

KEY:
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)

CIVIL ENGINEERING FLOWCHART

Academic Year 2024-25

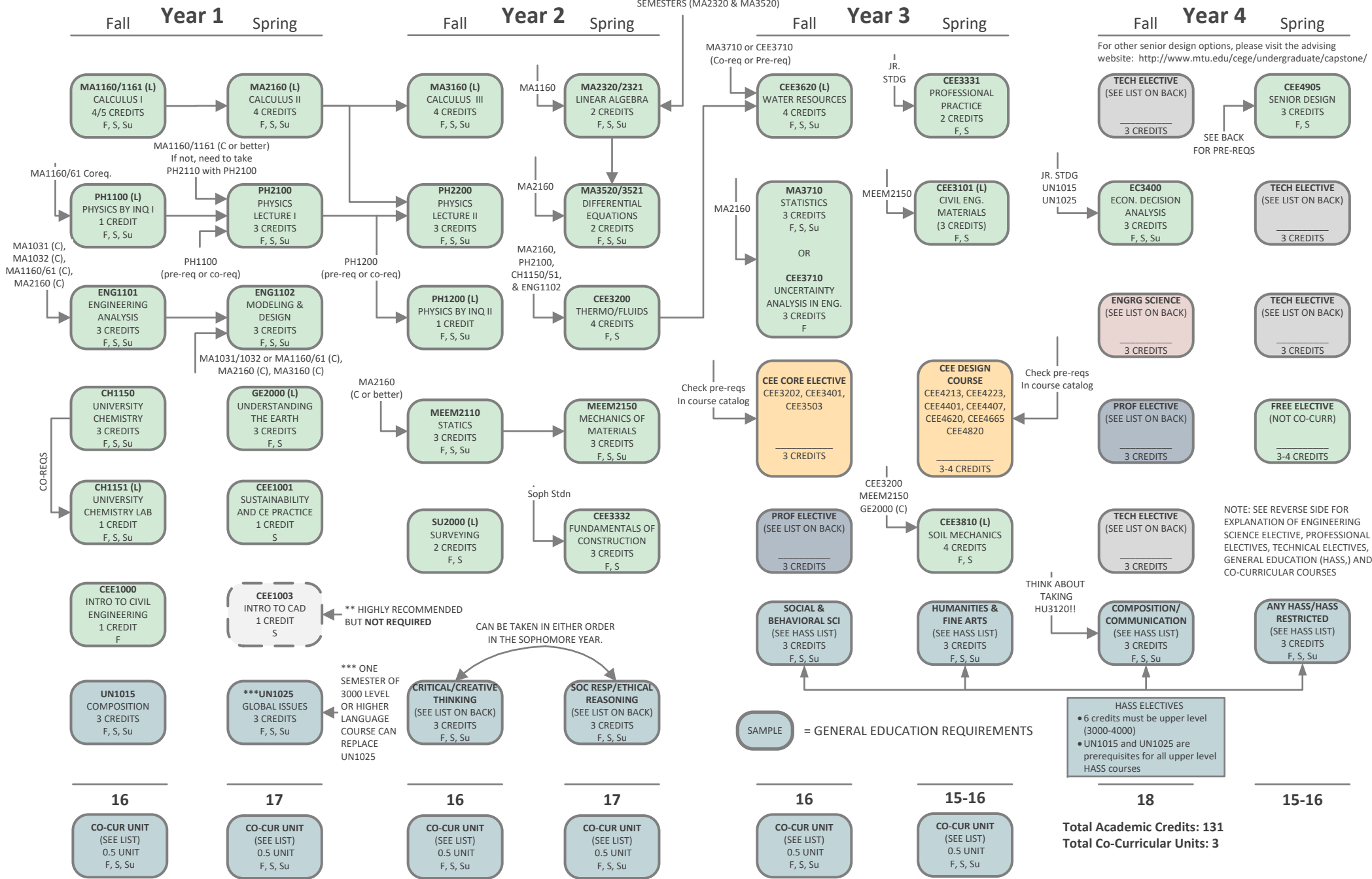


Michigan Tech

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

Updated: 5.31.2024

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)



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

SEE BACK FOR PRE-REQS

JR. STDG UN1015 UN1025

Check pre-reqs in course catalog

NOTE: SEE REVERSE SIDE FOR EXPLANATION OF ENGINEERING SCIENCE ELECTIVE, PROFESSIONAL ELECTIVES, TECHNICAL ELECTIVES, GENERAL EDUCATION (HASS,) AND CO-CURRICULAR COURSES

TECHNICAL ELECTIVES (12 CREDITS)

- Any 2000 or higher level course in Construction Management (CMG)
- Any 2000 or higher level course in Geospatial Engineering (SU)
- Any 3000 or higher level course In Civil and Environmental Engineering (CEE)
- GE3850 (Geohydrology)
- GE4800 (Groundwater Engineering)

PROFESSIONAL ELECTIVES (6 CREDITS)

- Any 1000 or higher level course in Computer Science, Fine Arts or Forestry. (CS, ART, FW, MUS, SND, THEA)
- Any 2000 or higher level course in Biological Sciences, Chemistry, Construction Management, Geology, Physics or Geospatial Engineering. (BL, CH, CMG, GE, PH, SU)
- Any 2000 or higher level course in Business or Economics (ACC, BUS, EC, FIN, MGT, MIS, MKT, OSM).
- Any 3000 or higher level course in Mathematics, Humanities, Psychology, Social Sciences or University Wide (MA, HU, PSY, SS, UN).
- Any 3000 or higher level course in Civil and Environmental Engineering (CEE) or any other Engineering Dept.

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

ENGINEERING SCIENCE ELECTIVE

BE2700	BIOMEDICAL SIGNALS & SYSTEMS
CM2110	MATERIAL AND ENERGY BALANCES
CM2200	INTRO TO MINERALS & MATERIALS
EE3010	CIRCUITS AND INSTRUMENTATION
MSE2100	INTRO TO MATERIALS SCI & ENGRG
MEEM2201	INTRODUCTORY THERMODYNAMICS
MEEM2700	DYNAMICS

SENIOR DESIGN PREREQS

(complete 7 of the following)

CEE3101, CEE3331, CEE3332, CEE3202,
CEE3401, CEE3503, CEE3620, CEE3810,
CEE DESIGN COURSE

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, ART2195, HU2130, HU2324, HU2501, HU2503, HU2538, HU2700, HU2701, HU2820, HU2910, MUS1000, MUS1140, SND1000, SS1500, 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, below)

1. COMM/COMP: _____

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. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

UNDERGRADUATE CATALOG (COURSE DESCRIPTIONS):

www.mtu.edu/catalog/courses/

GENERAL EDUCATION (CO-CURRICULAR & HASS LIST):

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

CIVIL ENGINEERING INTERESTS

COURSE SUGGESTIONS

INTERESTS	CEE CORE ELECTIVE	CEE DESIGN ELECTIVE	TECH ELECTIVE	TECH ELECTIVE	TECH ELECTIVE	TECH ELECTIVE	PROF ELECTIVE	PROF ELECTIVE
GENERAL	CEE 3202 Structural Analysis	Pick any CEE Design Course	CEE3503 Environmental Engineering	CEE3401 Transportation Engineering	CEE4020 OR CEE4030	Choose a Technical Elective	Open Professional Elective	Open Professional Elective
CONSTRUCTION WITH CMG MINOR	CEE 3202 Structural Analysis	CEE4213, CEE4223, CEE4620, or CEE4665	CEE4333 Estimating	CEE4344 Construction Scheduling	CEE4020 OR CEE4030	CMG4200 Construction Contracts	CMG4210 Construction Project Management	CMG4300 Const. Finance OR CMG4400 Const. Safety
TRANSPORTATION	CEE3401 Transportation Engineering	CEE4401 OR CEE4407	CEE4020 Digital Project Delivery	Choose a Transportation Engineering Elective	Choose a Transportation Engineering Elective	Choose a Transportation Engineering Elective	Open Professional Elective	Open Professional Elective
STRUCTURES	CEE 3202 Structural Analysis	CEE4213 Concrete Design	CEE4201 Matrix Struct. Analysis	CEE4223 Steel Design	CEE4030 Building Info. Modeling	Choose a Structural Engineering Elective	Open Professional Elective	Open Professional Elective
WATER RESOURCES	CEE3503 Environmental Engineering	CEE4620 OR CEE4665	CEE4020 Digital Project Delivery	Choose a Water Resources Elective	Choose a Water Resources Elective	Choose a Water Resources Elective	Open Professional Elective	Open Professional Elective

ELECTIVE LISTS ON BACK

Technical Electives

DEPARTMENT-WIDE

- CEE4020 - Digital Project Delivery (Fall) 3 cr.
- CEE4030 - Building Information Modeling (Fall) 3 cr.
- CEE4760 - Optimization Methods (Sp) 3 cr.
- CEE4993 - Engrg with Developing Communities (Fall) 3 cr.

MATERIALS

- CEE4101 - Bituminous Materials (Fall) 3 cr.

STRUCTURES

- CEE4201 - Matrix Structural Analysis (Fall) 3 cr.
- CEE4213 - Structural Concrete Design (Sp) 4 cr.
- CEE4223 - Steel Design I (Fall) 4 cr.
- CEE4233 - Structural Timber Design (Sp) 3 cr.
- CEE4244 - Loads for Civil Structures (Sp) 3 cr.
- CEE5212 - Prestressed Concrete Design (Fall) 3 cr.
- CEE5213 - Concrete/Masonry Building Sys. (Fall) 3 cr.

CONSTRUCTION

- CEE4333 - Estimating, Planning, Construction (Fall) 3 cr.
- CEE4344 - Construction Scheduling (Sp) 3 cr.

TRANSPORTATION

- CEE4401 - Pavement Design (Fall) 3 cr.
- CEE4402 - Traffic Engineering (Fall) 3 cr.
- CEE4404 - Railroad Engineering (Fall) 3 cr.
- CEE4406 - Airport Planning (Sp) 3 cr.
- CEE4407 - Transportation Design (Sp) 3 cr.
- CEE4410 - Transportation Planning (Fall) 3 cr.
- CEE5402 - Traffic Flow Theory (Sp) 3 cr.

ENVIRONMENTAL

- CEE4502 - Waste Treatment (Fall) 3 cr.
- CEE4503 - Water Treatments (Sp) 3 cr.
- CEE4504 - Air Quality (Fall) 3 cr.
- CEE4505 - Surface Water Quality (Fall) 3 cr.
- CEE4506 - Sustainable Engineering (Sp) 3 cr.
- CEE4507 - Water Distribution & Collection (Sp) 3 cr.
- CEE4511 - Solid & Haz. Waste Eng. (Sp) 3 cr. (Odd years, i.e)
- CEE4521 - Bioremediation Eng. (Sp) 3 cr. (Even years, i.e. 23-24)

WATER RESOURCES

- CEE4610 - Water Resource Stream Modeling (Sp) 3 cr.
- CEE4620 - River & Floodplain Hydraulics (Fall) 3 cr.
- CEE4640 - Stormwater Mgt & LID (Su) 3 cr.
- CEE4650 - Hydraulic Structures (Variable) 3 cr.
- CEE4665 - Stream Restoration (Sp) 3 cr.
- CEE5620 - Stochastic Hydrology (Sp) 3 cr.
- CEE5666 - Water Res. Planning & Mgt (Variable) 3 cr.
- GE3850 - Geohydrology (Sp) 3 cr.
- GE4800 - Groundwater Engineering (Sp) 3 cr.

GEOTECH

- CEE4820 - Foundation Engineering (Fall) 3 cr.
- CEE4830 - Geosynthetics (Sp) 3 cr.
- CEE4850 - Rock Engineering (Sp) 3 cr.

CEE Design Electives

STRUCTURAL DESIGN

- CEE4213 - Structural Concrete Design (Sp) 4 cr.
- CEE4223 - Steel Design I (Fall) 4 cr.

TRANSPORTATION DESIGN

- CEE4401 - Pavement Design (Fall) 3 cr.
- CEE4407 - Transportation Design (Sp) 3 cr.

WATER RESOURCES DESIGN

- CEE4620 - River & Floodplain Hydraulics (Fall) 3 cr.
- CEE4665 - Stream Restoration (Sp) 3 cr.

GEOTECH DESIGN

- CEE4820 - Foundation Engineering

Professional Electives

- Any 1000 or higher level course in Computer Science, Fine Arts or Forestry. (CS, ART, FW, MUS, SND, THEA)
- Any 2000 or higher level course in Biological Sciences, Chemistry, Construction Management, Geology, Physics or Geospatial Engineering. (BL, CH, CMG, GE, PH, SU)
- Any 2000 or higher level course in Business or Economics (ACC, BUS, EC, FIN, MGT, MIS, MKT, OSM).
- Any 3000 or higher level course in Mathematics, Humanities, Psychology, Social Sciences or University Wide (MA, HU, PSY, SS, UN).
- Any 3000 or higher level course in Civil and Environmental Engineering (CEE) or any other Engineering Dept.