CIVIL ENGINEERING FLOWCHART
Transportation Path
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 (CO-REQ) OR
    TAKEN PRIOR TO THE COURSE (PRE-REQ)
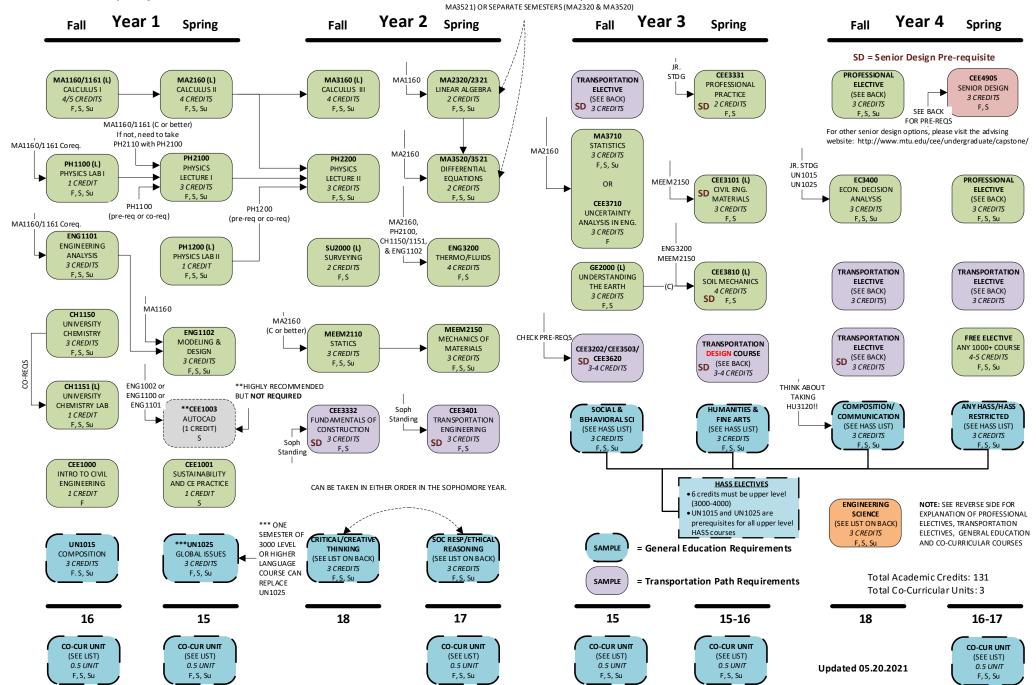
NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520)

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

Year 1

Fall

MA1160/1161 (L) CALCULUS I — *4/5 CREDITS* — F, S, Su

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

ENG1101 ENGINEERING ANALYSIS — *3 CREDITS* — F, S, Su

CH1150 UNIVERSITY CHEMISTRY — *3 CREDITS* — F, S, Su

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

CEE1000 INTRO TO CIVIL ENGINEERING — *1 CREDIT* — F

UN1015 COMPOSITION — *3 CREDITS* — F, S, Su

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

MA1160/1161 Coreq.
MA1160/1161 Coreq.
CO-REQS

Total: 16

Spring

MA2160 (L) CALCULUS II — *4 CREDITS* — F, S, Su

PH2100 PHYSICS LECTURE I — *3 CREDITS* — F, S, Su

PH1200 (L) PHYSICS LAB II — *1 CREDIT* — F, S, Su

ENG1102 MODELING & DESIGN — *3 CREDITS* — F, S, Su

****CEE1003** AUTOCAD (1 CREDIT) — S

CEE1001 SUSTAINABILITY AND CE PRACTICE — *1 CREDIT* — S

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

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

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

PH1100 (pre-req or co-req)

MA1160

ENG1002 or ENG1100 or ENG1101

**HIGHLY RECOMMENDED BUT NOT REQUIRED

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

Total: 15

Year 2

Fall

MA3160 (L) CALCULUS III — *4 CREDITS* — F, S, Su

PH2200 PHYSICS LECTURE II — *3 CREDITS* — F, S, Su

SU2000 (L) SURVEYING — *2 CREDITS* — F, S

MEEM2110 STATICS — *3 CREDITS* — F, S, Su

CEE3332 FUNDAMENTALS OF CONSTRUCTION — **SD** *3 CREDITS* — F, S

CRITICAL/CREATIVE THINKING (SEE LIST ON BACK) — *3 CREDITS* — F, S, Su

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

PH1200 (pre-req or co-req)

MA2160 (C or better)

Soph Standing

CAN BE TAKEN IN EITHER ORDER IN THE SOPHOMORE YEAR.

Total: 18

Spring

MA2320/2321 LINEAR ALGEBRA — *2 CREDITS* — F, S, Su

MA3520/3521 DIFFERENTIAL EQUATIONS — *2 CREDITS* — F, S, Su

ENG3200 THERMO/FLUIDS — *4 CREDITS* — F, S

MEEM2150 MECHANICS OF MATERIALS — *3 CREDITS* — F, S, Su

CEE3401 TRANSPORTATION ENGINEERING — **SD** *3 CREDITS* — F, S

SOC RESP/ETHICAL REASONING (SEE LIST ON BACK) — *3 CREDITS* — F, S, Su

MA1160

MA2160

MA2160, PH2100, CH1150/1151, & ENG1102

Soph Standing

Total: 17

Year 3

Fall

TRANSPORTATION ELECTIVE (SEE BACK) — **SD** *3 CREDITS*

MA3710 STATISTICS — *3 CREDITS* — F, S, Su — OR — **CEE3710** UNCERTAINTY ANALYSIS IN ENG. — *3 CREDITS* — F

GE2000 (L) UNDERSTANDING THE EARTH — *3 CREDITS* — F, S

CEE3202/CEE3503/ **SD** **CEE3620** — *3-4 CREDITS*

SOCIAL & BEHAVIORAL SCI (SEE HASS LIST) — *3 CREDITS* — F, S, Su

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

MA2160

CHECK PRE-REQS

Total: 15

Spring

JR. STDG

CEE3331 PROFESSIONAL PRACTICE — **SD** *2 CREDITS* — F, S

CEE3101 (L) CIVIL ENG. MATERIALS — **SD** *3 CREDITS* — F, S

CEE3810 (L) SOIL MECHANICS — **SD** *4 CREDITS* — F, S

TRANSPORTATION DESIGN COURSE (SEE BACK) — **SD** *3-4 CREDITS*

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

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

MEEM2150

ENG3200 MEEM2150

(C)

Total: 15-16

Year 4

Fall

SD = Senior Design Pre-requisite

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

EC3400 ECON. DECISION ANALYSIS — *3 CREDITS* — F, S, Su

TRANSPORTATION ELECTIVE (SEE BACK) — *3 CREDITS*

TRANSPORTATION ELECTIVE (SEE BACK) — **SD** *3 CREDITS*

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

ENGINEERING SCIENCE (SEE LIST ON BACK) — *3 CREDITS* — F, S, Su

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

JR. STDG UN1015 UN1025

THINK ABOUT TAKING HU3120!!

Total: 18

Spring

CEE4905 SENIOR DESIGN — *3 CREDITS* — F, S

SEE BACK FOR PRE-REQS

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

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

TRANSPORTATION ELECTIVE (SEE BACK) — *3 CREDITS*

FREE ELECTIVE ANY 1000+ COURSE — *4-5 CREDITS* — F, S, Su

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

CO-CUR UNIT (SEE LIST) — *0.5 UNIT* — F, S, Su

Total: 16-17

HASS ELECTIVES
- 6 credits must be upper level (3000-4000)
- UN1015 and UN1025 are prerequisites for all upper level HASS courses

SAMPLE = General Education Requirements

SAMPLE = Transportation Path Requirements

NOTE: SEE REVERSE SIDE FOR EXPLANATION OF PROFESSIONAL ELECTIVES, TRANSPORTATION ELECTIVES, GENERAL EDUCATION AND CO-CURRICULAR COURSES

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

Updated 05.20.2021

Transportation Requirements

Choose 1 course from the following

CEE3202	STRUCTURAL ANALYSIS	F, Sp	3 cr.
CEE3503	ENVIRONMENTAL ENG.	Sp	3 cr.
CEE3620	WATER RESOURCES ENG	F, Sp, Su	4 cr.

TRANSPORTATION DESIGN COURSE (Select 1)

CEE4401	PAVEMENT DESIGN	Fall	3 cr.
CEE4407	TRANSPORTATION DESIGN	Spring	4 cr.

TRANSPORTATION ELECTIVES (select 4)

CEE4020	DIGITAL PROJECT DELIVERY	Fall	3 cr.
CEE4101	BITUMINOUS MATERIALS	Fall	3 cr.
CEE4333	ESTIMATING, PLAN., CONST.	Spring	3 cr.
CEE4344	CONSTRUCTION SCHEDULING	Spring	3 cr.
CEE4401	PAVEMENT DESIGN	Fall	3 cr.
CEE4402	TRAFFIC ENGINEERING	Fall	3 cr.
*CEE4404	RAILROAD ENGINEERING	Fall	3 cr.
	(*co/pre-req is CEE3490 – 1 cr, fall/spring)		
CEE4406	AIRPORT PLANNING	Spring	3 cr.
CEE4407	TRANSPORTATION DESIGN	Spring	4 cr.
CEE4410	TRANSPORTATION PLANNING	Fall	3 cr.
CEE4760	OPT. METHODS IN CEE	Spring	3 cr.
CEE5190	SPECIAL TOPICS	Varies	3 cr.
CEE5402	TRAFFIC FLOW THEORY	Spring (alt)	3 cr.

Senior Design (SD) Pre-reqs
(complete 7 of the following)

CEE3101, (CEE3202 or CEE3503 or CEE3620), CEE3331, CEE3332, CEE3401, CEE3810 TRANSPORTATION DESIGN COURSE, & 2 TRANSPORTATION ELECTIVES

Engineering Science Elective
(select 1)

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

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/

PROFESSIONAL ELECTIVES

UNDERGRADUATE CATALOG: https://www.mtu.edu/catalog/courses/

- 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 AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.

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. 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. _____	4. _____
2. _____	5. _____
3. _____	6. _____