F INDICATES COURSE IS OFFERED FALL SEMESTER

SUMMER SEMESTER

ENVIRONMENTAL ENGINEERING FLOWCHART

NOTE: LINEAR ALGEBRA & DIFFERENTIAL FOLIATIONS CAN BE TAKEN

Michigan Tech

Academic Year 2018-19 This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.

S INDICATES COURSE IS OFFERED SPRING SEMESTER Su INDICATES COURSE IS OFFERED

= General Education Requirement

(L) INDICATES A COURSE WHICH INCLUDES A LAB

DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE Updated: 6/12/18 SEMESTERS (MA2320 & MA3520) MUST BE SCHEDULED IN ADDITION TO THE LECTURE Fall Year 2 Year 3 Year 4 Year 1 Spring Fall Spring Fall Spring Fall Spring SEE BACK JR STDG. FOR PRE-REQS MA2320/2321 CEE3620 (L) CEE4506 UN1015 EC3400 MA1160/1161 MA2160 MA3160 CEE4905 MA1160 CEE3501 LINEAR ALGEBRA WATER RESOURCES SUSTAIN, PRINC UN1025 **EC DECISION** CALCULUS I CALCULUS II CALCULUS III SENIOR DESIGN (2 CREDITS) ENGINEERING TO FNG. PRACTICE **ANALYSIS** (4/5 CREDITS) (4 CREDITS) (4 CREDITS) (3 CREDITS) (4 CREDITS) (3 CREDITS) (3 CREDITS) F. S. Su F, S, Su F, S, Su F, S, Su F, S, Su (TRACK A) F, S, Su F, S, Su ENG3200 & MA1160/ MA1160/1161 ENVE3502 can also be a ENG2120 & For other senior design options, please visit the advising 1161 Corea. co-req to CE3620 MA2160 GF2000 PH2100 website: http://www.mtu.edu/cee/undergraduate/capstone/ CEE3810 (L) MA3520/3521 PH1100 (L) PHYSICS SOIL MECHANICS Pre-req or PHYSICS LAB CEE3501 DIFFERENTIAL EQ CEE3620 CEEE3501 LECTURE I (4 CREDITS) ENV. ENGRG. (1 CREDIT) Co-req (2 CREDITS) (RECOMMENDED) CEE4503. CEE4505 (L) (3 CREDITS) F, S, Su **FUNDAMENTALS** F. S. Su F, S, Su CEE4502, SURFACE WATER CEE4509 (L) F. S. Su (3 CREDITS) (TRACK B) ENG3200 GE3850 (L) ENV. PROCESS. & QUALITY ENGRG. MA1160/ GEOHYDROLOGY (3 CREDITS) **SIMULATION** CH1150/1151 MA2160 CH1150/1151 MA1160/1161 1161 Corec (3 CREDITS) (2 CREDITS) CH1150/1151 FW3330 (L) ENG1101 ENG1102 F. S SOIL SCIENCE CEE3502 (L) MODELING & **FNGINFFRING** (4 CREDITS) F.M.M.A CEE3501 & ANALYSIS DESIGN (3 CREDITS) CEE3502 & (3 CREDITS) (3 CREDITS) ENG3200 F, S, Su F, S, Su **HIGHLY RECOMMENDED ENG1002 or BUT NOT REQUIRED CEE4502 CEE3501 ENG1100 or CEE3501 CFF4503 PROFESSIONAL. CEE4501 (L) WASTEWATER ENG1101 WATER TREATMENT ELECTIVE CHEM PROCESS **ENG1003 TREATMENT (4 CREDITS) (3 CREDITS) (3 CREDITS) MA2160 (3 CREDITS) AUTOCAD F, S, Su CH1150/1151 (1 CREDIT) CH1150 PH2100 S GE2000 (L) ENG3200 UNIVERSITY ENG1102 **GEOLOGY** THERMO/FLUIDS CHEMISTRY (3 CREDITS) (4 CREDITS) (3 CREDITS) CH1160 JR. STDG. F, S F, S F, S, Su CO-REQS LINIVERSITY SOPH, STDG **CHEMISTRY II** BL3080 CEE3501 FREE ELECTIVE BL3310 (L) **CEE4504** (3 CREDITS) BIO CONCEPTS FOR CH1151 (L) MICROBIOLOGY AIR QUALITY ANY 1000+ COURSE F, S, Su **ENGINEERS** UNIVERSITY (3 CREDITS) (3 CREDITS) (3 CREDITS) (3 CREDITS) CHEMISTRY LAB F, S, Su S (1 CREDIT) CH1161 (L) LINIVERSITY THINK ABOUT CHEMISTRY II LAB **TAKING** ANY HASS/HASS COMPOSITION/ ENG2120 PROFESSIONAL (1 CREDIT) **HU/FA COURSE** SS/EC/PSY COURSE See Back CEE1501 MA2160 HU3120!! STATICS/STRGTH OF COMMUNICATION **ELECTIVE** RESTRICTED F. S. Su INTRO TO ENV. (SEE HASS LIST) (SEE HASS LIST)) PH2100 -MATERIALS (SEE HASS LIST) SEE BACK COURSE (3 CREDITS) (3 CREDITS) ENGINEERING. ENG1102 (4 CREDITS) (3 CREDITS) (3 CREDITS) (3 CREDITS) (1 CREDIT) F, S, Su F, S, Su F, S, Su F, S F, S, Su *** ONE SEMESTER OF 3000 LEVEL OR HIGHER LANGUAGE COURSE CAN REPLACE UN1025 HASS ELECTIVES CEE3331 IR STDG • 6 credits must be upper level CRITICAL/CREATIVE SOC RESP/ETHICAL **PROFESSIONAL** UN1015 ***UN1025 (3000-4000) NOTE: SEE REVERSE SIDE FOR THINKING (GL. 4) **REASONING (GL 8)** PRACTICE Total Academic Credits: 131 COMPOSITION GLOBAL ISSUES • UN1015 and UN1025 are EXPLANATION OF PROFESSIONAL (SEE LIST ON BACK) (SEE LIST ON BACK) (2 CREDITS) Total Co-Curricular Units: 3 (3 CREDITS) (3 CREDITS) prerequisites for all upper level ELECTIVES, GENERAL EDUCATION (3 CREDITS) (3 CREDITS) F. S F. S, Su F, S, Su HASS courses AND CO-CURRICULAR COURSES F, S, Su F, S, Su 17 16 18 16 17 16 14 17 **GOAL 4 & GOAL 8 COURSES** CAN BE TAKEN IN EITHER Co-cur Unit Co-cur Unit Co-cur Unit Co-cur Unit Co-cur Unit Co-cur Unit ORDER IN THE SOPHOMORE (.5 CREDIT) (.5 CREDIT) (.5 CREDIT) (.5 CREDIT) (.5 CREDIT) (.5 CREDIT) YEAR. F, S, Su F, S, Su

Professional Electives

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

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)

CEE4620 River and Floodplain Hydraulics (F)

CEE4640 Stormwater Management and LID (Su - ONLINE)

CEE4820 Foundation Engineering (F)

CEE4830 Geosynthetics Engineering (S)

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 SURVEYING

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 AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.

1. UN1015 (COMPOSITION)

A. CORE COURSES (12 CREDITS)

- 2. UN1025 (GLOBAL ISSUES)
- 3. CRITICAL AND CREATIVE THINKING (Goal 4) *
- 4. SOCIAL RESPONSIBILITY AND ETHICAL REASONING (Goal 8) **

GENERAL EDUCATION REQUIREMENTS

*GOAL 4 LIST	**GOAL 8 LIST
FA2330	EC2001
FA2520	ED2000
FA2720	PSY2000
FA2820	SS2100
HU2130	SS2200
HU2324	SS2400
HU2501	SS2500
HU2503	SS2501
HU2538	SS2502
HU2700	SS2503
HU2820	SS2504
HU2910	SS2505
SS2300	SS2600
	SS2610
	SS2700

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

1.	COMMUNICATION/COMP	(HASS LIST)
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HU OR FA COURSE (HASS LIST	2.	HU	OR	FΑ	COURSE	(HASS	LIST
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3.	SS	OR	EC	OR	PSY	COU	IRSE	(HASS	LIST

4. ANY HASS OR HASS RESTRICTED COURSE (HASS LIST)

6 credits must be upper division 3000-4000 level

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) (Co-curricular Website, left)

PE/FA/AR/AF	PE/FA/AR/AF
PE/FA/AR/AF	PE/FA/AR/AF
PE/FA/AR/AF	PE/FA/AR/AF

SENIOR DESIGN PREREQUISITES:

CEE3501 OR CEE3503, CEE3502, AND CEE3620

PLUS 4 OF THE FOLLOWING:

CEE3810/FW3330, CEE4502, CEE4504, CEE4506, GE3850

UNDERGRADUATE CATALOG:

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

GENERAL EDUCATION (CO-CURRICULAR & HASS LIST):

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