F INDICATES COURSE IS OFFERED FALL SEMESTER

F, S, Su

ENVIRONMENTAL ENGINEERING FLOWCHART Academic Year 2017-18

Michigan Tech

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

= General Education Requirement

F, S, Su

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

SUMMER SEMESTER NOTE: LINEAR ALGEBRA & DIFFERENTIAL FOLIATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE Updated: 5/17/17 (L) INDICATES A COURSE WHICH INCLUDES A LAB 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) FNV. FNGRG. (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.

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PROFESSIONAL ELECTIVES

Course #	Course Title	<u>Credits</u>	<u>Semester</u>	<u>Pre-reqs</u>
ACC2000	Accounting Principles I	3	Fall, S, Su	
CEE3332	Fundamentals of Construction Engineering	3	Fall, S, Su	Sophomore Standing
CEE4507	Distribution and Collection	3	Spring	CEE3620 and CEE3501
CEE4511	Solid and Hazardous Waste Engineering	3	Spring	CEE3501
CEE4515	Atmospheric Chemistry	3	Spring	CEE4504 or CEE4501, SR
CEE4518	Aquatic Biogeochemistry	3	Fall	CEE4501, CEE4505 (Co-reqs)
CEE4528	Global Biogeochemistry	3	Fall	CEE4501 (Co-req)
CEE4620	River and Floodplain Hydraulics	3	Fall	CEE3620
CEE4640	Stormwater Management and LID	3	Summer (Online)	CEE3620
CEE4820	Foundation Engineering	3	Fall	CEE3810
CEE4830	Geosynthetics Engineering	3	Spring	CEE3810
CEE4990	Special Topics (Varies by semester)	3	Fall, Spring	Varies
CEE5504	Modeling & Management of Lakes & Rivers	3	Spring	CEE4505
CS1121	Intro to Programming I	3	Fall, S, Su	MA1032 (Co-req)
CS1122	Intro to Programming II	3	Fall, S, Su	CS1121
EC3300	Industrial Organization	3	Fall, S, Su	EC2001, UN1015, UN1025
FW3540*	Intro to GIS for Natural Resource Mgmt	4	Spring	CEE3502
FW4220	Wetlands	4	Fall	
GE3040	Fund. of Applied and Environ. Geophysics	4	Spring	PH2200
GE4800	Groundwater Engineering	3	On Demand	GE3850
MEEM4685	Env Resp Design & Manuf	3	Spring – alt yrs	Senior Standing
MKT3000	Principles of Marketing	3	Fall, S, Su	Cannot be a Freshman
PH1200/2200	Physics II	4	Fall, S, Su	PH2100, MA2160 (co-req)
SS3520	U.S. Environmental History	3	Fall	UN1015, UN1025
SS3630	Environmental Policy and Politics	3	Fall – alt yrs	UN1015, UN1025
SU2000	Surveying & GIS Fundamentals	2	Fall, Spring	
UN4000	Seminar Series in Earth, Planetary & Space	1	Fall, Spring	Junior Standing

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

UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/

GENERAL EDUCATION: http://www.mtu.edu/provost/academic-policies/general-education/programs/

CO-CURRICULAR LIST: http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

SENIOR DESIGN PREREQUISITES:

REQUIRED

CEE3501 OR CEE3503, CEE3502, AND CEE3620

PLUS 4 OF THE FOLLOWING:

CEE3810/FW3330, CEE4502, CEE4504, CEE4506, GE3850

GENERAL EDUCATION REQUIREMENTS

- A. CORE COURSES (12 CREDITS)
- 1. UN1015 (COMPOSITION)
- 2. UN1025 (GLOBAL ISSUES)
- 3. CRITICAL AND CREATIVE THINKING (Goal 4) *
- 4. SOCIAL RESPONSIBILITY AND ETHICAL REASONING (Goal 8) **

*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)
- 2. HU OR FA COURSE (HASS LIST)
- 3. SS OR EC OR PSY COURSE (HASS LIST)
- 4. ANY HASS OR HASS RESTRICTED COURSE (HASS LIST)
- 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)

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

^{*}FW3540 WILL BE OPEN TO FORESTRY MAJORS ONLY UNTIL THE INITIAL REGISTRATION PERIOD IS OVER