ENVIRONMENTAL ENGINEERING FLOWCHART
Academic Year 2021-22

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 (C0-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)
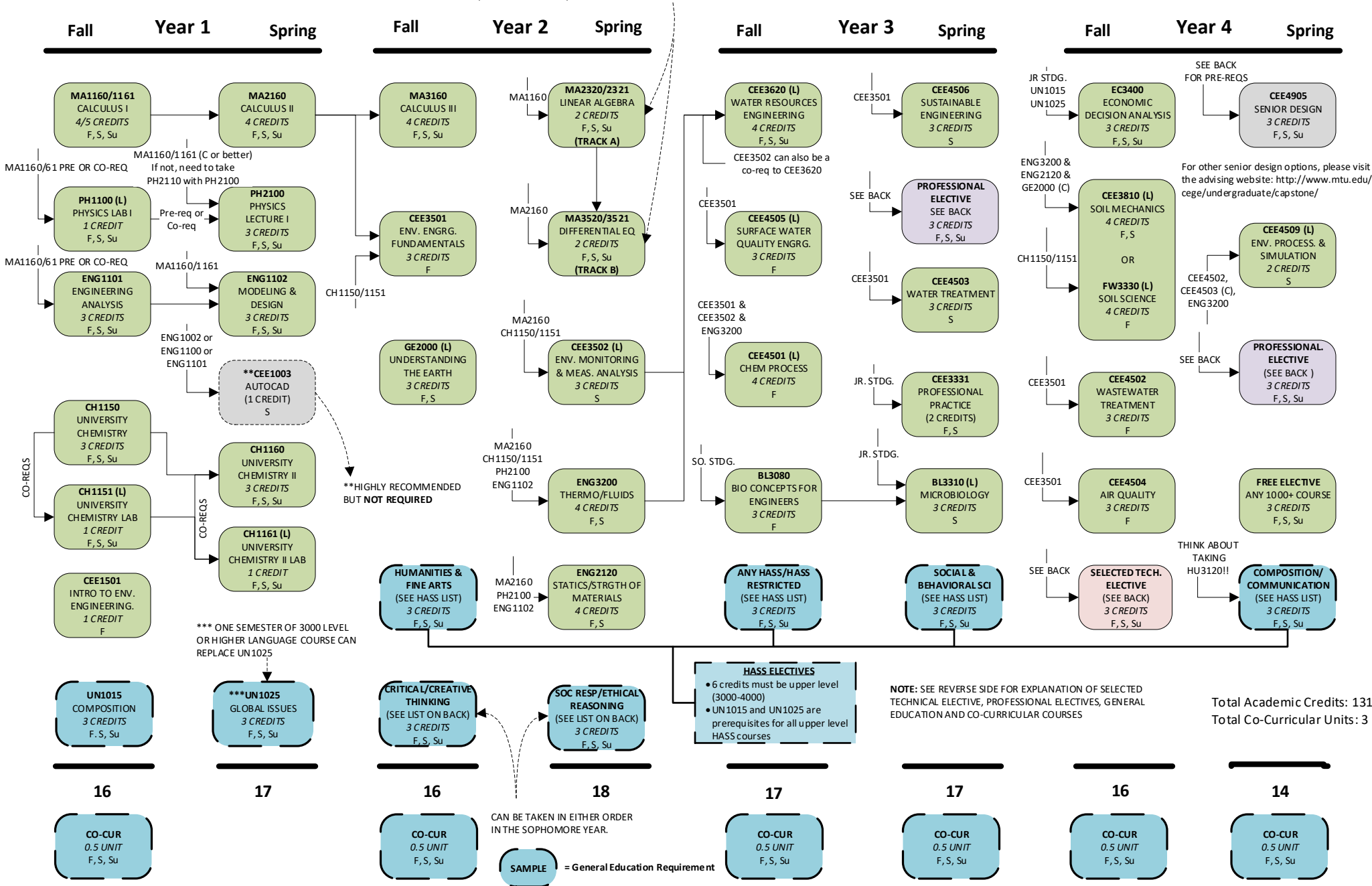
**This is not an official list of degree requirements.
Adjustments may be required due to curriculum changes.**

Updated: 6.4.2021

Year 1 — Fall / Spring

MA1160/1161
CALCULUS I
4/5 CREDITS
F, S, Su

MA2160
CALCULUS II
4 CREDITS
F, S, Su

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

MA1160/61 PRE OR CO-REQ

PH1100 (L)
PHYSICS LAB I
1 CREDIT
F, S, Su

Pre-req or Co-req

PH2100
PHYSICS
LECTURE I
3 CREDITS
F, S, Su

MA1160/61 PRE OR CO-REQ

MA1160/1161

ENG1101
ENGINEERING
ANALYSIS
3 CREDITS
F, S, Su

ENG1102
MODELING &
DESIGN
3 CREDITS
F, S, Su

ENG1002 or
ENG1100 or
ENG1101

**CEE1003
AUTOCAD
(1 CREDIT)
S

**HIGHLY RECOMMENDED
BUT **NOT REQUIRED**

CH1150
UNIVERSITY
CHEMISTRY
3 CREDITS
F, S, Su

CO-REQS

CH1151 (L)
UNIVERSITY
CHEMISTRY LAB
1 CREDIT
F, S, Su

CO-REQS

CH1160
UNIVERSITY
CHEMISTRY II
3 CREDITS
F, S, Su

CH1161 (L)
UNIVERSITY
CHEMISTRY II LAB
1 CREDIT
F, S, Su

CEE1501
INTRO TO ENV.
ENGINEERING.
1 CREDIT
F

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

UN1015
COMPOSITION
3 CREDITS
F. S, Su

***UN1025
GLOBAL ISSUES
3 CREDITS
F, S, Su

16 | **17**

Year 2 — Fall / Spring

MA3160
CALCULUS III
4 CREDITS
F, S, Su

MA1160

MA2320/2321
LINEAR ALGEBRA
2 CREDITS
F, S, Su
(TRACK A)

MA2160

MA3520/3521
DIFFERENTIAL EQ
2 CREDITS
F, S, Su
(TRACK B)

CEE3501
ENV. ENGRG.
FUNDAMENTALS
3 CREDITS
F

CH1150/1151

GE2000 (L)
UNDERSTANDING
THE EARTH
3 CREDITS

MA2160
CH1150/1151

CEE3502 (L)
ENV. MONITORING
& MEAS. ANALYSIS
3 CREDITS
S

MA2160
CH1150/1151
PH2100
ENG1102

ENG3200
THERMO/FLUIDS
4 CREDITS
F, S

**HUMANITIES &
FINE ARTS**
(SEE HASS LIST)
3 CREDITS
F, S, Su

MA2160
PH2100
ENG1102

ENG2120
STATICS/STRGTH OF
MATERIALS
4 CREDITS
F, S

**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

CAN BE TAKEN IN EITHER ORDER
IN THE SOPHOMORE YEAR.

SAMPLE = General Education Requirement

16 | **18**

Year 3 — Fall / Spring

CEE3620 (L)
WATER RESOURCES
ENGINEERING
4 CREDITS
F, S, Su

CEE3502 can also be a
co-req to CEE3620

CEE3501

CEE4505 (L)
SURFACE WATER
QUALITY ENGRG.
3 CREDITS
F

CEE3501 &
CEE3502 &
ENG3200

CEE4501 (L)
CHEM PROCESS
4 CREDITS
F

SO. STDG.

BL3080
BIO CONCEPTS FOR
ENGINEERS
3 CREDITS
F

**ANY HASS/HASS
RESTRICTED**
(SEE HASS LIST)
3 CREDITS
F, S, Su

CEE3501

CEE4506
SUSTAINABLE
ENGINEERING
3 CREDITS
S

SEE BACK

**PROFESSIONAL
ELECTIVE**
SEE BACK
3 CREDITS
F, S, Su

CEE3501

CEE4503
WATER TREATMENT
3 CREDITS
S

JR. STDG.

CEE3331
PROFESSIONAL
PRACTICE
(2 CREDITS)
F, S

JR. STDG.

BL3310 (L)
MICROBIOLOGY
3 CREDITS
S

**SOCIAL &
BEHAVIORAL SCI**
(SEE HASS LIST)
3 CREDITS
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

17 | **17**

Year 4 — Fall / Spring

JR. STDG.
UN1015
UN1025

EC3400
ECONOMIC
DECISION ANALYSIS
3 CREDITS
F, S, Su

SEE BACK
FOR PRE-REQS

CEE4905
SENIOR DESIGN
3 CREDITS
F, S, Su

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

ENG3200 &
ENG2120 &
GE2000 (C)

CEE3810 (L)
SOIL MECHANICS
4 CREDITS
F, S

OR

FW3330 (L)
SOIL SCIENCE
4 CREDITS
F

CH1150/1151

CEE4502,
CEE4503 (C),
ENG3200

CEE4509 (L)
ENV. PROCESS. &
SIMULATION
2 CREDITS
S

CEE3501

CEE4502
WASTEWATER
TREATMENT
3 CREDITS
F

SEE BACK

**PROFESSIONAL.
ELECTIVE**
(SEE BACK)
3 CREDITS
F, S, Su

CEE3501

CEE4504
AIR QUALITY
3 CREDITS
F

FREE ELECTIVE
ANY 1000+ COURSE
3 CREDITS
F, S, Su

SEE BACK

**SELECTED TECH.
ELECTIVE**
(SEE BACK)
3 CREDITS
F, S, Su

THINK ABOUT
TAKING
HU3120!!

**COMPOSITION/
COMMUNICATION**
(SEE HASS LIST)
3 CREDITS
F, S, Su

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

16 | **14**

Co-Curricular

CO-CUR
0.5 UNIT
F, S, Su

(repeated across Fall/Spring of each year)

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

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, 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. _____