

B.S. Ecological Engineering Degree (Fall 2026 and later)

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

First Year

Fall

Course	Prerequisites	Credit
MA1160 Calculus with Technology 1		4
ENG1101 Engineering Analysis & Problem Solving	MA1160 (Concurrent)	3
PH1100 Physics 1 Lab	MA1160 (Concurrent)	1
BL1400 Principles of Biology		3
CEE1500 Intro to Ecological Eng.		1
UN1015 Composition		3
Total		15

Spring

Course	Prerequisites	Credit
MA2160 Calculus with Technology 2	MA1160	4
ENG1102 Engineering Modeling & Design	MA1160 (Concurrent), ENG1101	3
PH2100 University Physics 1	MA1160, PH1100 (Concurrent)	3
CH1150 University Chemistry 1	CH1151 (Corequisite)	3
CH1151 University Chemistry Lab 1	CH1150/51, CH1160 (Corequisite)	1
Essential Education - Foundations in the Human World		3
Total		17

Second Year

Fall

Course	Prerequisites	Credit
MA3160 Multivariable Calculus 3	MA2160	4
CEE3500 Ecological Eng Fundamentals	CH1150/51	3
CH1160 University Chemistry 1	CH1150/51, CH1161 (Corequisite)	3
CH1161 University Chemistry Lab 1	CH1160 (Corequisite)	1
Essential Education - Communication Intensive		3
Essential Education - Activities for Well-Being and Success		1
Total		15

Spring

Course	Prerequisites	Credit
MA2320 Linear Algebra	MA1160	2
CEE3502 Env. Monitoring & Measurement Analysis	CH1150/51, MA2160	3
CEE3200 Thermo/Fluids	MA2160, PH2100, CH1150/51, ENG1101	4
ENG2120 Statics/Strength of Materials	MA2160, PH2100, ENG1101	4
Essential Education - Arts & Culture		3
Total		16

Third Year

Fall

Course	Prerequisites	Credit
MA3520 Differential Equations	MA2160, MA2320	2
FW4114 Restoration Ecology (Sp) OR BL4447 Stream Ecology (Fall)	- BL1400 and BL1410	3
CEE3331 Professional Practice	Junior Standing	2
CEE4505 Surface Water Quality	CEE3501 or CEE3500	3
Essential Education - Intercultural Competency (3000+)		3
Essential Education - Activities for Well-Being and Success		1
Total		14

Spring

Course	Prerequisites	Credit
FW3540 Introduction to GIS	CEE3502 (Concurrent)	4
CEE3620 Water Resource Engineering	MA3710 or CEE3710 (Concurrent), CEE3200	4
CEE4500 Ecological Eng Design	CEE3501 or CEE3500	3
GE2000 Understanding the Earth		3
Essential Education Experience (3000+)		3
Total		17

Fourth Year

Fall

Course	Prerequisites	Credit
FW3330 Soil Science	CH1150/51	4
FW4220 Wetlands (Fall) OR FW4370 Landscape Ecology (Spring)	BL1400 CEE3502 (JR/SR STDN)	3-4
FW3020 Forest Ecology + FW2051 Field Techniques OR BL3490 Principles of Ecology	- BL1400, BL1410	4-5
CEE4620 River and Floodplain Hyd	CEE3620	3
Essential Education - Activities for Well-Being and Success		1
Total		15-17

Spring

Course	Prerequisites	Credit
CEE4905 Senior Design	See back for pre-reqs	3
CEE4506 Sustainable Engrg	CEE3501 or CEE3500	3
CEE4665 Stream Restoration	CEE3620	3
Engineering Elective	Varies by course	3
EC3400 Economic Decision Analysis	JR STDN, UN1015	3
Essential Education - SHAPE		
Total		15

Grand Total = 124 Credits

1. **Essential Education Requirements:** 24 total credits. Required courses are *UN1015-Composition* (3 credits), a *Foundations in the Human World* course (3 credits), a *Communication Intensive* course (3 credits), an *Arts & Culture* course (3 credits), an *Intercultural Competency (3000+)* course (3 credits), a *SHAPE* course (EC3400, 3 credits), an *Essential Education Experience (3000+)* course (3 credits), and 3 credits of *Activities for Well-being and Success*. The Essential Education and Activities for Well-Being list is available online at: <https://www.mtu.edu/registrar/pdfs/essential-education-course-lists-2025-2026.pdf>
2. **Engineering Electives:** 3 total credits. Selected one course from the list below:
 - CEE 4502 – Wastewater Treatment Principles
 - CEE 4503 – Drinking Water Treatment Principles
 - CEE 4507 – Water Dist. & Wastewater Collection
 - CEE 4640 – Stormwater Management and LID
 - CEE 4650 – Hydraulic Structures
 - CEE 4993 – Engineering w/ Dev. Communities50
 - CM 2110 – Material and Energy Balances
 - GE 3850 – Geohydrology
3. **Senior Design (CEE4905) Prerequisites:**
Complete the following courses:
 - CEE 3620 – Water Resources
 - CEE 4500 – Ecological Engineering Design
 - CEE 4505 – Surface Water Quality Engineering
 - CEE 4620 – River and Floodplain Hydraulics (can be taken concurrently with CEE4905)
 - FW 3330 – Soil Science
 - FW 4220 – Wetlands
4. **Prerequisite** (pre-req) course must be successfully completed **PRIOR** to taking the subsequent course. **Concurrent Prerequisites** (concurrent) may be taken at the same time, although it is not necessary if the prerequisite course is completed first.
Required Corequisite (co-req) courses that **MUST** be taken together in the same semester.
5. **Engineering Fundamentals:** MA1160/1161 is a concurrent prerequisite for ENG1101 and ENG1102. ENG1102 project content varies by section number.
6. **Math:** Students are placed into an initial math course based on ACT/SAT math score, the online ALEKS assessment, or a math placement exam score for credit (AP, IB, CLEP). MA1160 (4 credits) or MA1161 (5 credits) satisfy the Calculus 1 requirement. Linear Algebra and Differential Equations are offered as full semester courses for students taking these courses in separate semesters (MA2320 – Linear Algebra, MA3520 – Differential Equations). The Math department also teaches Linear Algebra and Differential Equations as accelerated courses. In the first half of a given semester MA2321 – Linear Algebra, and MA3521 – Differential Equations, in the second half of the same semester (registration must be for the same section number of both MA2321 and MA3521 in that semester). MA2320, MA2321, and MA2330 are all equivalent and are approved prerequisites for MA3520 or MA3521. MA3530 and 3560 are also equivalent to MA3520/3521. Students who have credit for MA2710, 2720, or MA3710 can use it toward their CEE3502 (Environmental Monitoring and Measurement Analysis) requirement.
7. **Transfer, Advanced Placement, or study abroad courses** are not included in credit hours used for GPA calculations. Transfer credit is awarded for Michigan Tech equivalent course work only if a grade of 'C' or better (2.00/4.00) or equivalent is earned at a transfer institution. Study abroad credit will be awarded based on passing a course according to equivalent international standards. Advanced Placement credit is awarded according to published AP Exam score standards (also IB and CLEP).

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