



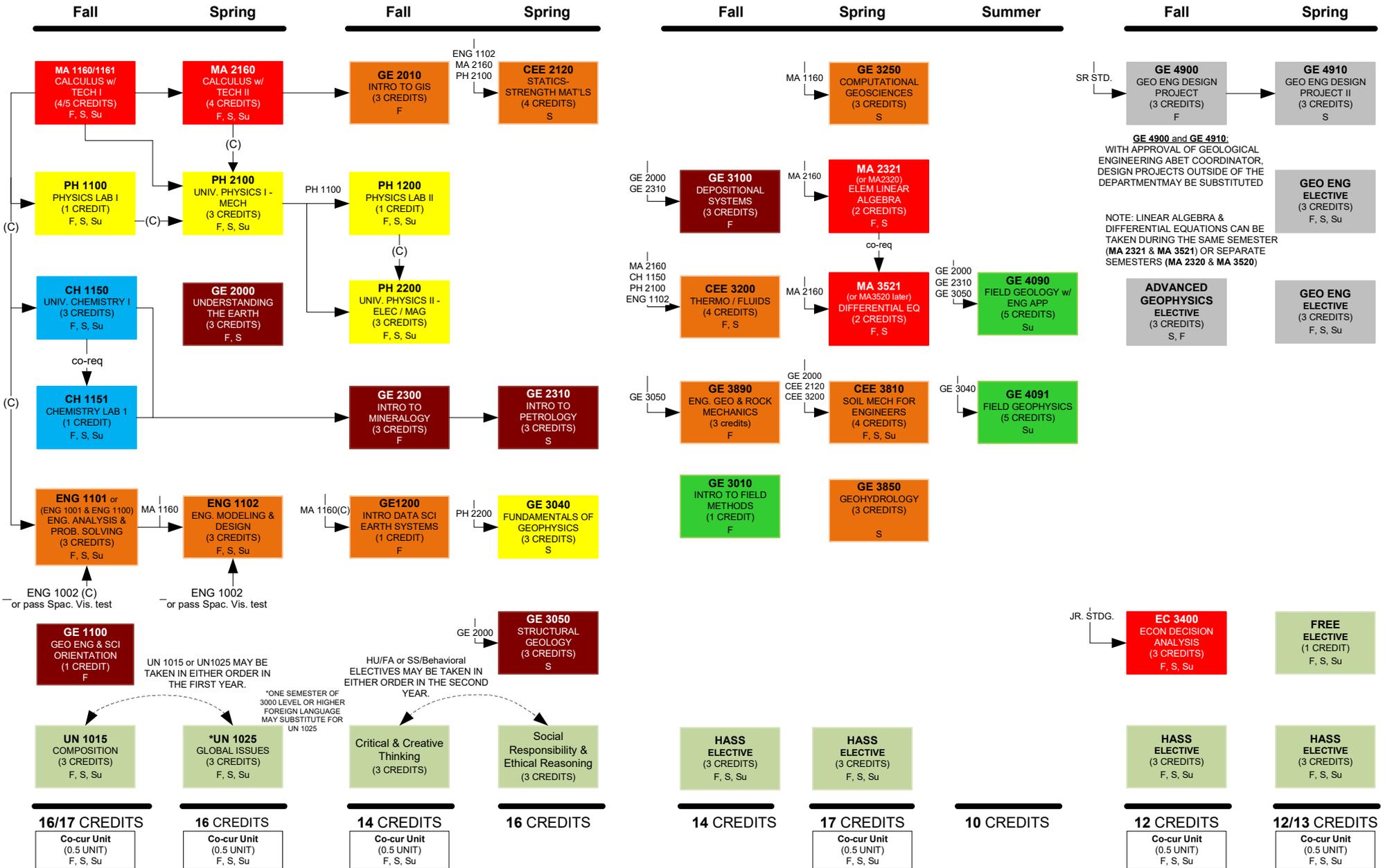
- PREREQUISITE (COURSE MUST BE COMPLETED PRIOR TO ENROLLMENT)
- (C) → CONCURRENT PREREQUISITE. PREREQ. THAT MAY BE TAKEN SIMULTANEOUSLY WITH THE COURSE
- F INDICATES COURSE IS OFFERED FALL SEMESTER
- S INDICATES COURSE IS OFFERED SPRING SEMESTER
- SU INDICATES COURSES IS OFFERED SUMMER SEMESTER

## Year 1

## Year 2

## Year 3

## Year 4



## BS in Geological Engineering 2023-2024 (Minimum of 128 Credits)

### Geological Engineering Electives

Nine credits of Geological Engineering Electives are required. Prerequisites not normally required must be satisfied by free electives or other courses not specifically listed. With approval of Geological Engineering ABET Coordinator, Geo Eng electives may be substituted with Independent Geological Engineering Research and/or Cooperative Lab.

### Enterprise Concentration (12 Credits)

With permission of Geological Engineering ABET Coordinator, enterprise may substitute 6 credits of interdisciplinary project for GE 4900 and GE 4910; 3 credits of required communication, teaming or business must be double counted as Distribution (HASS) credits; and 3 credits of enterprise instructional modules must be substituted for free electives.

**Enterprise Minor:** Follow concentration, plus take 6 additional credits beyond required degree as per minor requirements.

**Second Degree Policy:** Candidates for a second degree must meet all the coursework requirements for the major in the second degree with a minimum of 25% of the credit hours required for the degree, beyond the primary degree.

### *Geological Engineering Advanced Technical Electives*

Course Title	Prerequisite(s)
GE 3440 Drilling, Blasting and Mine Safety	GE 2020, PH 2100, MA 2160
GE 4150 Natural Hazards	(GE 2000 or GE 2100), UN 2002
GE 4360 Materials Handling	PH 2100
GE 4220 Mining Systems and Environment	CH 1150
GE 4290 Mine Ventilation Engineering	GE 2020, GE 2302, (ENG 3200 or CEE 3200)
GE 4610 Formation Eval. & Petrol. Eng.	
GE 4800 Groundwater Eng.	GE 3850 or CEE 3810
GE 4860 Computer Methods Geomechanics	GE 2000, ENG 2120, (ENG 3200 or ENG 3507)
GE 3880 Mine Planning & Design	GE 2320, GE 3400, GE 3870
GE 4680 Operations Research Mining Eng	GE 2020 or GE 2320
GE 4930 Special Topics Geological Engin.	
GE 4934 Special Topics Mining Engin	
ENVE 3503 Environmental Engineering	
GE 3870 Resource & Reserve Estimation	GE 2020, MA 3710
CEE 3331 Professional Practice	(MA 2150 or MA 2160), (CH 1100 or CH 1110)
CEE 3332 Fund. Constr. Engineering	
CEE 3503 Environmental Engineering	MA 2160, CH 1112 or (CH 1150 and CH 1151)
CEE 3620 Water Resources Engineering	
CEE 4511 Solid and Hazardous Waste Eng	CEE 3501 or CEE 3503
CEE 4640 Stormwater Management . . .	CEE 3620
CEE 4820 Foundation Engineering	
CEE 4830 Geosynthetics Engineering	CEE 3201, CE 3810
CEE 4850 Rock Engineering for Civil Eng	CEE 3810

NOTE: Special Topics Courses focusing predominantly on applications of engineering to geological engineering systems/projects may also be used with prior approval by a GE Advisor. Additionally, with prior approval from advisor, student may choose other technical electives. Many appropriate senior-level engineering courses are offered in Civil & Environmental Engineering on topics related to those listed above. Adv. Geophysics Elective Courses (see list below) can be taken as Technical Electives for BSGE students.

### *Advanced Geophysics Electives*

Course Title	Offered	Prerequisite(s)
GE 4560 Earthquake Seismology	FA	GE 3050, PH 2100, MA 3160
GE 4600 Reflection Seismology	SP	GE 3040
GE 4610 Formation Eval. & Petrol. Eng.	FA (depends on demand)	

NOTE: a GE Advisor may also use special Topics Courses focusing predominantly on applications of geophysics in geological engineering projects with prior approval.

## General Education Requirements

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

### I. Core Courses (6 Credits)

\_\_\_ UN 1015                      \_\_\_ UN 1025\*

\* Or one semester of a 3000 level or higher modern language.

### II. Sophomore Core Courses (6 Credits)

Creative and Critical Thinking (HU/FA) \_\_\_\_\_

Social Responsibility and Ethical Reasoning (SS) \_\_\_\_\_

### III. HASS Course Requirements (12 Credits)

(https://www.mtu.edu/registrar/pdfs/core-and-hass-list-23-24.pdf)

- 6 credits 3000- or 4000- level

- 3 credits required from each of these 3 lists:

*Communication and Composition, Humanities and Fine Arts (HU/FA),  
and Social and Behavioral Sciences (EC/PSY/SS)*

- No more than 3 credits on the Restricted HASS List

A. 6 credits 3000- or 4000- level:

1. \_\_\_\_\_ 2. \_\_\_\_\_

B. 6 credits at any level:

1. \_\_\_\_\_ 2. \_\_\_\_\_

### IV. Co-curricular activities (3 units)

The co-curricular requirement consists of three semester units of physical education activities. These units are required for graduation, but are not included in the overall degree-credit requirement.

Note: Most physical education activities will last for 7 ½ weeks or ½ semester. A student would need **six** of these ½-semester units to fulfill the 3-semester unit co-curricular requirement.

PE \_\_\_\_\_ PE \_\_\_\_\_ PE \_\_\_\_\_

PE \_\_\_\_\_ PE \_\_\_\_\_ PE \_\_\_\_\_

## BS Geological Engineering Curriculum Overview (128 Total Credits)

- General Education & Free Electives
- Chemistry
- Physics & Geophysics Fundamentals
- Calculus, Statistics, Linear Algebra, Differential Equations, & Economics
- Physical Geology, Mineralogy, Petrology, Structure & Depositional Systems
- Applied Engineering Fundamentals, Geohydrology & Geotechnics
- Field Geology & Geophysics
- Professional Electives & Capstone Experience

