ENVIRONMENTAL ENGINEERING FLOWCHART
Academic Year 2022-23

Michigan Tech

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)

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)
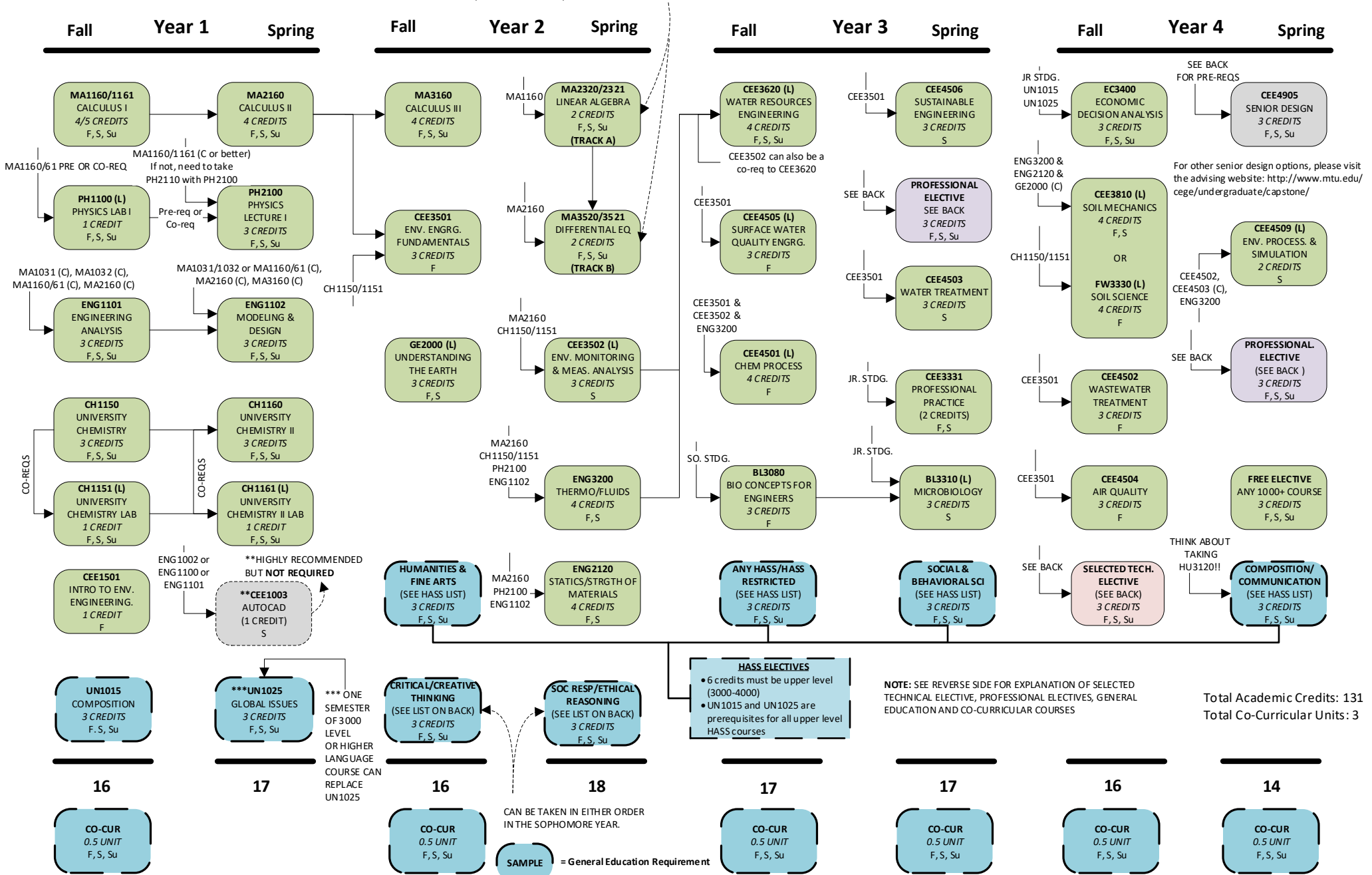
This is not an official list of degree requirements.
Adjustments may be required due to curriculum changes.

Updated: 5.26.2022

Year 1

Fall / **Spring**

- MA1160/1161 CALCULUS I — 4/5 CREDITS — F, S, Su
- MA2160 CALCULUS II — 4 CREDITS — F, S, Su
- PH1100 (L) PHYSICS LAB I — 1 CREDIT — F, S, Su
- PH2100 PHYSICS LECTURE I — 3 CREDITS — F, S, Su
- ENG1101 ENGINEERING ANALYSIS — 3 CREDITS — F, S, Su
- ENG1102 MODELING & DESIGN — 3 CREDITS — F, S, Su
- CH1150 UNIVERSITY CHEMISTRY — 3 CREDITS — F, S, Su
- CH1160 UNIVERSITY CHEMISTRY II — 3 CREDITS — F, S, Su
- CH1151 (L) UNIVERSITY CHEMISTRY LAB — 1 CREDIT — F, S, Su
- CH1161 (L) UNIVERSITY CHEMISTRY II LAB — 1 CREDIT — F, S, Su
- CEE1501 INTRO TO ENV. ENGINEERING — 1 CREDIT — F
- **CEE1003 AUTOCAD — (1 CREDIT) — S (**HIGHLY RECOMMENDED BUT NOT REQUIRED)
- UN1015 COMPOSITION — 3 CREDITS — F, S, Su
- ***UN1025 GLOBAL ISSUES — 3 CREDITS — F, S, Su

MA1160/61 PRE OR CO-REQ

MA1160/1161 (C or better) If not, need to take PH2110 with PH2100

Pre-req or Co-req

MA1031 (C), MA1032 (C), MA1160/61 (C), MA2160 (C)

MA1031/1032 or MA1160/61 (C), MA2160 (C), MA3160 (C)

CO-REQS

ENG1002 or ENG1100 or ENG1101

*** ONE SEMESTER OF 3000 LEVEL OR HIGHER LANGUAGE COURSE CAN REPLACE UN1025

Total credits: 16 / 17

CO-CUR 0.5 UNIT F, S, Su

Year 2

Fall / **Spring**

- MA3160 CALCULUS III — 4 CREDITS — F, S, Su
- MA2320/2321 LINEAR ALGEBRA — 2 CREDITS — F, S, Su — (TRACK A)
- CEE3501 ENV. ENGRG. FUNDAMENTALS — 3 CREDITS — F
- MA3520/3521 DIFFERENTIAL EQ — 2 CREDITS — F, S, Su — (TRACK B)
- GE2000 (L) UNDERSTANDING THE EARTH — 3 CREDITS — F, S
- CEE3502 (L) ENV. MONITORING & MEAS. ANALYSIS — 3 CREDITS — S
- ENG3200 THERMO/FLUIDS — 4 CREDITS — F, S
- ENG2120 STATICS/STRGTH OF MATERIALS — 4 CREDITS — F
- HUMANITIES & FINE ARTS (SEE HASS LIST) — 3 CREDITS — F, S, Su
- CRITICAL/CREATIVE THINKING (SEE LIST ON BACK) — 3 CREDITS — F, S, Su
- SOC RESP/ETHICAL REASONING (SEE LIST ON BACK) — 3 CREDITS — F, S, Su

MA1160

MA2160

MA2160 CH1150/1151

MA2160 CH1150/1151 PH2100 ENG1102

MA2160 PH2100 ENG1102

CAN BE TAKEN IN EITHER ORDER IN THE SOPHOMORE YEAR.

Total credits: 16 / 18

CO-CUR 0.5 UNIT F, S, Su

Year 3

Fall / **Spring**

- CEE3620 (L) WATER RESOURCES ENGINEERING — 4 CREDITS — F, S, Su
- CEE4506 SUSTAINABLE ENGINEERING — 3 CREDITS — S
- CEE3502 can also be a co-req to CEE3620
- CEE4505 (L) SURFACE WATER QUALITY ENGRG. — 3 CREDITS — F
- PROFESSIONAL ELECTIVE SEE BACK — 3 CREDITS — F, S, Su
- CEE4501 (L) CHEM PROCESS — 4 CREDITS — F
- CEE4503 WATER TREATMENT — 3 CREDITS — S
- CEE3331 PROFESSIONAL PRACTICE (2 CREDITS) — F, S
- BL3080 BIO CONCEPTS FOR ENGINEERS — 3 CREDITS — F
- BL3310 (L) MICROBIOLOGY — 3 CREDITS — S
- ANY HASS/HASS RESTRICTED (SEE HASS LIST) — 3 CREDITS — F, S, Su
- SOCIAL & BEHAVIORAL SCI (SEE HASS LIST) — 3 CREDITS — F, S, Su

CEE3501

SEE BACK

CEE3501

CEE3501 & CEE3502 & ENG3200

SO. STDG.

JR. STDG.

JR. STDG.

Total credits: 17 / 17

CO-CUR 0.5 UNIT F, S, Su

Year 4

Fall / **Spring**

- EC3400 ECONOMIC DECISION ANALYSIS — 3 CREDITS — F, S, Su
- CEE4905 SENIOR DESIGN — 3 CREDITS — F, S, Su
- CEE3810 (L) SOIL MECHANICS — 4 CREDITS — F, S OR FW3330 (L) SOIL SCIENCE — 4 CREDITS — F
- CEE4509 (L) ENV. PROCESS. & SIMULATION — 2 CREDITS — S
- CEE4502 WASTEWATER TREATMENT — 3 CREDITS — F
- PROFESSIONAL. ELECTIVE (SEE BACK) — 3 CREDITS — F, S, Su
- CEE4504 AIR QUALITY — 3 CREDITS — F
- FREE ELECTIVE ANY 1000+ COURSE — 3 CREDITS — F, S, Su
- SELECTED TECH. ELECTIVE (SEE BACK) — 3 CREDITS — F, S, Su
- COMPOSITION/ COMMUNICATION (SEE HASS LIST) — 3 CREDITS — F, S, Su

JR STDG. UN1015 UN1025

SEE BACK FOR PRE-REQS

For other senior design options, please visit the advising website: http://www.mtu.edu/cege/undergraduate/capstone/

ENG3200 & ENG2120 & GE2000 (C)

CH1150/1151

CEE4502, CEE4503 (C), ENG3200

SEE BACK

CEE3501

SEE BACK

THINK ABOUT TAKING HU3120!!

Total credits: 16 / 14

CO-CUR 0.5 UNIT F, S, Su

HASS ELECTIVES
- 6 credits must be upper level (3000-4000)
- UN1015 and UN1025 are prerequisites for all upper level HASS courses

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

SAMPLE = General Education Requirement

Professional Electives

ANY 3000 OR HIGHER LEVEL COURSE IN CIVIL AND ENVIRONMENTAL ENGINEERING OR IN ANY OTHER ENGINEERING DEPARTMENT.
FOR EXAMPLE:
CEE3332 Fundamentals of Construction Engineering (F, S)
CEE4507 Distribution and Collection (S)
CEE4511 Solid and Hazardous Waste Engineering (S)
CEE4515 Atmospheric Chemistry (S)
CEE4518 Aquatic Biogeochemistry (F)
CEE4528 Global Biogeochemistry (F)
CEE4610 Water Resources System Modeling & Design (S)
CEE4620 River and Floodplain Hydraulics (F)
CEE4640 Stormwater Management and LID (Su - ONLINE)
CEE4650 Hydraulic Structures (F)
CEE4820 Foundation Engineering (F)
CEE4830 Geosynthetics (S – ALT YEARS)
CEE4990 Special Topics (Varies by semester) (F, S, Su)
GE 3040 Fund. of Applied and Environ. Geophysics (S)
GE4800 Groundwater Engineering (ON DEMAND)
MEEM4685 Env. Resp. Design and Manuf. (S – ALT YEARS)

ANY 1000 OR HIGHER LEVEL COURSE IN BIOLOGY, CHEMISTRY, COMPUTER SCIENCE, CONSTRUCTION MANAGEMENT, GEOLOGY, FORESTRY, OR PHYSICS.
FOR EXAMPLE:
CS1121 Intro to Programming I (F, S, Su)
CS1122 Intro to Programming II (F, S, Su)
FW3540 Intro to GIS for Natural Resource Management (S)
FW4220 Wetlands (F)
FW4540 Remote Sensing of the Environment (F)
PH1200/2200 Physics II (F, S, Su)

ANY 4000 OR HIGHER LEVEL COURSE IN MATHEMATICS
FOR EXAMPLE:
MA4610 Numerical Linear Algebra (S)
MA4620 Numerical Methods for PDEs (F)
MA4720 Design and Analysis of Experiments (S)

ANY 2000 OR HIGHER LEVEL COURSE IN BUSINESS OR ECONOMICS. (ACC, BUS, EC, FIN, MGT, MIS, MKT).
FOR EXAMPLE:
ACC2000 Accounting Principles I (F, S, Su)
EC3300 Industrial Organization (F, S, Su)
MKT3000 Principles of Marketing (F, S, Su)
EC4640 Natural Resources Economics (F)
EC4650 Environmental Economics (F)

ANY 2000 OR HIGHER LEVEL COURSE IN GEOSPATIAL ENGINEERING (SU).
FOR EXAMPLE:
SU2000 Surveying & GIS Fundamentals (F, S)

ANY 3000 OR HIGHER LEVEL COURSE IN HUMANITIES, SOCIAL SCIENCES, OR UNIVERSITY WIDE. (HU, SS, UN).
FOR EXAMPLE:
HU3120 Technical and Professional Communication (F, S, Su)
SS3520 U.S. Environmental History (F)
SS3801 Science, Technology and Society (F)
SS3811 Energy Security and Justice (S – ALT YEARS)
SS3630 Environmental Policy and Politics (F – ALT YEARS)
SS4200 Environmental Anthropology (F – ALT YEARS)
UN4000 Seminar Series in Earth, Planetary & Space Sciences (F, S)

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 ELECTIVE COURSES (Choose 1):
GE3850   Geohydrology (Spring)
CEE4507 Dist. & Collection (Spring)
CEE4511 Solid and Haz. Waste (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 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

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, 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. _____