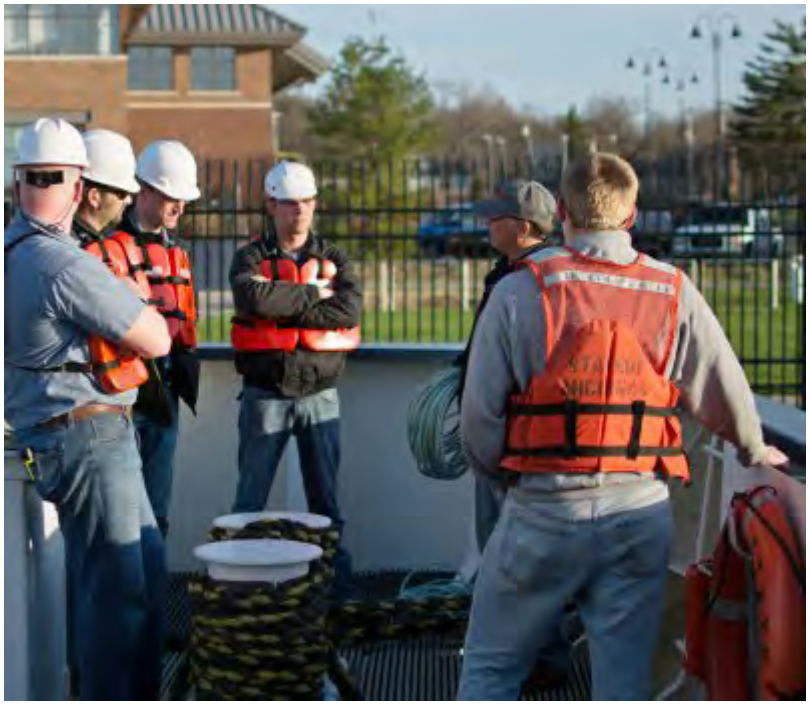
The option of reporting to a supervisor in any discipline or department is also available.

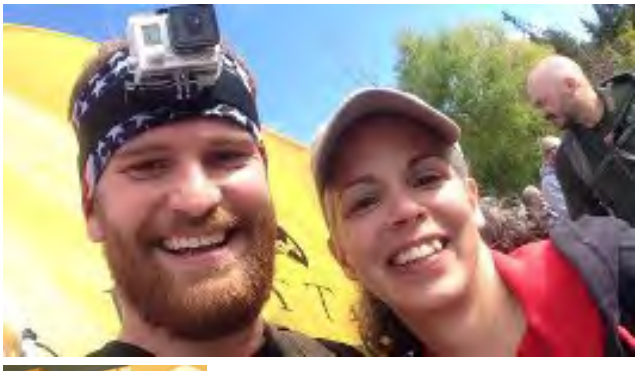
Family Educational Rights & Privacy Act

The Family Educational Rights and Privacy Act (FERPA) helps protect the privacy of student records. The Act provides for the right to inspect and review educational records, the right to seek to amend those records and to limit disclosure of information from the records. Institutions may disclose information on a student without violating FERPA through what is known as "directory information." Directory information includes the student's name, address, telephone number, e-mail address, date and place of birth, major field of of study, participation in officially recognized activities, enrollment status, dates of attendance, degrees and awards received. Questions about student records may be directed to the Registrar. Go to www.nmc.edu/records for more information.

Privacy Statement

In order to improve the instruction offered at Northwestern Michigan College and to meet the requirements of the Carl D. Perkins Vocational and Technical Education Act, Section 113 and the Workforce Investment Act of 1998, Section 122, we will be using your Social Security Number in order to compile summary reports. Section 113 of the Carl D. Perkins and Technical Education Act, 20 USC 2323, and section 122 of the Workforce Investment Act of 1998, 29 USC 2842, requires Northwestern Michigan College and the State of Michigan to assess the effectiveness of vocational and technical education programs aimed at training, placement, and retention of students in employment. Although these laws require that performance reports be compiled based on wage record information, neither law requires students to give their social security numbers (SSN) to the college. Northwestern Michigan College reports currently enrolled student status to the National Student Clearinghouse each semester. This information is provided to assist students to defer repayment of student loans during the time a student is enrolled. Information is also provided to verify degrees earned and may be used by potential employers who contact the National Student Clearinghouse. Students may access the Clearinghouse website through NMC's secure website to obtain verification of their student status to be used for insurance purposes.





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M.S., Michigan State University
B.S., B.A., University of Puerto Rico

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Executive Assistant to the President and Board of Trustees
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B.A., Adelphi University
A.A., Nassau Community College

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Ed.D., Texas Tech University
M.B.A., University of Alaska Southeast
B.S., State University of New York Maritime College

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B.A., University of Maryland, College Park

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B.A., Baylor University
B.S., Bellevue University
A.A.S., McLennan Community College

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Executive Director of Human Resources
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Executive Director of Resource Development and Foundation
Certified Fund Raising Executive (CFRE)
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Advanced Level Specialist (ASE)
Automobile Service Consultant (ASE)
Master Auto Mechanic, State of Michigan

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Certified Executive Chef (CEC)
Certified Chef de Cuisine (CCC)
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Registered Dental Assistant (RDA)
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Zlojutro, Jane M.
Business Instructor
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M.S.T., Grand Valley State University
B.B.A., Western Michigan University

Emeritus Faculty

The following faculty members have retired with twenty or more years of service.

Glen Anderson	1959-85
Norman Averill	1966-96
Stephen Ballance	1975-00
Pauline Baver	1951-75
Elaine Beardslee	1963-94
Walter Beardslee	1951-85
Jay Beery	1981-12
Jack Berman	1976-17
Joan Berg	1977-00
Lyle Bradford	1968-88
Robert Buttleman	1970-06
Larry Buys	1970-01
Elizabeth Carden	1970-00
Larry Carps	1971-01
Alison Collins	1979-19
Richard Cookman	1970-00
Helen Core	1952-74
James Coughlin	1987-15
Sharon Dean	1965-92
Joseph Dionne	1971-06
Doug Domine	1988-16
Kathleen Donnelly	1961-85
David Donovan	1971-01
Sallie Donovan	1975-06
Diane Emling	1987-15
William Faulk	1965-01
Adam Gahn	1963-01
Ernest Gaunt	1952-77
Richard Gertz	1968-88
Richard Goerz	1970-00
Michele Grooters	1977-01
Alan Hart	1987-14
Jill Hinds	1979-04
Lucille House	1991-15
Sherry Howard	1986-16
Karen Howie	1987-10
Constance Jason	1980-12
Bronwyn Jones	1988-19
Dianne Keelan	1974-01
Francis Kullman	1968-96
John Leishman	1968-94
Mary Ann Linsell	1979-14
Loretta Lockman	1964-84
William Long	1965-88
David Loveland	1973-94
Keith MacPhee	1962-96
Kenneth Marek	1968-01
Kenneth Masck	1975-02
Regis McCord	1986-15
Michael McIntosh	1970-04
Richard Minor	1972-00
Hettie Molvang	1974-94
Henry Morgenstein	1971-00
Arlo Moss	1962-88
Peter Nelson	1964-88
Ray Niergarth	1979-10
Mary Norris	1982-12
Harry Oliver	1958-89
Keith Overbaugh	1987-17
Jack Ozegovic	1968-89
John Pahl	1966-13
Richard Pascoe	1966-88
Anne Patrick	1984-07
Jim Press	1989-16
Mark Puchala	1986-12
Joseph Rogers	1955-84
Jean Rokos	1981-16
Kenneth Rose	1968-00
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Frank Snyder	1973-15
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