CEGE

CIVIL, ENVIRONMENTAL, AND GEOSPATIAL ENGINEERING

2023-2024

Undergraduate Academic Advising

Jake Hebert, CE '18

PROJECT ENGINEER 2, MORTENSON

Through his role, Jake has helped to build a hospital in North Dakota, worked on a skyscraper in Minneapolis, climbed a wind turbine he helped energize in southern Minnesota, and played a role in establishing the world's largest solar and energy storage facility in California. As a project engineer, he is responsible for managing subcontractors and suppliers, coordinating with design team, overseeing field engineers, establishing schedules, and working through procurement, financials, quality, and safety.

FUN FACT: Since graduation, he has continued to work for the same company, while living in Iowa, Minnesota, North & South Dakota, and California.

Congratulations on making a crazy smart decision that will positively impact the rest of your life.

You have chosen to pursue a degree in civil/environmental/geospatial engineering or construction management in the Department of Civil, Environmental, and Geospatial Engineering, at a top engineering school–Michigan Technological University.

No matter what you do after graduation, your degree will get you there.

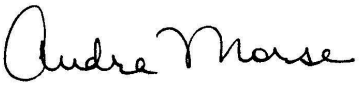
Graduates from our Bachelor of Science programs work for Fortune 500 Companies, Engineering News Record Top 500 Engineering Companies, as well as go on to graduate school or pursue other advanced degrees.

The faculty and staff of the Civil, Environmental, and Geospatial Engineering Department value our students and want to see you succeed. So please, visit the faculty during their office hours, ask them questions, and let them know you value your education as much as they do.

Julie Ross, your academic advisor, is the best advisor on the Michigan Tech campus. Work with her to optimize your academic plan to achieve your degree.

Last but not least, please know that my door is open for you to share your achievements and the challenges you overcome in the pursuit of your academic degree.

Again, congratulations on starting a new chapter in your academic career. We are glad you chose the Civil, Environmental, and Geospatial Engineering Department at Michigan Tech as your new home.



Best wishes,
Audra Morse, PhD, PE, BCEE, F.ASCE
Interim Dean (College of Engineering)

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Advising Syllabus

MISSION: Advisors and students working together to develop an individualized academic plan for accomplishing student goals.

ADVISING DEFINED: Academic Advising is a relationship and a process that results in benefits for student, advisor, and university as a whole. The advisor and student collaborate to develop, follow, and complete an academic plan. A productive advising relationship will help students envision, foster, and realize their goals here at Michigan Tech and for a lifetime.

STUDENT LEARNING OUTCOMES

- Knowledge of university student learning goals and degree requirements
- A thorough understanding of your academic plan
- Ability to find and use advising resources
- Increased and improved self-awareness and decision-making skills

STUDENT RESPONSIBILITIES (What you should do)

- Take responsibility for academic planning
- Understand learning goals and degree requirements
- Follow academic procedures and policies
- Communicate with your advisor: read all advising correspondence
- Attend advising meetings prepared
- Apply advising recommendations in order to achieve your academic plan
- Seek assistance from instructors, learning centers, and other university services
- Contact your advisor promptly when you have questions or concerns. When faced with a difficult question or challenging situation, your academic advisor is a good place to begin
- Problem-solve to revise and achieve your academic plan

ACTIVITIES (How advisors and students realize outcomes and goals)

- Identify a degree program that aligns with your academic interests and abilities
- Create an educational plan that fulfills the academic plan
- Select appropriate classes to satisfy your evolving goals
- Learn the benefits of internships, co-ops, and study abroad
- Explore academic options: Enterprise program, undergraduate research, Pavlis Honors College, dual majors, secondary degrees, minors, and graduate study
- Locate and use resources and services
- Interpret university requirements, policies, regulations, and procedures
- Develop decision-making skills, self-awareness, and self-direction
- Clarify and evaluate progress toward academic and life goals

ADVISORS ADVOCATE FOR STUDENTS, PROTECT AND ENSURE THEIR PRIVACY AND THEIR RIGHTS AS ADVISEES IN COMPLIANCE WITH UNIVERSITY POLICIES:

- mtu.edu/deanofstudents/disability
- mtu.edu/registrar/faculty-staff/ferpa
- mtu.edu/registrar/students/advising

Student Academic Advising Checklist

ORIENTATION WEEK

Preparing for your first semester

- ☐ **Login to MyMichiganTech & review your transcript.** Are AP credit & transfer credits correct?
- ☐ Meet academic advisor
- ☐ Complete class registration & print class schedule
- ☐ Explore Campus Resources & visit these websites
  - Your department & advisor
  - Undergraduate Catalog - www.mtu.edu/catalog
  - Dean of Students - www.mtu.edu/deanofstudents
  - Registrar - www.mtu.edu/registrar
  - Advising - www.mtu.edu/registrar/students/advising
  - Library - www.mtu.edu/library - take a library tour
  - Wellness & Counseling - www.mtu.edu/well-being

YEAR 1

Transitioning & adjusting to college life

- ☐ Attend first year advising meeting with your major advisor
  - Unsure about your major? Meet with:
  - General sciences/arts undeclared advisor: www.mtu.edu/sciences-arts/undergraduate/gsa OR
  - General/undecided engineering advisor: www.mtu.edu/ef/degree/advising
- ☐ Review major requirements
  - Run interactive audit each semester after registration - www.mymichigantech.mtu.edu
- ☐ Review Academic Policies & Academic Integrity - www.mtu.edu/deanofstudents
- ☐ Review University Student Learning Goals & your major's goals - www.mtu.edu/learning-goals
- ☐ Visit Career Services - www.mtu.edu/career
- ☐ Create a resume & attend career fairs - mtu.joinhandshake.com/login
- ☐ Begin to explore Pavlis Honors College, internship, co-op, research, study abroad, minors
- ☐ Learn about campus activities & student organizations - www.involvement.mtu.edu/organizations

YEAR 2

Academic & career exploration, & personal development

- ☐ Meet with advisor, bring your academic plan
  - Run interactive audit each semester after registration - www.mymichigantech.mtu.edu
- ☐ Explore interests, strengths, & careers
  - Within your department & network with faculty in your major
  - Career Services - www.mtu.edu/career
- ☐ Update your resume & attend career fairs
- ☐ Explore/participate Pavlis Honors College, internship, co-op, research, study abroad, minors
- ☐ Consider joining an Enterprise - www.mtu.edu/enterprise

YEAR 3

Academic enhancement & career goal setting

- ☐ Run interactive audit each semester after registration - www.mymichigantech.mtu.edu
- ☐ Meet with advisor to prepare for graduation
- ☐ Network with faculty in your major
- ☐ Attend Career Services & Graduate School workshops for career planning
  - Consider Accelerated Masters - www.mtu.edu/accelerated
  - Consider Senior Rule Classes - www.mtu.edu/registrar/students/registration/policies/senior-rule
- ☐ Develop career goals
- ☐ Explore/participate Pavlis Honors College, internship, co-op, research, study abroad, minors
- ☐ Update resume & attend career fairs

FINAL YEAR

Transitioning out of college into career or graduate school

- ☐ Apply for graduation by 10th week of the semester prior to graduation
  - Must have earned 90 credits or more
  - www.mtu.edu/registrar/students/graduation/degree
- ☐ Meet with advisor for final degree audit one semester before graduation
  - Run interactive audit each semester after registration - www.mymichigantech.mtu.edu
- ☐ Network with faculty in your major
- ☐ Finalize career/graduate school plans
  - Complete the First Destination survey - https://mtu.joinhandshake.com/login
  - Complete Loan Exit Counseling for Financial Aid, if needed - (906) 487-2662
- ☐ Graduation
  - Check for your name on the Graduation Candidate List - www.mtu.edu/commencement
  - Order cap & gown, honor cords - optional - www.mtu.edu/commencement
  - Participate in commencement ceremony - optional

Tough question or scenario? Ask your academic advisor!

Heidi Anderson, EEN '18

SENIOR STAFF ENGINEER
APPLIED TECHNOLOGY MANAGEMENT

In her role, Heidi serves primarily as a coastal engineer working a variety of coastal and waterfront projects. Her projects typically involve hydrodynamic numerical modeling, including wind-wave models to aid in the design of coastal structure, sediment transport modeling, marina permitting, design, construction documents and oversight, beach nourishment design, living shoreline design, and habitat restoration and enhancement design. To further her education, she is working on an online master's degree while maintaining her full-time employment.

FUN FACT: She enjoys spending time at the beach enjoying and learning about the coastal habitats of South Carolina. She further shares her knowledge as an exhibit guide on the weekends at the South Carolina Aquarium.

Tips for Academic Success

GO TO CLASS… AND BE PRESENT

The decisions you make today directly impact your future…so go to class, turn off your phone, and get ready to learn!

READ & COMPLY WITH THE SYLLABUS

Each class comes with a "roadmap to success" (aka syllabus). Read it, follow it, and save it for future reference.

JOIN A CLUB & GET INVOLVED

Joining a group is a great way to make friends–and if it is engineering related–you'll get a jump-start on building your resume and network.

NEED HELP? JUST ASK!

Visit your professors during office hours and check out the learning centers and CEGE Bernson Student Success Center. Online resources such as Coursera and Kahn Academy are great too! Check out these academic support resources: mtu.edu/success/academic/support

BALANCE SCHOOL & LIFE ACTIVITIES

Your new friends invited you to go exploring, but you have a pile work to do…Learn to make the most of your time between classes and get homework done or study for exams. This will help free up time at the end of each day, so you can relax or hang with friends.

REMEMBER, YOU MAY NOT GET ALL A'S

You didn't choose Michigan Tech because you thought it would be a walk in the park. If you have a rough semester, don't let it get you down! Our courses are designed to be challenging, so you are prepared to hit the ground running the moment the diploma hits your hand.

Stressed or anxious? Not sure how to cope?

If you feel the stress is too much, or you are concerned about a friend or classmake, don't hesitate to reach out to Counseling Services or explore My Student Support Program (My SSP):

906-487-2538 • counseling@mtu.edu • mtu.edu/well-being

What can you do *now* to be successful in the *future?*
Make the grade.

Freshmen Chemistry:
CH 1150 & CH 1160

Math: MA 1160, MA 2160,
MA 3160, MA 2321& MA 3521

Physics:
PH 2100 & PH 2200

Engineering:
ENG 1101 & ENG 1102

Earn a C, B, or even better, an A...

and hello— less stress & better career opportunities.

Boom.

if

If you receive an F in any required course, you have to retake it before moving on to the next class in the sequence. We strongly encourage you to retake any required courses if you receive a CD or D. Civils are required to receive a C or better in MA2160 (Calc II) before moving on.

WHAT ARE THE RULES FOR REPEATING CLASSES?

1. **You must retake any required class in which you receive an F; however, you can choose to repeat any course.**
2. **The most recent grade always replaces the previous grade.** Retaking a class and receiving a better grade will improve both your semester and overall GPAs. However, you can retake a class and get a lower grade. For example if you have a D (a passing grade) and retake a course and receive an F (a failing grade), you now have a failing grade in the course and will have to retake the class a third time.
3. **You may only take a class three times.** You must receive permission from the Dean of Student's Office and your academic advisor to register for a class the third time. If the class that you are retaking is a required class for your program, and you do not pass the class during the third attempt then you may no longer continue in the program.

Review the Registrar's Office policy on retaking classes:
mtu.edu/registrar/students/registration/policies/repeat-course

Kyle Hiltunen

LAND SURVEYOR
UP ENGINEERS & ARCHITECTS

For Kyle, surveying is about the history that is encountered in everyday work and in the surveying profession as a whole, where he experiences something new daily. In his current role, he performs land surveys on everything from small lots to large tract boundaries, while also collecting spatial data for engineering applications.

FUN FACT: He worked in Alaska on a summer internship, where he assisted in original government subdivision surveys.

Calling all creative, curious, analytical, and detail-oriented individuals: tackle growing infrastructure challenges as a civil engineer.

At Michigan Tech you will have unparalleled undergraduate opportunities:

- **State-of-the-art facilities:** Study asphalt and ultra-high-performance concrete and experiment in the pilot-scale environmental simulation lab
- **Hands-on learning:** From Senior Capstone and internships to having one of the highest co-op rates on campus, our students are in high demand
- **Go global:** Check out Engineers Without Borders and International Senior Design programs, or participate in the Study Abroad Program
- **Be rail-ly innovative:** The innovative Rail Transportation Program is one of the first in the nation. Its mission? To advance rail education and research across disciplines

Course Descriptions

Civil Engineering course descriptions can be found here:
MTU.EDU/CATALOG/COURSES

Academic Advising

Julie Ross
ACADEMIC ADVISOR

(906) 487-3410
jzross@mtu.edu
Dillman 103

Kalvin Lentz
CE '19

LEAD ENGINEER, MANSON CONSTRUCTION COMPANY

Kalvin's responsibilities center around dredging–from planning for dredging areas to hydrographic and topographic surveying and project management. His projects are based around the gulf and east coast including beach building projects in Galveston, TX, Pensacola, FL, and Fernandina, FL.

FUN FACT: His work rotations are 19 days on followed by 9 days off, allowing plenty of time for travel!

F INDICATES COURSE IS OFFERED FALL SEMESTER

S INDICATES COURSE IS OFFERED SPRING SEMESTER

Su INDICATES COURSE IS OFFERED SUMMER SEMESTER

(L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

(C) INDICATES THE COURSE CAN EITHER BE TAKEN AT THE SAME TIME (CO-REQ) OR TAKEN PRIOR TO THE COURSE (PRE-REQ)

CIVIL ENGINEERING FLOWCHART
General Path
Academic Year 2023-24

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)

Michigan Tech

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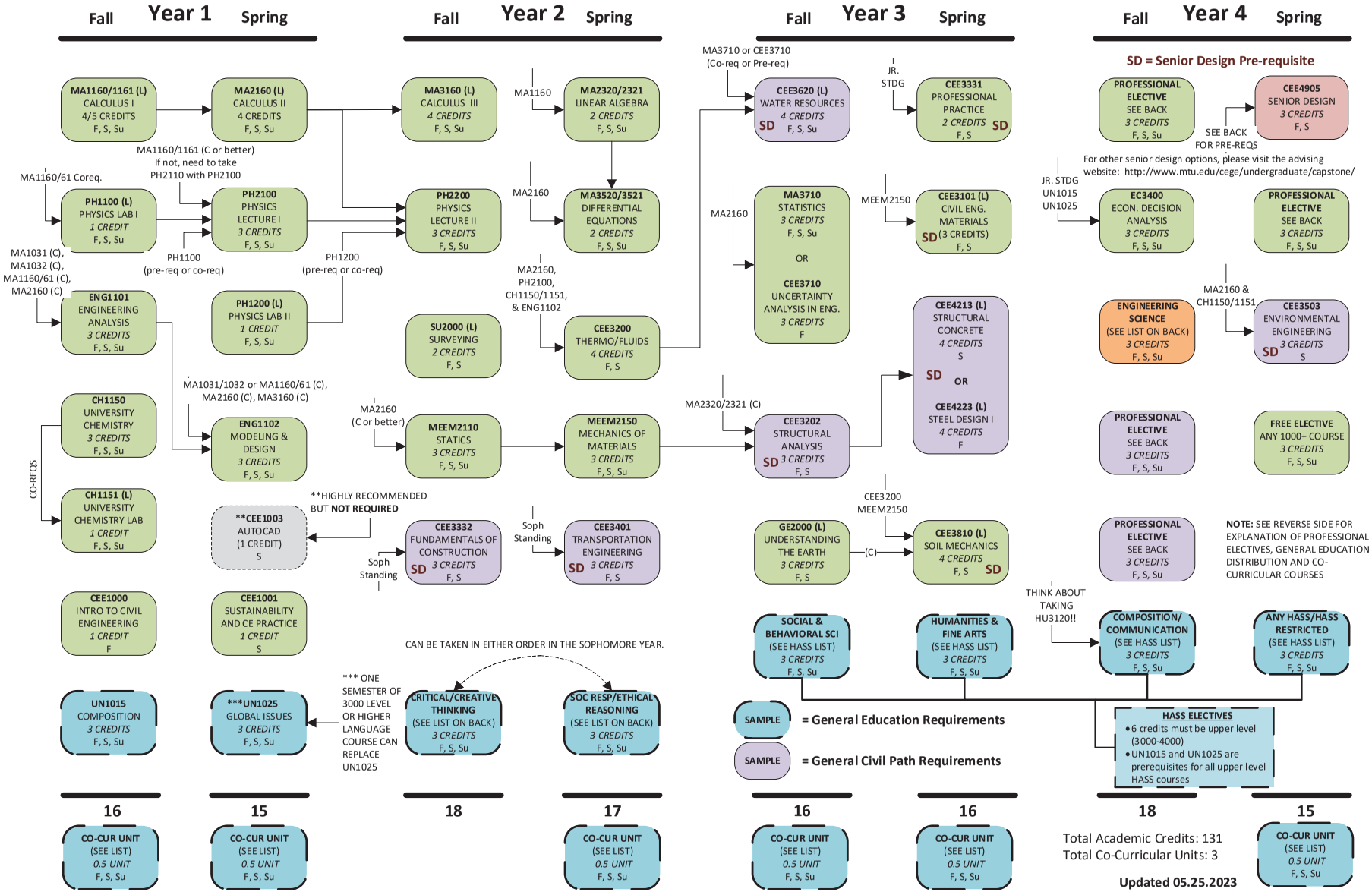

ENGINEERING SCIENCE ELECTIVE
(select 1)

BE2700	BIOMEDICAL SIGNALS & SYSTEMS
CM2110	MATERIAL AND ENERGY BALANCES
CM2200	INTRO TO MINERALS & MATERIALS
EE3010	CIRCUITS AND INSTRUMENTATION
MSE2100	INTRO TO MATERIALS SCI & ENGRG
MEEM2201	INTRODUCTORY THERMODYNAMICS
MEEM2700	DYNAMICS

SENIOR DESIGN (SD) PRE-REQS
(complete 7 of the following)

CEE3101, CEE3202, CEE3331, CEE3332, CEE3401, CEE3503, CEE3620, CEE3810, CEE4213 or CEE4223

GENERAL EDUCATION REQUIREMENTS

A. CORE COURSES (12 CREDITS)

1. **UN1015** (COMPOSITION)

2. **UN1025** (GLOBAL ISSUES) or 3000+ level Modern Language Course

3. **CRITICAL AND CREATIVE THINKING**

ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**

EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMM/COMP: _____
2. HUMANITIES & FINE ARTS: _____
3. SOCIAL & BEHAVIORAL SCIENCES: _____
4. ANY HASS OR HASS RESTRICTED COURSE: _____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

1. _____ **4.** _____
2. _____ **5.** _____
3. _____ **6.** _____

UNDERGRADUATE CATALOG (COURSE DESCRIPTIONS):
https://www.mtu.edu/catalog/courses/

GENERAL EDUCATION (CO-CURRICULAR & HASS LIST):
https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

PROFESSIONAL ELECTIVES

UNDERGRADUATE CATALOG: https://www.mtu.edu/catalog/courses/

- Any **1000** or higher level course in **Computer Science, Fine Arts or Forestry**. (CS, ART, FW, MUS, SND, THEA)
- Any **2000** or higher level course in **Biological Sciences, Chemistry, Construction Management, Geology, Physics or Geospatial Engineering**. (BL, CH, CMG, GE, PH, SU)
- Any **2000** or higher level course in **Business or Economics** (ACC, BUS, EC, FIN, MGT, MIS, MKT, OSM).
- Any **3000** or higher level course in **Mathematics, Humanities, Psychology, Social Sciences or University Wide** (MA, HU, PSY, SS, UN).
- Any **3000** or higher level course in **Civil and Environmental Engineering** (CEE) or **any other Engineering Dept**.

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL, ENVIRONMENTAL, AND GEOSPATIAL ENGINEERING ACADEMIC ADVISOR.

F INDICATES COURSE IS OFFERED FALL SEMESTER

S INDICATES COURSE IS OFFERED SPRING SEMESTER

Su INDICATES COURSE IS OFFERED SUMMER SEMESTER

(L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

(C) INDICATES THE COURSE CAN EITHER BE TAKEN AT THE SAME TIME (C0-REQ) OR TAKEN PRIOR TO THE COURSE (PRE-REQ)

CIVIL ENGINEERING FLOWCHART
Built Infrastructure Path
Academic Year 2023-24

Michigan Tech

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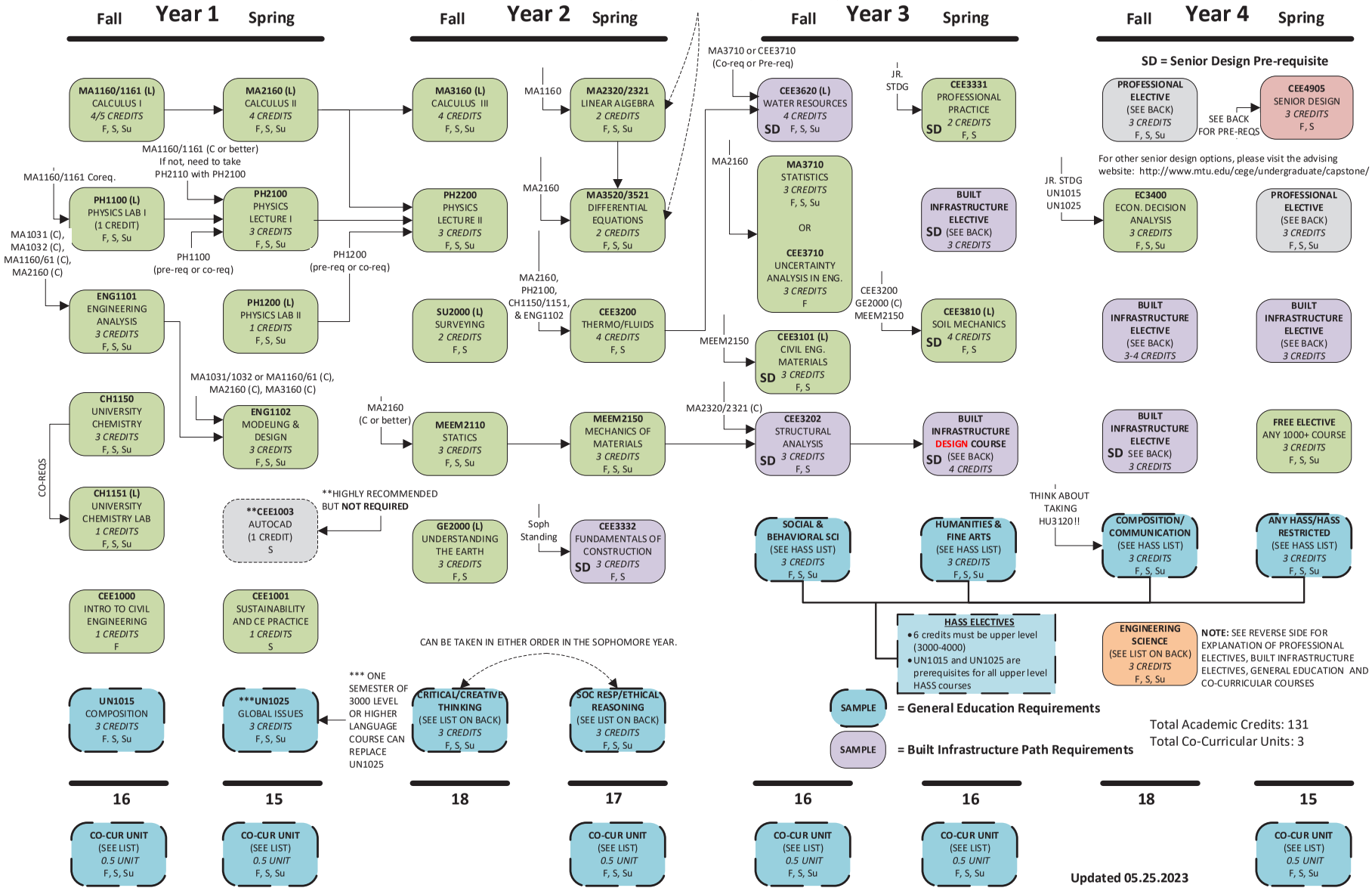
NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)



BUILT INFRASTRUCTURE REQUIREMENTS

BUILT INFRASTRUCTURE DESIGN COURSE (select 1)

CEE4213	STRUCTURAL CONCRETE DESIGN	Spring	4 cr.
CEE4223	STEEL DESIGN 1	Fall	4 cr.

BUILT INFRASTRUCTURE ELECTIVES (select 4)

CEE4020	DIGITAL PROJECT DELIVERY	Fall	3 cr.
CEE4201	MATRIX STRUCTURAL ANALYSIS	Fall	3 cr.
CEE4213	STRUCTURAL CONCRETE DESIGN	Spring	4 cr.
CEE4223	STEEL DESIGN 1	Fall	4 cr.
CEE4233	STRUCTURAL TIMBER DESIGN	Spring	3 cr.
CEE4244	LOADS FOR CIVIL STRUCTURES	Spring	3 cr.
CEE4333	ESTIMATING, PLANNING, CONST.	Fall	3 cr.
CEE4344	CONSTRUCTION SCHEDULING	Spring	3 cr.
CEE4820	FOUNDATION ENGINEERING	Fall	3 cr.
CEE4830	GEOSYNTHETICS	Spring	3 cr.
CEE4850	ROCK ENGINEERING	Spring	3 cr.
CEE5212	PRESTRESSED CONCRETE DESIGN	Fall	3 cr.
CEE5213	CONCRETE/MASONRY BLDG SYS	Fall	3 cr.

UNDERGRADUATE CATALOG (COURSE DESCRIPTIONS):
https://www.mtu.edu/catalog/courses/

GENERAL EDUCATION (CO-CURRICULAR & HASS LIST):
https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

PROFESSIONAL ELECTIVES

UNDERGRADUATE CATALOG: https://www.mtu.edu/catalog/courses/

- Any **1000** or higher level course in **Computer Science, Fine Arts or Forestry**. (CS, ART, FW, MUS, SND, THEA)
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- Any **2000** or higher level course in **Business or Economics** (ACC, BUS, EC, FIN, MGT, MIS, MKT, OSM).
- Any **3000** or higher level course in **Mathematics, Humanities, Psychology, Social Sciences or University Wide** (MA, HU, PSY, SS, UN).
- Any **3000** or higher level course in **Civil and Environmental Engineering** (CEE) or **any other Engineering Dept**.

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL, ENVIRONMENTAL, AND GEOSPATIAL ENGINEERING ACADEMIC ADVISOR.

SENIOR DESIGN (SD) PRE-REQS

(complete 7 of the following)

CEE3101, CEE3331, CEE3332, CEE3202, CEE3620, CEE3810, BUILT INFRASTRUCTURE DESIGN COURSE, & 2 BUILT INFRASTRUCTURE ELECTIVES

ENGINEERING SCIENCE ELECTIVE

(select 1)

BE2700	BIOMEDICAL SIGNALS & SYSTEMS
CM2110	MATERIAL AND ENERGY BALANCES
CM2200	INTRO TO MINERALS & MATERIALS
EE3010	CIRCUITS AND INSTRUMENTATION
MSE2100	INTRO TO MATERIALS SCI & ENGRG
MEEM2201	INTRODUCTORY THERMODYNAMICS
MEEM2700	DYNAMICS

GENERAL EDUCATION REQUIREMENTS

A. CORE COURSES (12 CREDITS)

1. **UN1015** (COMPOSITION)

2. **UN1025** (GLOBAL ISSUES) or 3000+ level Modern Language Course

3. **CRITICAL AND CREATIVE THINKING**
ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**
EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMM/COMP:
_____

2. HUMANITIES/FINE ARTS:
_____

3. SOCIAL & BEHAVIORAL SCIENCES:
_____

4. ANY HASS OR HASS RESTRICTED COURSE:
_____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
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C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

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CIVIL ENGINEERING FLOWCHART
Transportation Path
Academic Year 2023-24

Michigan Tech

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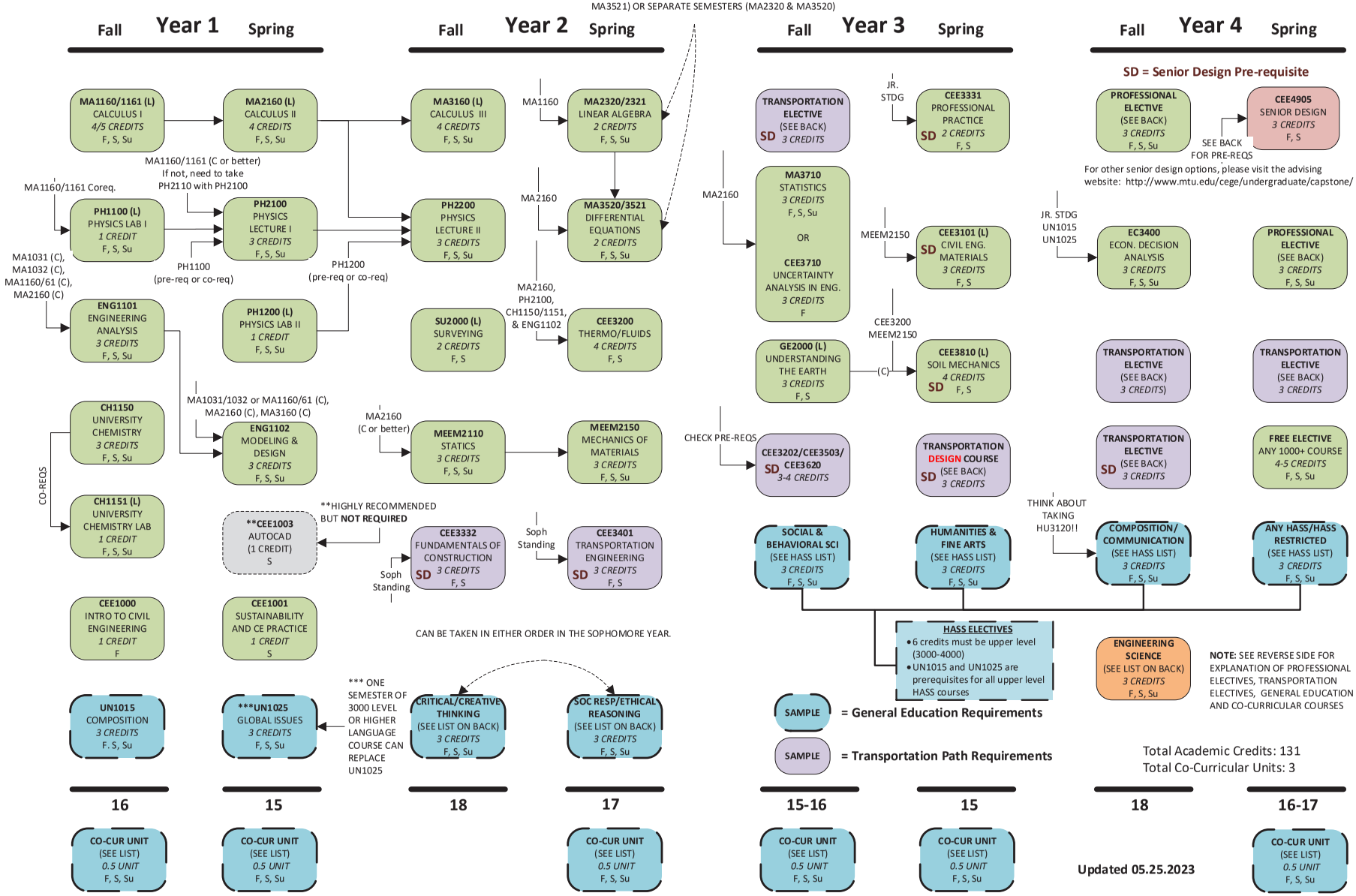

TRANSPORTATION REQUIREMENTS

Choose 1 course from the following

CEE3202	STRUCTURAL ANALYSIS	F, Sp	3 cr.
CEE3503	ENVIRONMENTAL ENG.	Sp	3 cr.
CEE3620	WATER RESOURCES ENG	F, Sp, Su	4 cr.

TRANSPORTATION DESIGN COURSE (Select 1)

CEE4401	PAVEMENT DESIGN	Fall	3 cr.
CEE4407	TRANSPORTATION DESIGN	Spring	3 cr.

TRANSPORTATION ELECTIVES (select 4)

CEE4020	DIGITAL PROJECT DELIVERY	Fall	3 cr.
CEE4101	BITUMINOUS MATERIALS	Fall	3 cr.
CEE4333	ESTIMATING, PLAN., CONST	Fall	3 cr.
CEE4344	CONSTRUCTION SCHEDULING	Spring	3 cr.
CEE4401	PAVEMENT DESIGN	Fall	3 cr.
CEE4402	TRAFFIC ENGINEERING	Fall	3 cr.
CEE4404	RAILROAD ENGINEERING	Fall	3 cr.
CEE4406	AIRPORT PLANNING	Spring	3 cr.
CEE4407	TRANSPORTATION DESIGN	Spring	3 cr.
CEE4410	TRANSPORTATION PLANNING	Fall	3 cr.
CEE4760	OPT. METHODS IN CEE	Spring	3 cr.
CEE5190	SPECIAL TOPICS	Varies	3 cr.
CEE5402	TRAFFIC FLOW THEORY	Spring (alt)	3 cr.

SENIOR DESIGN (SD) PRE-REQS

(complete 7 of the following)

CEE3101, (CEE3202 or CEE3503 or CEE3620), CEE3331, CEE3332, CEE3401, CEE3810 TRANSPORTATION DESIGN COURSE, & 2 TRANSPORTATION ELECTIVES

ENGINEERING SCIENCE ELECTIVE

(select 1)

BE2700	BIOMEDICAL SIGNALS & SYSTEMS
CM2110	MATERIAL AND ENERGY BALANCES
CM2200	INTRO TO MINERALS & MATERIALS
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ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**
EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMM/COMP: _____
2. HUMANITIES/FINE ARTS: _____
3. SOCIAL & BEHAVIORAL SCIENCES: _____
4. ANY HASS OR HASS RESTRICTED COURSE: _____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

1. _____ **4.** _____
2. _____ **5.** _____
3. _____ **6.** _____

PROFESSIONAL ELECTIVES

UNDERGRADUATE CATALOG: https://www.mtu.edu/catalog/courses/

- Any **1000** or higher level course in **Computer Science, Fine Arts or Forestry**. (CS, ART, FW, MUS, SND, THEA)
- Any **2000** or higher level course in **Biological Sciences, Chemistry, Construction Management, Geology, Physics or Geospatial Engineering**. (BL, CH, CMG, GE, PH, SU)
- Any **2000** or higher level course in **Business or Economics** (ACC, BUS, EC, FIN, MGT, MIS, MKT, OSM).
- Any **3000** or higher level course in **Mathematics, Humanities, Psychology, Social Sciences or University Wide** (MA, HU, PSY, SS, UN).
- Any **3000** or higher level course in **Civil and Environmental Engineering** (CEE) or **any other Engineering Dept**.

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL, ENVIRONMENTAL, AND GEOSPATIAL ENGINEERING ACADEMIC ADVISOR.

F INDICATES COURSE IS OFFERED FALL SEMESTER

S INDICATES COURSE IS OFFERED SPRING SEMESTER

Su INDICATES COURSE IS OFFERED SUMMER SEMESTER

(L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

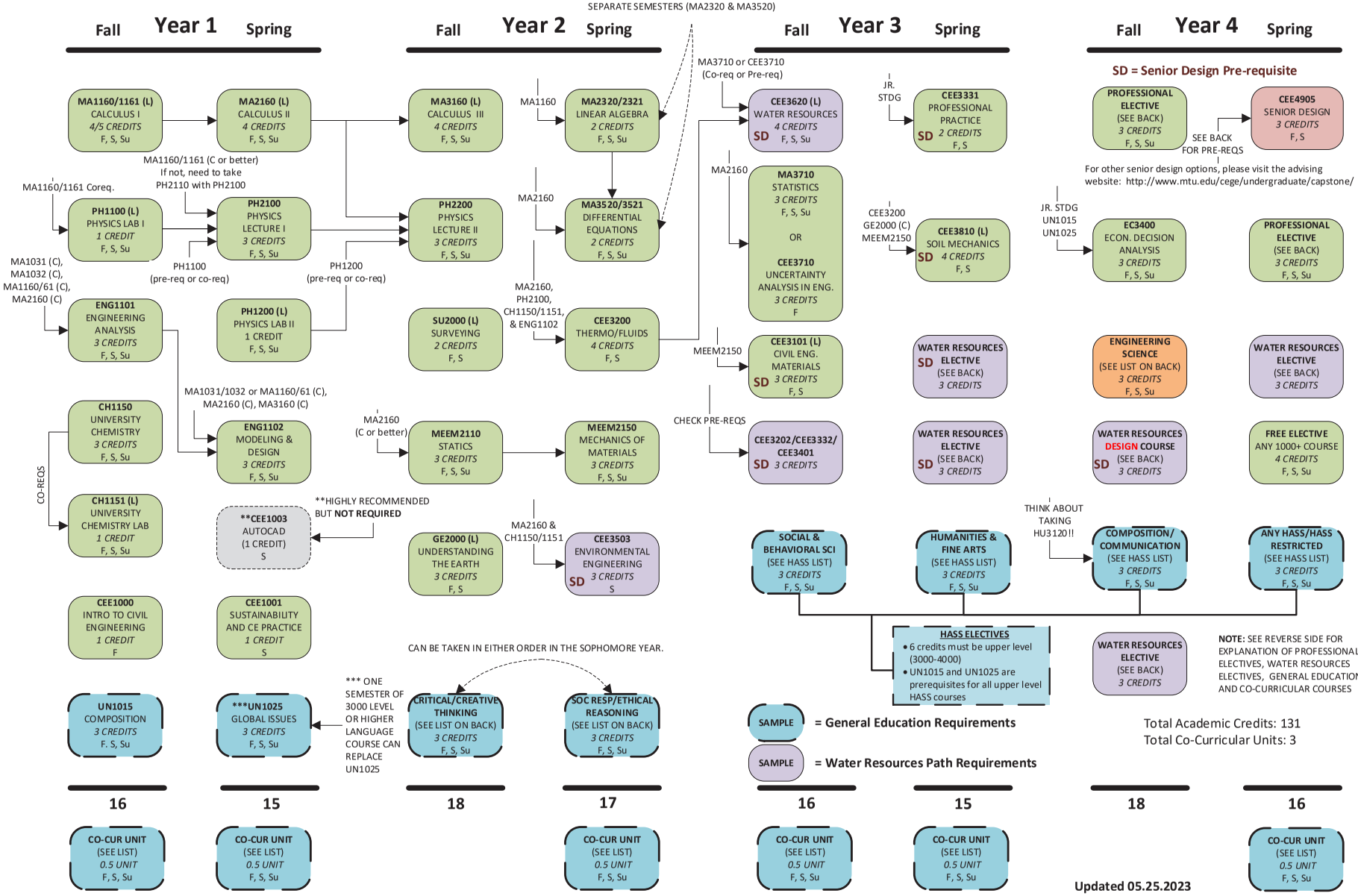
(C) INDICATES THE COURSE CAN EITHER BE TAKEN AT THE SAME TIME (CO-REQ) OR TAKEN PRIOR TO THE COURSE (PRE-REQ)

CIVIL ENGINEERING FLOWCHART
Water Resources Path
Academic Year 2023-24

Michigan Tech

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)



NOTE: SEE REVERSE SIDE FOR EXPLANATION OF PROFESSIONAL ELECTIVES, WATER RESOURCES ELECTIVES, GENERAL EDUCATION AND CO-CURRICULAR COURSES

Total Academic Credits: 131
Total Co-Curricular Units: 3

Updated 05.25.2023

WATER RESOURCES REQUIREMENTS

Choose 1 course from the following

CEE3202	STRUCTURAL ANALYSIS	F, Sp	3 cr.
CEE3332	FUND. OF CONSTRUCTION	F, Sp	3 cr.
CEE3401	TRANSPORTATION ENGRG	F, Sp	3 cr.

WATER RESOURCES DESIGN COURSE (select 1)

CEE4620	RIVER/FLOODPLAIN HYDRAULICS	Fall	3 cr.
CEE4640	STORMWATER MANAGE. & LID	Su	3 cr.
CEE4665	STREAM RESTORATION	Spring	3 cr.

WATER RESOURCES ELECTIVES (select 4)

CEE4502	WASTE TREATMENT	Fall	3 cr.
CEE4503	WATER TREATMENT	Spring	3 cr.
CEE4505	SURFACE WATER QUALITY	Fall	3 cr.
CEE4507	WATER DISTRIBUTION/COLLECT.	Spring	3 cr.
CEE4610	WATER RES. SYSTEM MODELING	Spring	3 cr.
CEE4620	RIVER/FLOODPLAIN HYDRAULICS	Fall	3 cr.
CEE4640	STORMWATER MANAGE. & LID	Su	3 cr.
CEE4650	HYDRAULIC STRUCTURES	Var.	3 cr.
CEE4665	STREAM RESTORATION	Spring	3 cr.
CEE4993	ENGRG W/ DEV COMM.	Fall	3 cr.
CEE5620	STOCHASTIC HYDROLOGY	Spring	3 cr.
CEE5666	WR PLANNING & MANAGEMENT	Var.	3 cr.
GE3850	GEOHYDROLOGY	Spring	3 cr.
GE4800	GROUNDWATER ENGRG	Spring	3 cr.

SENIOR DESIGN (SD) PRE-REQS

(complete 7 of the following)

CEE3101, CEE3331, (CEE3202 or CEE3332 or CEE3401), CEE3620, CEE3810, CEE3503, WATER RESOURCES DESIGN COURSE, & 2 WATER RESOURCES ELECTIVES

ENGINEERING SCIENCE ELECTIVE

(select 1)

BE2700	BIOMEDICAL SIGNALS & SYSTEMS
CM2110	MATERIAL AND ENERGY BALANCES
CM2200	INTRO TO MINERALS & MATERIALS
EE3010	CIRCUITS AND INSTRUMENTATION
MSE2100	INTRO TO MATERIALS SCI & ENGRG
MEEM2201	INTRODUCTORY THERMODYNAMICS
MEEM2700	DYNAMICS

UNDERGRADUATE CATALOG:
(COURSE DESCRIPTIONS)
https://www.mtu.edu/catalog/courses/

GENERAL EDUCATION:
(CO-CURRICULAR & HASS LIST)
https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

PROFESSIONAL ELECTIVES

UNDERGRADUATE CATALOG: https://www.mtu.edu/catalog/courses/

- Any **1000** or higher level course in **Computer Science, Fine Arts or Forestry**. (CS, ART, FW, MUS, SND, THEA)
- Any **2000** or higher level course in **Biological Sciences, Chemistry, Construction Management, Geology, Physics or Geospatial Engineering**. (BL, CH, CMG, GE, PH, SU)
- Any **2000** or higher level course in **Business or Economics** (ACC, BUS, EC, FIN, MGT, MIS, MKT, OSM).
- Any **3000** or higher level course in **Mathematics, Humanities, Psychology, Social Sciences or University Wide** (MA, HU, PSY, SS, UN).
- Any **3000** or higher level course in **Civil and Environmental Engineering** (CEE) or **any other Engineering Dept**.

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL, ENVIRONMENTAL, AND GEOSPATIAL ENGINEERING ACADEMIC ADVISOR.

GENERAL EDUCATION REQUIREMENTS

A. CORE COURSES (12 CREDITS)

1. **UN1015** (COMPOSITION)

2. **UN1025** (GLOBAL ISSUES) or 3000+ level Modern Language Course

3. **CRITICAL AND CREATIVE THINKING**
ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**
EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMM/COMP: _____
2. HUMANITIES/FINE ARTS: _____
3. SOCIAL & BEHAVIORAL SCIENCES: _____
4. ANY HASS OR HASS RESTRICTED COURSE: _____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

1. _____ **4.** _____
2. _____ **5.** _____
3. _____ **6.** _____

Safe drinking water.
Air quality.
Waste management.
Turn your passion into a career as an environmental engineer.

What can you do as an EEN at Michigan Tech? **Here's the short answer:**

- Participate in Engineers without Borders and International Senior Design, which provide education, research, and service opportunities
- Design water systems in rural Panama
- Use state-of-the-art equipment for labs, assignments, research, and projects such as our pilot-scale environmental simulation lab
- Get involved with the Green Campus Enterprise and design and implement projects to improve the sustainability of the Tech campus

Course Descriptions

Environmental Engineering course descriptions can be found here:
MTU.EDU/CATALOG/COURSES

Academic Advising

Julie Ross
ACADEMIC ADVISOR

(906) 487-3410
jzross@mtu.edu
Dillman 103

Marcy Patrick
EEN '18

ASSOCIATE PERMITTING MANAGER
AVANGRID RENEWABLES

In her role at Avangrid Renewables, Marcy provides environmental permitting support and compliance assistance to aid in the development of renewable energy projects across the US. She further facilitates environmental and wildlife surveys and studies to minimize risk to sensitive species.

FUN FACT: Since graduating she has lived in Duluth, Minnesota, Salt Lake City, Utah, and now Portland, Oregon.

F INDICATES COURSE IS OFFERED FALL SEMESTER

S INDICATES COURSE IS OFFERED SPRING SEMESTER

Su INDICATES COURSE IS OFFERED SUMMER SEMESTER

(L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

(C) INDICATES THE COURSE CAN EITHER BE TAKEN AT THE SAME TIME (C0-REQ) OR TAKEN PRIOR TO THE COURSE (PRE-REQ)

ENVIRONMENTAL ENGINEERING FLOWCHART

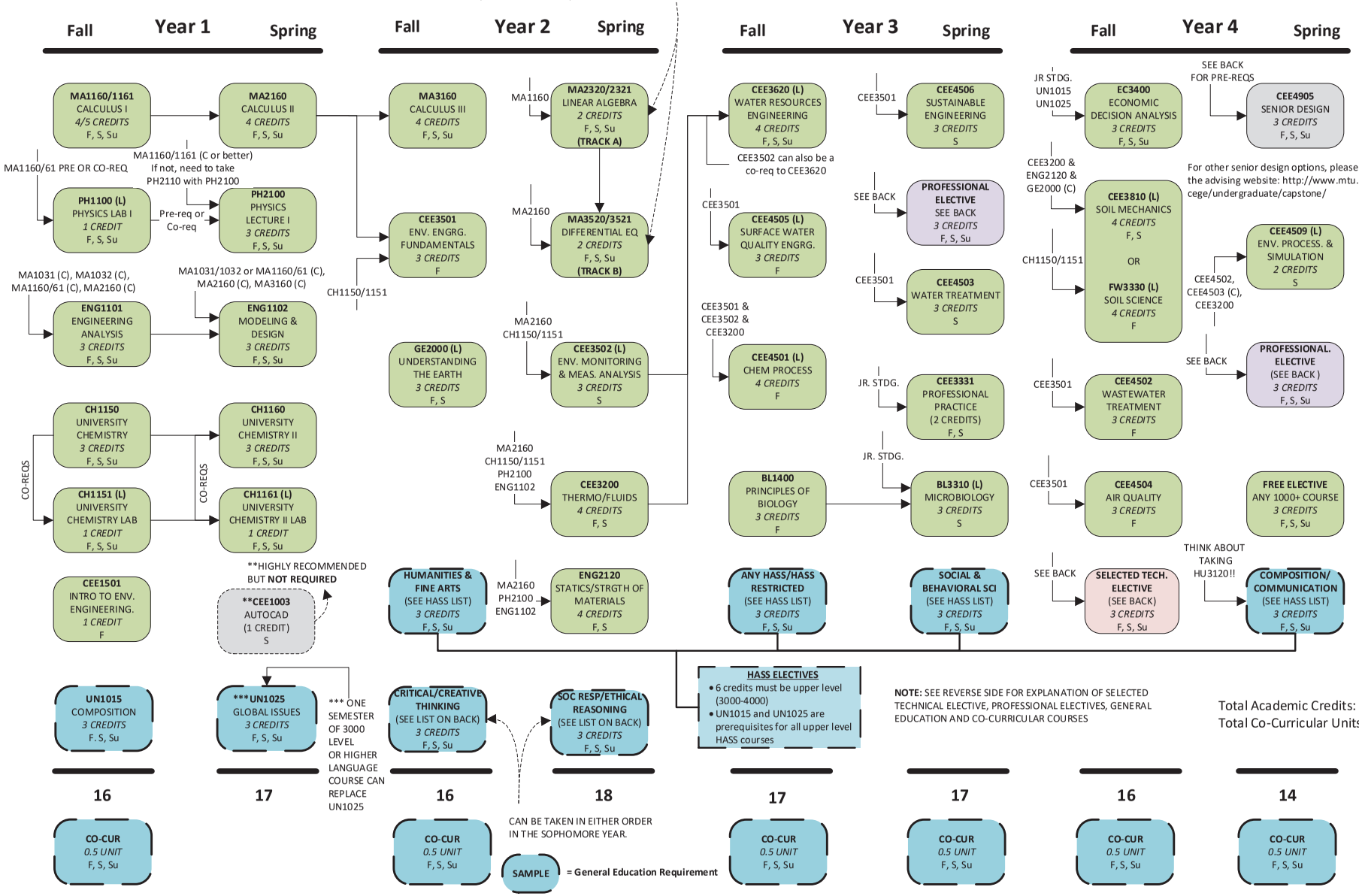
Academic Year 2023-24

Michigan Tech

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

Updated: 5.30.2023

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)



NOTE: SEE REVERSE SIDE FOR EXPLANATION OF SELECTED TECHNICAL ELECTIVE, PROFESSIONAL ELECTIVES, GENERAL EDUCATION AND CO-CURRICULAR COURSES

Total Academic Credits: 131
Total Co-Curricular Units: 3

PROFESSIONAL ELECTIVES (6 cr)

- ANY **1000** OR HIGHER LEVEL COURSE IN **BIOLOGY, CHEMISTRY, COMPUTER SCIENCE, CONSTRUCTION MANAGEMENT, GEOLOGY, FORESTRY, OR PHYSICS** (BL, CH, CS, CMG, GE, FW, PH)
- ANY **2000** OR HIGHER LEVEL COURSE IN **BUSINESS** OR **ECONOMICS.** (ACC, BUS, EC, FIN, MGT, MIS, MKT)
- ANY **2000** OR HIGHER LEVEL COURSE IN **GEOSPATIAL ENGINEERING** (SU)
- ANY **3000** OR HIGHER LEVEL COURSE IN **CIVIL AND ENVIRONMENTAL ENGINEERING** OR IN **ANY OTHER ENGINEERING DEPARTMENT**
- ANY **3000** OR HIGHER LEVEL COURSE IN **HUMANITIES, SOCIAL SCIENCES, OR UNIVERSITY WIDE**. (HU, SS, UN)
- ANY **4000** OR HIGHER LEVEL COURSE IN **MATHEMATICS (MA)**

INTERESTS?

- **REMEDIATION** – think about taking GE 3850 (Geohydrology) and CEE 4511 (Solid & Hazardous Waste Engineering)
- **NATURAL SYSTEMS** – think about taking CEE 4518 (Aquatic Biogeochemistry), CEE 4665 (Stream Restoration), and FW 4220 (Wetlands)
- **MUNICIPAL ENGINEERING** – think about taking CEE 4507 (Water Distribution and Wastewater Collection), CEE 4511 (Solid & Hazardous Waste Engineering), and SU 2000 (Surveying and GIS Fundamentals)* (only 2 credits)
- **ATMOSPHERIC PROCESSES & AIR POLLUTION** – think about taking MEEM 4240 (Combustion & Air Pollution) and CH 4515 (Atmospheric Chemistry)
- **WATER RESOURCES** – think about taking CEE 4620 (River and Floodplain Hydraulics), CEE 4640 (Stormwater Management and Low Impact Development), and CEE 4665 (Stream Restoration)

NOTES:
AN OVERALL GPA OF 3.00 IS REQUIRED TO TAKE GRADUATE LEVEL COURSES (5000 LEVEL). A MAXIMUM OF TWO (2) GRADUATE LEVEL COURSES MAY BE USED TOWARD YOUR BS ENVE DEGREE.

OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL, ENVIRONMENTAL, AND GEOSPATIAL ENGINEERING ACADEMIC ADVISOR.

SELECTED TECHNICAL ELECTIVES (3 cr)

GE3850 Geohydrology (Spring)
CEE4507 Water Distribution and Wastewater Collection (Spring)
CEE4511 Solid and Hazardous Waste Engineering (Spring)
CEE4518 Aquatic Biogeochemistry (Fall – Alt Years beg 2014-2015)
CEE4528 Global Biogeochemistry (Fall – Alt Years beg 2015-2016)
CEE4620 River & Floodplain Hydraulics (Fall)
CEE4640 Stormwater Management and LID (Summer)
CEE4665 Stream Restoration (Spring)
CEE4993 Engineering with Developing Communities (Fall)
CH4515 Atm Chem. (Spring)
MEEM4240 Combustion & Air Pollution (Fall/Spring)

SENIOR DESIGN PREREQUISITES

Complete 7 of the following courses: CEE3620, CEE3810/ FW3330, CEE4501, CEE4502, CEE4503, CEE4504, CEE4505, CEE4506, CEE4509

UNDERGRADUATE CATALOG

(COURSE DESCRIPTIONS)
https://www.mtu.edu/catalog/courses/

GENERAL EDUCATION

(CO-CURRICULAR & HASS LIST)
https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

GENERAL EDUCATION REQUIREMENTS

A. CORE COURSES (12 CREDITS)

1. **UN1015** (COMPOSITION)

2. **UN1025** (GLOBAL ISSUES) or 3000+ level Modern Language Course

3. **CRITICAL AND CREATIVE THINKING**
ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**
EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMMUNICATION & COMPOSITION: _____
2. HUMANITIES & FINE ARTS: _____
3. SOCIAL & BEHAVIORAL SCIENCES: _____
4. ANY HASS OR HASS RESTRICTED COURSE: _____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

1. _____ **4.** _____
2. _____ **5.** _____
3. _____ **6.** _____

If you like math, computing, and the outdoors, you may have what it takes to be a **geospatial engineer.**

The Geospatial Engineering degree prepares students to...

- **Become state-licensed Professional Surveyors.** Applications include accurate location of real property boundaries, data capture of the natural/man-made objects on the earth's surface, and digital mapping for use in design or planning.
- **Manage large volumes of digital geoinformation** that can be stored, manipulated, visualized, analyzed, and shared. Courses focus on applications of managing geoinformation using Geographic Information Science (GIS) tools, remote sensing, big data acquisition, and cloud computing.

Course Descriptions

Geospatial Engineering course descriptions can be found here:
MTU.EDU/CATALOG/COURSES

Academic Advising

Julie Ross
ACADEMIC ADVISOR

(906) 487-3410
jzross@mtu.edu
Dillman 103

Matthew Kunkel
SU '18

SURVEY TECHNICIAN: WOLVERINE ENGINEERS & SURVEYORS
ADJUNCT FACULTY: LANSING COMMUNITY COLLEGE

Matthew stays up-to-date with all the latest surveying technology, processing and extracting topographic features from LiDAR operations, as well as conducting research and utilizing CAD for route, boundary, and ALTA surveys.

FUN FACT: He put his hands-on classroom experience to the test through a co-op with the Michigan Department of Transportation, where he was able to conduct surveys in Eagle Harbor.

F INDICATES COURSE IS OFFERED FALL SEMESTER

S INDICATES COURSE IS OFFERED SPRING SEMESTER

Su INDICATES COURSE IS OFFERED SUMMER SEMESTER

(L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

(C) INDICATES THE COURSE CAN EITHER BE TAKEN AT THE SAME TIME (CO-REQ) OR TAKEN PRIOR TO THE COURSE (PRE-REQ)

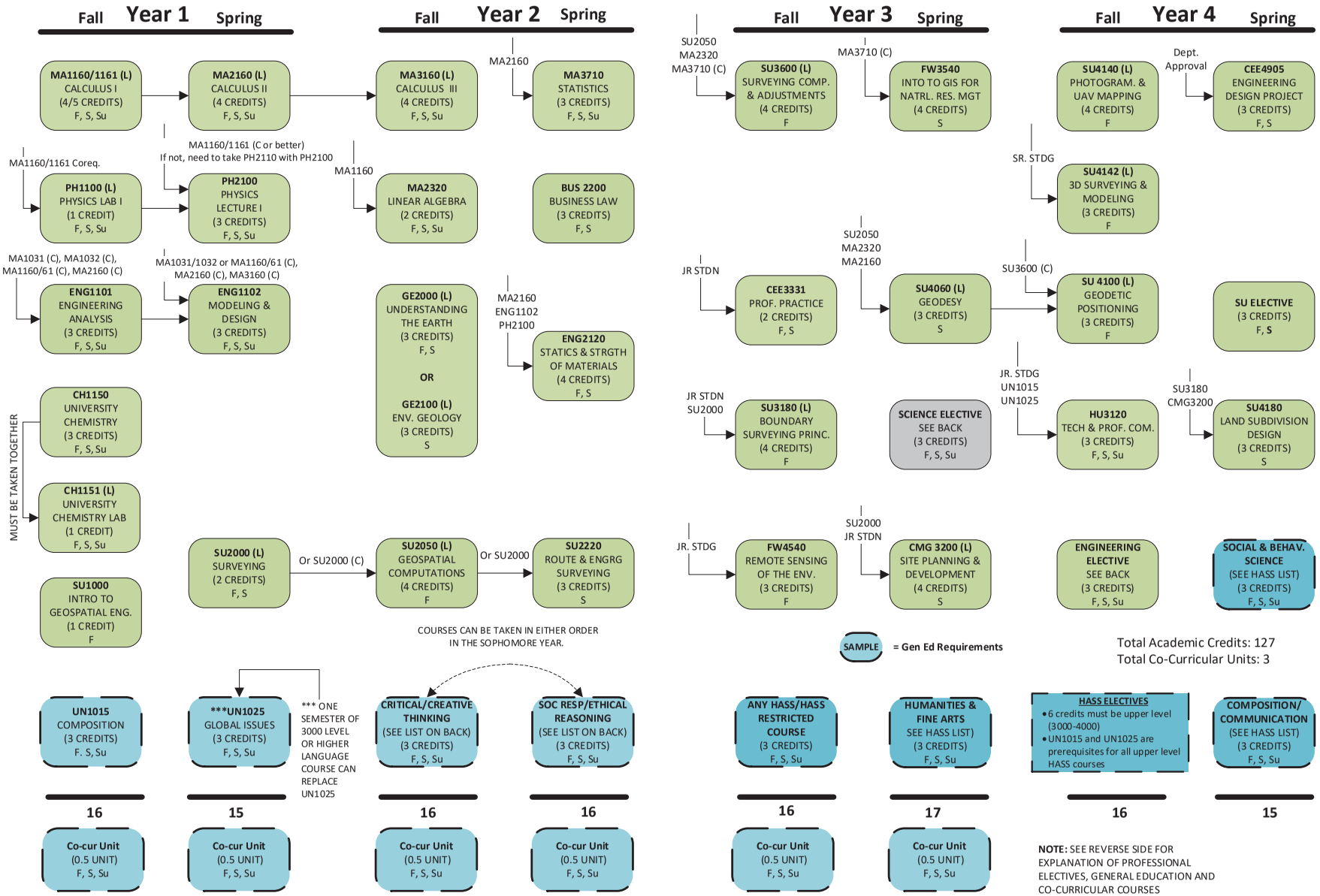
GEOSPATIAL ENGINEERING FLOWCHART

Academic Year 2023-24

Michigan Tech

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

Updated 06.13.2023



Total Academic Credits: 127
Total Co-Curricular Units: 3

NOTE: SEE REVERSE SIDE FOR EXPLANATION OF PROFESSIONAL ELECTIVES, GENERAL EDUCATION AND CO-CURRICULAR COURSES

Engineering Elective List (3 credits)

CEE3101	Civil Engineering Materials (3 cr)	F, S
CEE3332	Fundamentals of Construction (3 cr)	F, S
CEE3401	Transportation Engineering (3 cr)	F, S
CEE3810	Soil Mechanics (4 cr)	F, S
ENG3200	Thermo/Fluids (4 cr)	F, S
ENTXXXX	Enterprise (Except 3960/4950) (var)	F, S
UN3002	Co-op (1-2 cr)	F, S, Su

Science Elective List (3 credits)

BL2001	Valuing the Great Lakes (3 cr)	F, Su
BL2160	Botany (4 cr)	S
CH1153	Chemistry Recitation I (1 cr)	F, S, Su
FW2010	Vegetation of North America (4 cr)	F
PH1200/2200	Physics II (4 cr – 1 cr lab, 3 cr lecture)	F, S, Su
PH1600/1610	Introductory Astronomy & Lab (3 cr – 1 cr lab, 2 cr lecture)	F, S, Su
GE3850	Geohydrology (3 cr)	S

Surveying Elective List (3 credits)

SU4010	Geospatial Concepts, Technologies, and Data (3 cr)
SU4011	Cadastre and Land Information Systems (3 cr)
SU4012	Geospatial Data Mining and Crowdsourcing (3 cr)
SU4013	Hydrographic Mapping & Surveying (3 cr)
SU4300	Geospatial Monitoring of Eng Structures & Geodynamic Proc (3 cr)
SU4996	Special Topics in Geospatial Technologies (var)
SU4997	Independent Study in Geospatial Technologies (var)
SU4998	Undergrad Research in Geospatial Technologies (var)

UNDERGRADUATE CATALOG:
http://www.mtu.edu/catalog/courses/

GENERAL EDUCATION (CO-CURRICULAR & HASS LIST):

https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

GENERAL EDUCATION REQUIREMENTS

A. CORE COURSES (12 CREDITS)

1. **UN1015** (COMPOSITION)

2. **UN1025** (GLOBAL ISSUES) or 3000+ level Modern Language Course

3. **CRITICAL AND CREATIVE THINKING**

ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**

EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMM/COMP: _____
2. HUMANITIES & FINE ARTS: _____
3. SOCIAL & BEHAVIORAL SCIENCES: _____
4. ANY HASS OR HASS RESTRICTED COURSE: _____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

1. _____ **4. _____**
2. _____ **5. _____**
3. _____ **6. _____**

A degree in **construction management** prepares you to take charge of building projects—from structures and roads to homes and hospitals.

Our accredited program includes a background in accounting, scheduling, and business practices–setting us apart and allowing our students to enjoy **100% job placement.**

- Our faculty have decades of real-world construction and construction administration experience
- Our classes are small–providing individual attention and mentoring
- Our construction management program is accredited by the American Council for Construction Education

Course Descriptions

Construction Management course descriptions can be found here:
MTU.EDU/CATALOG/COURSES

Academic Advising

Jodie Filpus-Paakola
COORDINATOR OF ACADEMIC SERVICES

(906) 487-3597
jrfilpus@mtu.edu
Academic Office Building 108

Matthew Wray
CMG '19

SOLUTIONS/SALES ENGINEER
PROCORE TECHNOLOGIES

Matthew demonstrates the value of Procore construction management software to prospective clients and assists with measuring the feasibility of use within their operations. He now resides in Denver and is able to work from home through the industry experiences he gained in his role and in internships.

FUN FACT: He traveled the US during the first three years of his career, working on some of the biggest projects in the country, including the largest solar farm east of the Mississippi River and the largest LNG facility in the world in Cameron, Louisiana.

F INDICATES COURSE IS OFFERED FALL SEMESTER

S INDICATES COURSE IS OFFERED SPRING SEMESTER

Su INDICATES COURSE IS OFFERED SUMMER SEMESTER

(L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

(C) INDICATES THE COURSE CAN EITHER BE TAKEN AT THE SAME TIME (C0-REQ) OR TAKEN PRIOR TO THE COURSE (PRE-REQ)

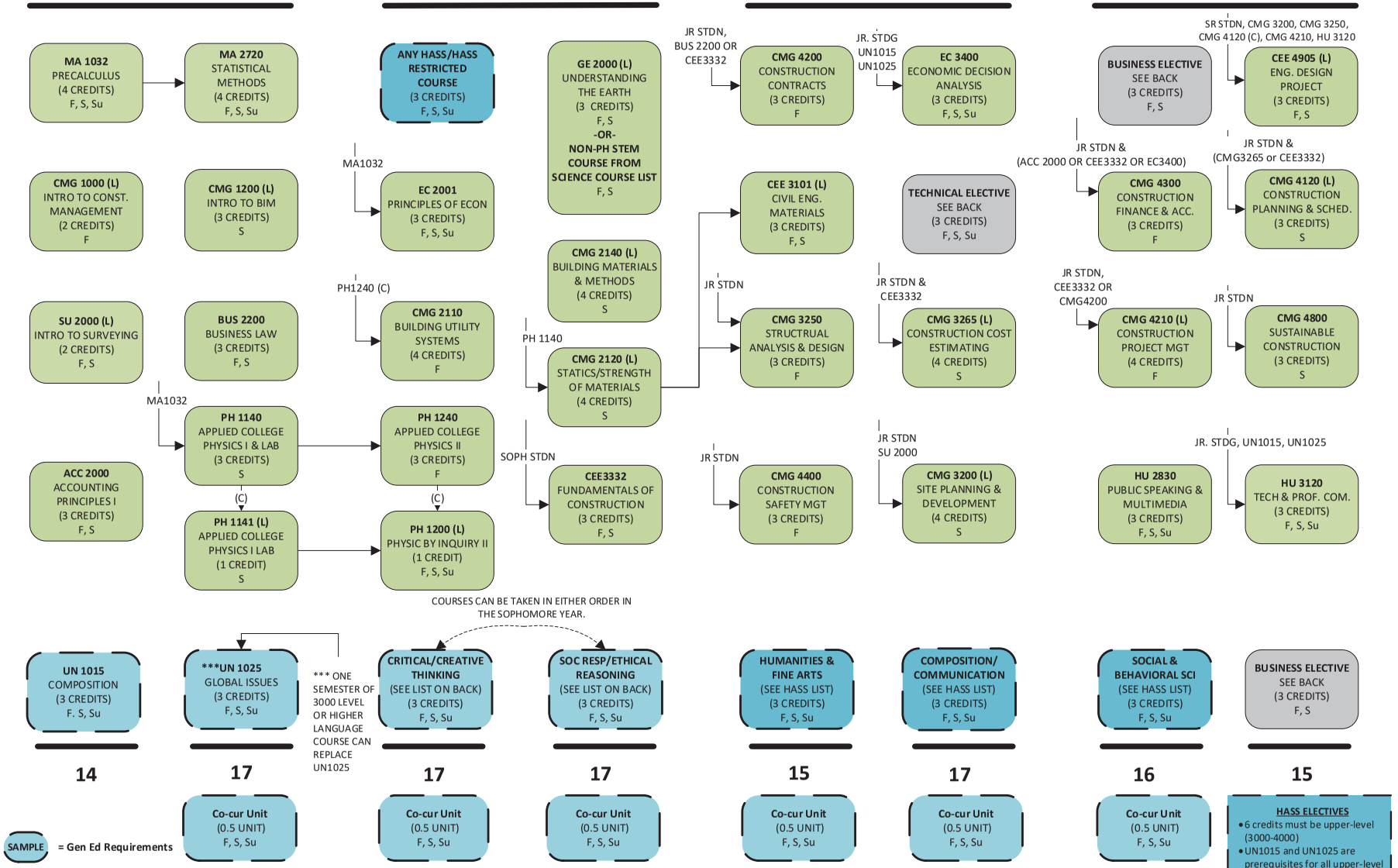
CONSTRUCTION MANAGEMENT FLOWCHART

Academic Year 2023-24

Total Academic Credits: 128
Total Co-Curricular Units: 3

Michigan Tech

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.



NOTE: SEE REVERSE SIDE FOR EXPLANATION OF PROFESSIONAL ELECTIVES, GENERAL EDUCATION AND CO-CURRICULAR COURSES

Updated 05/26/2023

Business Elective List (6 credits)

MGT 2000	Team Dynamics and Decision Making (F, S)	3 cr
MGT 3000	Organizational Behavior (F, S)	3 cr.
MGT 3800	Innovation & Entrepreneurship (F, S)	3 cr.
OSM 3000	Operations & Supply Chain Management (F, S, Su)	3 cr.
OSM 3150	Intro to Supply Chain Management (F)	3 cr.
OSM 3600	Procurement and Supply Management (F)	3 cr.

Technical Elective List (3 credits)

BUS 2300	Quantitative Problem Solving (F, S)	3 cr.
CEE 3331	Professional Practice (F, S)	2 cr.
CEE 3401	Transportation Engineering (F, S)	3 cr.
CEE 3490	Intro to Rail Transportation (F)	1 cr.
CEE 4101	Bituminous Materials (F)	3 cr.
CEE 4233	Structural Timber Design (S)	3 cr.
CEE 4333	Estimating and Planning of Construction Proj. (S)	3 cr
CMG 4000	Design-Build Project Delivery (On Demand)	3 cr.
CMG 4100	Construction Equipment Management (On Demand)	3 cr.
CMG 4996	Spec. Topics in CMG (On Demand)	var.
CMG 4997	Ind. Study in CMG (On Demand)	var.
CMG 4998	UG Research in CMG (On Demand)	var.
ENT 3959	Fundamentals of Six Sigma (F)	1 cr.
ENT 3967	Design of Six Sigma (S)	1 cr.
ENT 3984	Lean Six Sigma Principles (F)	1 cr.
MGT 3000	Organizational Behavior (F, S)	3 cr.
MGT 4600	Management of Technology and Innovation	3 cr.
MKT 3000	Principles of Marketing (F, S, Su)	3 cr.
OSM 3000	Operations & Supply Chain Management (F, S, Su)	3 cr.
OSM 3150	Intro to Supply Chain Management (F)	3 cr.
OSM 3600	Procurement and Supply Management (F)	3 cr.
OSM 4650	Six Sigma Fundamentals (F, S)	3 cr.
SU 2050	Plane Surveying (F)	4 cr.
SU 2220	Route/Engineering Surveying (S)	3 cr.
UN 3002	Undergrad Cooperative Education I (F, S, Su)	var.

UNDERGRADUATE CATALOG:
https://www.mtu.edu/catalog/courses/

GENERAL EDUCATION (CO-CURRICULAR, HASS LIST, STEM LIST):
https://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

GENERAL EDUCATION REQUIREMENTS

A. CORE COURSES (12 CREDITS)

1. **UN1015** (COMPOSITION)

2. **UN1025** (GLOBAL ISSUES) or 3000+ level Modern Language Course

3. **CRITICAL AND CREATIVE THINKING**

ART1000, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, SND1000, SS2300, THEA1000

4. **SOCIAL RESP. & ETHICAL REASONING**

EC2001, PSY2000, SS2100, SS2200, SS2400, SS2500, SS2501, SS2502, SS2503, SS2504, SS2505, SS2600, SS2610, SS2700

B. HASS COURSES (12 CREDITS)
(General Ed Website, left)

1. COMM/COMP: _____
2. HUMANITIES & FINE ARTS: _____
3. SOCIAL & BEHAVIORAL SCIENCES: _____
4. ANY HASS OR HASS RESTRICTED COURSE: _____

- 6 credits must be upper division 3000-4000 level courses
- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

C. CO-CURRICULAR ACTIVITIES (3 UNITS)
(General Ed Website, left)

1. _____ **4. _____**
2. _____ **5. _____**
3. _____ **6. _____**

The Civil, Environmental, & Geospatial Engineering Department is home to several minors that can broaden your experience and lead you to specialization.

MUNICIPAL ENGINEERING

Plan for a career with a city or municipality and broaden your skillset. Build a working knowledge of the planning, design, building, and municipality's facilities.

Courses include:

- Transportation engineering
- Traffic engineering
- Water & wastewater treatment
- Water distribution & wastewater collection system design
- Hydraulic structures

RAIL TRANSPORTATION

Participate in innovative courses and develop skills to become a specialist and leader in the railroad industry. Pick your path with a focus on civil, mechanical, or electrical, while learning the logistics, management, and communication skills to meet the demands of rail industry careers.

Courses include:

- Railroad engineering
- Logistics & transportation management
- Public transit
- Transportation engineering
- Vehicle dynamics
- Control systems

SURVEYING

Enhance your degree with a minor in surveying, where you will learn how to utilize the latest technology in remote sensing and transits to verify and establish boundaries. Build sustainable development practices for the design and layout of infrastructure.

Courses include:

- Surveying computations & adjustments
- Geodesy
- Route & construction surveying
- Boundary surveying principles
- Photogrammetry
- Land subdivision design

Complete list of minors: mtu.edu/catalog/degrees/minors

Accelerated Masters & Graduate Certificates

Our Department offers two Accelerated Master's degrees as well as many Graduate Certificates. These programs enable students to double count approved undergraduate credits toward their advanced degree. Certificates can be stacked to allow students to work toward a Master's degree.

mtu.edu/cege/graduate/accelerated

HUMANITARIAN ENGINEERING

Make a difference by helping design and implement practices in disaster relief and in rural development of under-served communities. Learn how these practices provide access to clean water, enhance air quality, and build systems for water and wastewater management.

Courses include:

- Engineering with developing communities
- International field experience
- World resources & development
- Communicating across cultures
- Anthropology of international development

CONSTRUCTION MANAGEMENT

Gain valuable industry-specific skills for the construction industry, including estimating, safety, scheduling, contracts, project management, and project controls. Students are introduced to industry-standard technologies and up-to-date methods that will prepare them for success.

Courses include:

- Construction contracts
- Construction project management
- Construction planning & scheduling
- Construction cost estimating
- Construction finance & accounting
- Construction safety management

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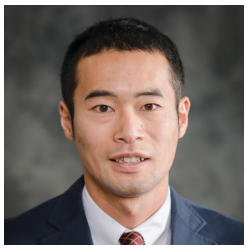

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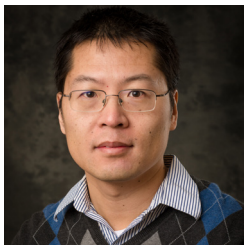

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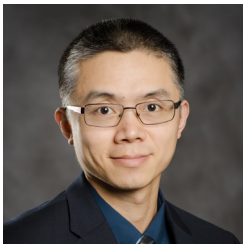

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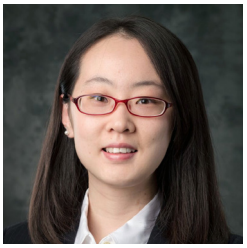

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Allie Zimmerman, EEN '20

PROJECT ENGINEER, MORTENSON

As a project engineer, Allie's work centers around management of cost, schedule, materials and design coordination across a variety of subcontractors throughout the construction process. Her first project after graduation was the on The Climate Pledge Arena in Seattle, Washington. As if building a $1.15 billion arena in three years wasn't challenging enough, she also had to overcome many obstacles, including the COVID lockdowns and delays, sustainability standards, and preservation of the roof – a National Historic Monument from 1962 World's Fair.

FUN FACT: For the roof preservation the team demolished everything below the roof, set temporary roof supports, cut off the original foundations from 1962, dug an additional 80 feet down, tied the foundations back in, and began building back up. We used enough steel in supports to build another entire arena! Since the arena opened, Allie, along with her boyfriend and fellow Michigan Tech alum, Christian Albers, have enjoyed several Kraken games and concerts by the Foo Fighters, Coldplay, The Eagles, Kane Brown, Chase Rice, and John Mayer – all in an arena they played a part in building.

General Education: Core & Humanities, Arts and Social Sciences (HASS)

24 credits required: 12 credits from Core & 12 credits from HASS

2023-2024

Core Courses: 12 credits required

UN1015 Composition: 3 credits	**UN1025 Global Issues: 3 credits** **or** **3000-level or higher Modern Language course: 3 credits**
Critical and Creative Thinking: 3 credits • **Select one course** ART1000 Art Appreciation HU2130 Introduction to Rhetoric HU2324 Introduction to Film HU2501 American Experience in Literature HU2503 Introduction to Literature HU2538 British Experience in Literature HU2700 Introduction to Philosophy HU2701 Logical and Critical Thinking HU2820 Communication and Culture HU2910 Language and Mind MUS1000 Music Appreciation SND1000 Sound in Art and Science SS2300 Environment and Society THEA1000 Theatre Appreciation TA2XX4 Critical & Creative Thinking Core ***(Transfer Agreement credit only)***	**Social Responsibility & Ethical Reasoning: 3 credits** • **Select one course** EC2001 Principles of Economics PSY2000 Introduction to Psychology SS2100 Introduction to Cultural Anthropology SS2200 Introduction to Archaeology SS2400 Introduction to Human Geography SS2500 United States History to 1877 SS2501 US History Since 1877 SS2502 European History to 1650 SS2503 European History Since 1650 SS2504 World History to 1500 SS2505 World History Since 1500 SS2600 American Government and Politics SS2610 Introduction to Law and Society SS2700 Introduction to Sociology TA2XX8 Social Responsibility & Ethical Reasoning Core ***(Transfer Agreement credit only)***

Humanities, Arts, and Social Sciences (HASS): 12 credits required

Students must take a minimum of **12** credits in HASS following these requirements:

- 6 credits must be upper level (3000-4999) courses
  - UN1015 **AND** (UN1025 **or** Modern Language – 3000 level or higher) are prerequisites to all upper level ***non-language*** HASS courses
  - Prerequisites for upper level language courses are appropriate placement score **OR** required lower level language course
- 3 credits are required from each of the following lists:
  - Communication and Composition
  - Humanities and Fine Arts (HU/FA)
  - Social and Behavioral Sciences (EC/PSY/SS)
- No more than 3 credits from the Restricted HASS list may be counted toward the HASS requirement
- Some courses are on more than one HASS list, on a HASS list and a Core list, or on the HASS list and the STEM list, but each course can satisfy only one requirement

Communication and Composition

- Minimum of 3 credits required

HU2500	Ways of Reading	3
HU2810	Research & Writing in Communication	3
HU2830	Public Speaking & Multimedia	3
HU2840	Interpersonal Communication and Technology	3
HU3015	Advanced Composition	3
HU3120	Technical and Professional Communication	3
HU3130	Rhetoric of Science and Technology	3
HU3151	The Rhetoric of Everyday Texts	3
HU3517	Literary Theory and Criticism	3
HU3606	Editing	3
HU3621	Introduction to Journalism	3
HU3693	Science Writing	3
HU3694	Grant Writing	3
HU3800	Media and Society	3
HU3832	Advanced Digital Presentation	3
HU3840	Organizational Communication	3
HU3845	Human Machine Communication	3
HU3852	Surveillance, Media, and Film	3
HU3871	Media Theory	3
HU4625	Risk Communication	3
SS4040	Civic Communications	3
TA1XX5	Communication Elective ***(Transfer Agreement credit only)***	var
TA3XX5	Communication Elective ***(Transfer Agreement credit only)***	var

Humanities and Fine Arts (HU/ART/MUS/SND/THEA)

- Minimum of 3 credits required

ART1000	Art Appreciation	3
ART1100	Drawing I	3
ART1110	Art + Design Studio	3
ART2110	Outdoor Sculpture	3
ART2130	Creative Drawing Processes	3
ART2140	Ceramics I	3
ART2145	Beginning Wheel Throwing	3
ART2160	Creative Practices	3
ART2190	Art and Nature	3
ART2201	Art History I	3
ART2202	Art History II	3
ART2950	Creative Campus: Local Arts Immersion	3
ART3140	Creative Ceramics	3
ART3180	Color and Creativity: Exploring the Power of Color Through Paint, Composition, and Design	3
ART3410	Contemporary Sculpture Studio	3
ART3420	Traditional Sculpture Studio	3
ART3850	Special Topics: Art	var
ART3900	Study Away: U.S. Arts Immersion	var
ART3950	International Arts Immersion	var
HU2130	Introduction to Rhetoric	3
HU2200	Introduction to World Cultures	3
HU2241	Level I-A Less Commonly Taught Languages ***(transfer or study abroad credit only)***	var
HU2242	Level I-B Less Commonly Taught Languages ***(transfer or study abroad credit only)***	var
HU2271	Level I-A French Language & Culture	3
HU2272	Level I-B French Language & Culture	3
HU2273	Transitional Level I French Language & Culture	3
HU2281	Level I-A German Language & Culture	3
HU2282	Level I-B German Language & Culture	3
HU2291	Level I-A Spanish Language & Culture	3
HU2292	Level I-B Spanish Language & Culture	3
HU2293	Transitional Level I Spanish Language & Culture	3
HU2324	Introduction to Film	3
HU2500	Ways of Reading	3
HU2501	American Experience in Literature	3
HU2503	Introduction to Literature	3
HU2505	Humanities, Science, and Technology	3
HU2510	Intro to Creative Writing	3
HU2538	British Experience in Literature	3
HU2548	Young Adult Literature	3
HU2633	Fundamentals of Digital Imaging	3
HU2645	Graphic and Information Design	3
HU2700	Introduction to Philosophy	3
HU2701	Logic and Critical Thinking	3
HU2702	Ethical Theory and Moral Problems	3
HU2810	Research & Writing in Communication	3
HU2820	Communication and Culture	3
HU2830	Public Speaking & Multimedia	3
HU2840	Interpersonal Communication	3
HU2910	Language and Mind	3
HU2920	Language and Society	3
HU3015	Advanced Composition	3
HU3120	Technical and Professional Communication	3
HU3130	Rhetoric of Science and Technology	3
HU3150	Topics in Literacy Studies	3
HU3151	The Rhetoric of Everyday Texts	3

Humanities and Fine Arts (HU/ART/MUS/SND/THEA) cont

HU3241	Level II-A Less Commonly Taught Languages ***(transfer or study abroad credit only)***	var
HU3242	Level II-B Less Commonly Taught Languages ***(transfer or study abroad credit only)***	var
HU3261	Communicating Across Cultures	3
HU3262	Topics in Francophone Cultures	3
HU3263	Topics in German-Speaking Culture	3
HU3264	Topics in Spanish-Speaking Culture	3
HU3271	Level II-A French Language & Culture	3
HU3272	Level II-B French Language & Culture	3
HU3274	Level III French Literature & Culture	3
HU3275	French for Special Purposes	3
HU3280	Level I-C German Language and Culture	3
HU3281	Level II-A German Language & Culture	3
HU3282	Level II-B German Language & Culture	3
HU3283	Level II German for Special Purposes	3
HU3284	Level III German Literature & Culture	3
HU3285	Level III German Film & Media	3
HU3291	Level II-A Spanish Language & Culture	3
HU3292	Level II-B Spanish Language & Culture	3
HU3293	Level II-C Spanish Composition & Conversation	3
HU3294	Hispanic Literatures and Culture	3
HU3295	Level III Advanced Spanish for Literacies	3
HU3296	Introduction to Hispanic Literatures and Cultures	3
HU3326	Topics in World Cinema	3
HU3327	Film Style and Genre	3
HU3400	Topics in Diversity Studies	3
HU3401	Gender and Culture	3
HU3410	Introduction to Diversity Studies	3
HU3502	Mythology	3
HU3503	Special Topics in Literature and Culture	3
HU3504	Studies in the Novel	3
HU3505	Literary Forms, Genres, and Modes	3
HU3506	Major Authors	3
HU3507	Cultural Traditions in Literature	3
HU3508	Literature and the Environment	3
HU3509	Studies in Drama	3
HU3513	Shakespeare	3
HU3514	Workshop Creative Nonfiction	3
HU3515	Workshop in Poetry	3
HU3516	Workshop in Fiction	3
HU3517	Literary Theory and Criticism	3
HU3518	Workshop in Sci Fi Writing	3
HU3519	Workshop in Nature Writing	3
HU3545	Literature across Borders	3
HU3554	Science Fiction	3
HU3557	Literature and Science	3
HU3606	Editing	3
HU3621	Introduction to Journalism	3
HU3693	Science Writing	3
HU3694	Grant Writing	3
HU3700	Philosophy of Science	3
HU3701	Philosophy of Technology	3
HU3702	Philosophy of Religion	3
HU3703	Environmental Philosophy	3
HU3710	Engineering Ethics	3
HU3711	Biomedical Ethics	3
HU3800	Media and Society	3
HU3802	Media and Globalization	3
HU3810	Technology and Culture	3
HU3825	Environmental Communication	3

Humanities and Fine Arts (HU/ART/MUS/SND/THEA) cont

HU3830	Creativity, Culture, & Change	3
HU3832	Advanced Digital Presentation	3
HU3840	Organizational Communication	3
HU3845	Human-Machine Communication	3
HU3850	Cultural Studies	3
HU3852	Surveillance, Media, and Film	3
HU3855	Power, Activism, and Technology	3
HU3860	Popular Culture	3
HU3871	Media Theory	3
HU3872	Color, Visuality, and Culture	3
HU3882	Media Industries	3
HU3890	Documentary	3
HU3910	Language and Globalization	3
HU3940	Language and Identity	3
HU4271	Modern Language Seminar I-French	3
HU4272	Modern Language Seminar II-French	3
HU4273	Modern Language Seminar III-French	3
HU4281	Modern Language Seminar I-German	3
HU4282	Modern Language Seminar II-German	3
HU4283	Modern Language Seminar III-German	3
HU4291	Modern Language Seminar I-Spanish	3
HU4292	Modern Language Seminar II-Spanish	3
HU4293	Modern Language Seminar III-Spanish	3
HU4625	Risk Communication	3
HU4701	Political Philosophy	3
HU4725	Existentialism and Phenomenology	3
HU4890	Topics in Communication	3
MUS1000	Music Appreciation	3
MUS2000	History of Classical Music	3
MUS2001	Film Music	3
MUS2020	History of Rock	3
MUS2030	History of Jazz	3
MUS2040	Music and Tradition	3
MUS3020	Beatles and Beach Boys	3
MUS3200	Contemporary Music	3
SND1000	Sound in Art and Science	3
THEA1000	Theatre Appreciation	3
THEA1400	Beginning Acting	3
THEA3201	Theatre History I	3
THEA3202	Theatre History II	3
THEA3230	Costume History	3
THEA3330	Costume Design	3
THEA3400	Advanced Acting	3
THEA3490	Puppetry	3
THEA3850	Special Topics: Theatre	var
THEA4402	Musical Theatre Performance	3
IS2001	International Studies in situ-Humanities/Fine Arts ***(study abroad credit only)***	var
IS3001	International Studies in situ-Humanities/Fine Arts ***(study abroad credit only)***	var

Social and Behavioral Sciences EC/PSY/SS)

- Minimum of 3 credits required

EC2001	Principles of Economics	3
EC3002	Microeconomic Theory	3
EC3003	Macroeconomic Theory	3
EC3100	International Economics	3
EC3300	Industrial Organization	3
EC3400	Economic Decision Analysis	3

Social and Behavioral Sciences (EC/PSY/SS) cont.

EC4050	Game Theory/Strategic Behavior	3
EC4400	Banking and Financial Institutions	3
EC4500	Public Sector Economics	3
EC4620	Energy Economics	3
EC4630	Mineral Industry Economics	3
EC4640	Natural Resource Economics	3
EC4650	Environmental Economics	3
EC4710	Labor/Human Resource Economics	3
FW3313	Sustainable Science	3
FW3760	Human Dimensions of Natural Resources	3
GE4630	Mineral Industry Economics	3
HF2000	Introduction to Engineering Psychology	3
HF3850	Human Factors	3
HF4015	Cognitive Task Analysis	3
IS2002	International Studies in situ-Social & Behavioral Sci ***(study abroad credit only)***	var
IS3002	International Studies in situ-Social & Behavioral Sci ***(study abroad credit only)***	var
MGT3650	Intellectual Property Management	3
PSY2000	Introduction to Psychology	3
PSY2080	Special Topics in Psychology	3
PSY2110	Educational Psychology	3
PSY2300	Developmental Psychology	3
PSY2400	Health Psychology	3
PSY2600	Death and Dying	3
PSY2900	An Introduction to Restorative Practices	3
PSY3010	Theories of Personality	3
PSY3030	Abnormal Psychology	3
PSY3070	Cross-Cultural Psychology	3
PSY3340	Psychology of Race	3
PSY3720	Social Psychology	3
PSY3800	Environmental Psychology	3
PSY3880	Psychology of Social Media	3
PSY4080	Topics in Psychology	3
PSY4340	Culture and Cognition	3
SS2100	Introduction to Cultural Anthropology	3
SS2200	Introduction to Archaeology	3
SS2210	Community Development and Planning	3
SS2300	Environment and Society	3
SS2400	Introduction to Human Geography	3
SS2450	Introduction to Sustainable Tourism	3
SS2500	United States History to 1877	3
SS2501	United States History since 1877	3
SS2502	European History to 1650	3
SS2503	European History since 1650	3
SS2504	World History to 1500	3
SS2505	World History since 1500	3
SS2510	Gender and the Past	3
SS2600	American Government & Politics	3
SS2610	Introduction to Law and Society	3
SS2625	Introduction to American Foreign Policy	3
SS2635	Comparative Politics	3
SS2700	Introduction to Sociology	3
SS2750	Racial Inequality	3
SS3105	Native American and Indigenous Communities	3
SS3110	Food Systems and Sustainability	3
SS3200	Archaeology of the Modern World	3
SS3210	Field Archaeology	var
SS3225	Capitalism and the Modern World	3
SS3230	Archaeology of Industry	3
SS3240	Reading the Landscape	3

Social and Behavioral Sciences (EC/PSY/SS) cont.

SS3250	Biological Anthropology	3
SS3260	Latin American Cultural History	3
SS3280	Anthropology of Energy	3
SS3313	Sustainability Science	3
SS3315	Population and Environment	3
SS3400	Contemporary Europe	3
SS3420	Imaginary Worlds: Geographies of Science Fiction and Fantasy	3
SS3505	Military History of the U.S.	3
SS3510	History of American Technology	3
SS3511	History of Science in America	3
SS3513	History of Making Things: Craft and Industry in America	3
SS3515	History of American Architecture	3
SS3520	U.S. Environmental History	3
SS3530	The Automobile in America	3
SS3535	History of Privacy	3
SS3540	History of Michigan	3
SS3541	The Copper Country	3
SS3542	History of Detroit	3
SS3552	Renaissance & Reformation	3
SS3553	Empires in World History	3
SS3560	History of England I	3
SS3561	History of England II	3
SS3580	Technology and	3
SS3581	History of Science	3
SS3612	International Relations	3
SS3621	Public Policy & Management	3
SS3630	Environmental Policy & Politics	3
SS3640	Selected Topics in Cyber-Law	3
SS3650	Intellectual Property Management	3
SS3660	Constitutional Law	3
SS3661	Civil Rights & Civil Liberties	3
SS3665	Crime, Incarceration, and Policy	3
SS3755	Sustainability and the Private Sector	3
SS3760	Human Dimensions/NR Stewardship	3
SS3800	Energy Policy and Technology	3
SS3801	Science, Technology, & Society	3
SS3805	Environmental Justice	3
SS3811	Energy Security and Justice	3
SS3815	Energy and Society	3
SS3910	Histories and Cultures	3
SS3920	Topics in Anthropology/Archaeology	3
SS3950	Topics in American History	3
SS3951	Topics in European History	3
SS3952	Topics in World History	3
SS3960	Cultural Immersion	var
SS3961	Preparing for Cross-Cultural Immersion Experiences	3
SS3990	Topics in the Social Science	3
SS4001	History of Social Thought	3
SS4120	Sustainable Development	3
SS4200	Environmental Anthropology	3
SS4220	Archaeological Thought in Society	3
SS4390	Seminar in Sustainability	3
SS4040	Civic Communications	3
SS4450	Sustainable Tourism and Planning	3
SS4530	Deindustrialization and the Urban Environment	3
SS4700	Communities and Research	3
SS4710	Geographies of Migrant and National Communities	3
SS4921	Washington Experience Seminar	var

Restricted HASS

- No more than 3 credits

BL2001	Valuing the Great Lakes	3
BL3970	Current Health Issues	3
ENT2961	Teaming in the Enterprise	2
ENT2962	Communication Contexts	1
FIN2400	Financial Literacy	3
FW2081	Introduction to Circular Economy	3
FW3116	Ethnobotany	3
FW4111	Indigenous Natural Resources Management	3
GE2100	Environmental Geology	3
HON2150	Pavlis Seminar I	1
HON3150	Pavlis Seminar II	1
HON3410	Culture, Language, and Project Development	3
HON4150	Pavlis Seminar III	1
KIP2600	Introduction to Public Health	3
MA4945	History of Mathematics	3

APPROVED TRANSFER COURSES

The following courses are available ONLY by transfer.

Communication and Composition

HU1XX5	*Approved Transfer HASS Communication/Comp*	*3*
HU2XX5	*Approved Transfer HASS Communication/Comp*	*3*
HU3XX5	*Approved Transfer HASS Communication/Comp*	*3*
HU4XX5	*Approved Transfer HASS Communication/Comp*	*3*

Humanities and Fine Arts (HU/FA)

ART1XXX	*Approved Transfer HASS Elective*	*3*
ART2XXX	*Approved Transfer HASS Elective*	*3*
ART3XXX	*Approved Transfer HASS Elective*	*3*
ART4XXX	*Approved Transfer HASS Elective*	*3*
HU1XXX	*Approved Transfer HASS Elective*	*3*
HU2XXX	*Approved Transfer HASS Elective*	*3*
HU3XXX	*Approved Transfer HASS Elective*	*3*
HU4XXX	*Approved Transfer HASS Elective*	*3*
HU1XX5	*Approved Transfer HASS Communication/Comp*	*3*
HU2XX5	*Approved Transfer HASS Communication/Comp*	*3*
HU3XX5	*Approved Transfer HASS Communication/Comp*	*3*
HU4XX5	*Approved Transfer HASS Communication/Comp*	*3*
MUS1XXX	*Approved Transfer HASS Elective*	*3*
MUS2XXX	*Approved Transfer HASS Elective*	*3*
MUS3XXX	*Approved Transfer HASS Elective*	*3*
MUS4XXX	*Approved Transfer HASS Elective*	*3*
SND1XXX	*Approved Transfer HASS Elective*	*3*
SND2XXX	*Approved Transfer HASS Elective*	*3*
SND3XXX	*Approved Transfer HASS Elective*	*3*
SND4XXX	*Approved Transfer HASS Elective*	*3*
THEA1XXX	*Approved Transfer HASS Elective*	*3*
THEA2XXX	*Approved Transfer HASS Elective*	*3*
THEA3XXX	*Approved Transfer HASS Elective*	*3*
THEA4XXX	*Approved Transfer HASS Elective*	*3*

Social and Behavioral Sciences (EC/PSY/SS)

EC1XXX	*Approved Transfer HASS Elective*	*3*
EC2XXX	*Approved Transfer HASS Elective*	*3*
EC3XXX	*Approved Transfer HASS Elective*	*3*
EC4XXX	*Approved Transfer HASS Elective*	*3*
PSY1XXX	*Approved Transfer HASS Elective*	*3*
PSY2XXX	*Approved Transfer HASS Elective*	*3*
PSY3XXX	*Approved Transfer HASS Elective*	*3*
PSY4XXX	*Approved Transfer HASS Elective*	*3*
SS1XXX	*Approved Transfer HASS Elective*	*3*
SS2XXX	*Approved Transfer HASS Elective*	*3*
SS3XXX	*Approved Transfer HASS Elective*	*3*
SS4XXX	*Approved Transfer HASS Elective*	*3*

Co-Curricular Courses

Three co-curricular units are required for graduation. A unit involves the same time commitment as an academic semester credit.

Co-curricular units:
- Count toward full-time status for financial aid
- Are not included in GPA calculation
- Are not included in the total credits required for a degree
- Will appear on the transcript with a Pass/Fail grade
- Will count toward satisfactory progress for financial aid purposes
- Will not count toward the 12 credits of gradable courses required for recognition on the dean's list or other university honors.

Repeatability for general education:
- .5 co-curricular unit courses may be repeated once for general education co-curricular credit.
- 1 co-curricular unit courses may not be repeated for general education co-curricular credit.

Co-curricular Courses

AF0120	Physical Conditioning	.5
AF0130	Air Force Elite Forces Workout	1
AF0230	Precision Drill Team	.5
AF0340	Field Training	1
AR0340	Internship in Advanced Military Leadership	3
AR2068	Fall Military Physical Conditioning	1
AR2069	Spring Military Physical Conditioning	1
AR3068	Physical Training Leadership I	1
AR3069	Physical Training Leadership II	1
MUS1510	Huskies Pep Band	1
MUS1511	Campus Concert Band	1
MUS1570	Private Music Instruction	.5
PE0101	Flag Football	.5
PE0103	Bait and Fly Casting	.5
PE0104	Ultimate Frisbee	.5
PE0105	Beginning Bowling I	.5
PE0106	Beginning Golf	.5
PE0107	Floor Hockey	.5
PE0108	Broomball	.5
PE0109	Aikido	.5
PE0113	Disc Golf	.5
PE0115	Beginning Swimming	.5
PE0116	Beginning Basketball	.5
PE0117	Beginning Hockey	.5
PE0118	Beginning Weight Training	.5
PE0119	Beginning Fitness Training	.5
PE0120	Beginning Alpine Skiing (Downhill)	.5
PE0121	Beginning Snowboarding	.5
PE0122	Softball	.5
PE0123	Telemark Skiing	.5
PE0125	Sand Volleyball	.5
PE0126	Beginning Volleyball	.5
PE0130	Water Aerobics	.5
PE0132	Beginning Soccer	.5
PE0135	Beginning Cross Country Skiing	.5
PE0137	Table Tennis	.5
PE0138	Beginning Racquetball/Squash	.5
PE0139	Beginning Badminton	.5
PE0140	Beginning Tennis	.5
PE0142	Introduction to Brazilian Jiu Jitsu	.5
PE0145	Beginning Rifle	.5
PE0146	Beginning Billiards	.5
PE0148	Beginning Skating	.5
PE0150	Outdoor Lifetime Activities	.5
PE0151	Indoor Lifetime Activities	.5
PE0152	Social Dance I	.5
PE0153	Aerobics I	.5

Co-curricular Courses cont.

PE0155	Beginning Road Biking	.5
PE0156	Beginning Mountain Biking	.5
PE0165	Introduction to Rowing	.5
PE0166	Moving for Fitness	.5
PE0167	Beginning Yoga	.5
PE0169	Indoor Cycling	.5
PE0170	TaeKwonDo and Hapkido I	.5
PE0175	Hiking	.5
PE0177	Fundamentals of Laser Tag	.5
PE0205	Bowling II	.5
PE0206	Intermediate Golf	.5
PE0209	Intermediate Aikido	.5
PE0210	Special Topics in Physical Education	.5
PE0215	Intermediate Swimming	.5
PE0216	Intermediate Basketball	.5
PE0217	Intermediate Hockey	.5
PE0218	Intermediate Weight Training	.5
PE0219	Intermediate Fitness Training	.5
PE0220	Intermediate Alpine Ski (Downhill)	.5
PE0221	Intermediate Snowboarding	.5
PE0226	Intermediate Volleyball	.5
PE0230	Water Polo	.5
PE0232	Intermediate Soccer	.5
PE0235	Intermediate Cross Country Ski	.5
PE0237	Intermediate Table Tennis	.5
PE0238	Intermediate Racquetball/Squash	.5
PE0239	Intermediate Badminton	.5
PE0240	Intermediate Tennis	.5
PE0242	Brazilian Jiu Jitsu II	.5
PE0245	Intermediate Rifle	.5
PE0246	Intermediate Billiards	.5
PE0248	Intermediate Skating	.5
PE0250	Paintball	.5
PE0252	Social Dance II	.5
PE0253	Aerobics II	.5
PE0256	Intermediate Mountain Biking	.5
PE0266	Running for Fitness	.5
PE0267	Intermediate Yoga	.5
PE0270	Cardio TaeKwonDo	.5
PE0277	Strategies of Laser Tag	.5
PE0315	Fitness Swimming	.5
PE0320	Advanced Skiing	.5
PE0321	Advanced Snowboarding	.5
PE0330	Club Sports	.5
PE0367	Mindful Yoga	.5
PE0420	Ski Instructor Training	.5
PE0421	Snowboard Instructor Training	.5
PE0425	Intramurals	.5
PE0430	Club Sports Leadership	.5
PE0451	Mountain/Road Bike Fusion	.5
PE0520	Alpine Skiing Fusion	.5
PE0521	Snowboard Fusion	.5
PE1000	Fitness Foundations	1
PE1010	Active Michigan Tech	1
PE1028	Ski Patrol (Hill)	1
PE1101	Team Sports	1
PE1105	Bowling	1
PE1106	Golf	1
PE1113	Disc Sports	1
PE1118	Weight/Fitness Training	1
PE1119	Conditioning	1
PE1138	Racquet Sports	1
PE1140	Tennis	1
PE1169	Indoor Cycling	1
PE1170	TaeKwonDo	1
PE1210	Special Topics	1
PE1215	Introduction to Backcountry Travel	1

Co-Curricular Courses (cont.)

Co-curricular Courses cont.

PE1220	Introduction to Canoeing	1
PE1225	Indoor Rock Climbing	1
PE1230	Introduction to Kayaking	1
PE1235	Introduction to Log Rolling	1
PE1240	Snowshoeing	1
PE1245	Wilderness First Responder	1
PE1435	Self-Defense for Women	1
PE1436	Self-Defense for Men	1
PE1450	Physical Education Fusion – Full	1
PE1470	Lifeguard Swimming	1
PE2010	Varsity Football	1
PE2020	Varsity Basketball	1
PE2030	Varsity Hockey	1
PE2040	Varsity Nordic Skiing	1
PE2050	Varsity Soccer	1
PE2080	Varsity Track	1
PE2090	Varsity Tennis	1
PE2130	Varsity Volleyball	1
PE2140	Varsity Cross Country	1
PE2150	Cross Training	1
PE2160	Varsity Esports	1
PSY1100	Skills for Health and Resilience	1
PE0XXX	Co-Curricular Activities ***(transfer credit only)***	.5
PE1XXX	Co-Curricular Activities ***(transfer credit only)***	1

Abby Kanasty, EEN '20

PROJECT ENGINEER, L.G. EVERIST

Abby is responsible for mine design and planning, as well as water management. She has worked in both underground and open pit operations in Arizona, Nevada, and Colorado, working with crews, operating heavy equipment, and safely setting off explosives at the sites to mine copper, gold, sand, and gravel.

FUN FACT: She spends nearly every weekend in the mountains to go camping, biking, and snowboarding.

Planning Guide

FALL ________

COURSE	CREDITS
TOTAL CREDITS	

SPRING ________

COURSE	CREDITS
TOTAL CREDITS	

SUMMER ________

COURSE	CREDITS
TOTAL CREDITS	

FALL ________

COURSE	CREDITS
TOTAL CREDITS	

SPRING ________

COURSE	CREDITS
TOTAL CREDITS	

SUMMER ________

COURSE	CREDITS
TOTAL CREDITS	

FALL ________

COURSE	CREDITS
TOTAL CREDITS	

SPRING ________

COURSE	CREDITS
TOTAL CREDITS	

SUMMER ________

COURSE	CREDITS
TOTAL CREDITS	

FALL ________

COURSE	CREDITS
TOTAL CREDITS	

SPRING ________

COURSE	CREDITS
TOTAL CREDITS	

SUMMER ________

COURSE	CREDITS
TOTAL CREDITS	

Schedule - Year 1

FALL	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8AM					
9AM					
10AM					
11AM					
12PM					
1PM					
2PM					
3PM					
4PM					
5PM					

SPRING	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8AM					
9AM					
10AM					
11AM					
12PM					
1PM					
2PM					
3PM					
4PM					
5PM					

Schedule - Year 2

FALL	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8AM					
9AM					
10AM					
11AM					
12PM					
1PM					
2PM					
3PM					
4PM					
5PM					

SPRING	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8AM					
9AM					
10AM					
11AM					
12PM					
1PM					
2PM					
3PM					
4PM					
5PM					

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- Supports your entry to a technical profession through licensure, registration, and certification—all of which often require graduation from an ABET-accredited program as a minimum qualification.
- Establishes your eligibility for many federal student loans, grants, and/or scholarships.
- Paves the way for you to work globally, because ABET accreditation is recognized worldwide through international agreements, and many other countries' national accrediting systems are based on the ABET model.

Michigan Technological University

Civil, Environmental, and Geospatial Engineering

Julie Ross

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