BSE with Geospatial Engineering 2017-18

KEY

XX#### = Prerequisite
XX#### (C) = prereq that can be taken concurrently

XX#### (cr)
NAME
Semester Offered

F = Fall
S = Spring
Su = Summer

Updated May 2017

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

See back of academic plan for more information on requirements for elective courses.

CO-REQS

Year 1

Fall

MA1160 (4) or MA1161 (5)
CALCULUS I
F, S, Su

PH1100 (1)
PHYSICS LAB I
F, S, Su

CH1150 (3)
UNIVERSITY CHEMISTRY
F, S, Su

co-req

CH1151 (1)
CHEMISTRY LAB
F, S, Su

ENG1101 (3) or ENG1001 (2) & ENG1100 (2)
ENG. ANALYSIS & PROB. SOLVING
F, S, Su

ENG1002 (C) or test score

UN1015 (3)
COMPOSITION
F, S, Su

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Co-cur Unit
F, S, Su

Spring

MA1160 (4) or MA1161 (5) → **MA2160 (4)**
CALCULUS II
F, S, Su

(C) → **PH2100 (3)**
PHYSICS LECTURE I
F, S, Su

(C) from PH1100 (1)

MA1160/1 → **MA2320 (2)**
LINEAR ALGEBRA
F,S,Su

MA1160 → **ENG1102 (3)**
ENG. MODELING & DESIGN
F, S, Su

ENG1002 or test score

* ONE SEMESTER OF 3000 LEVEL OR HIGHER FOREIGN LANGUAGE MAY SUBSTITUTE FOR UN1025.

***UN1025 (3)**
GLOBAL ISSUES
F, S, Su

UN1015 or UN1025 MAY BE TAKEN IN EITHER ORDER IN THE FIRST YEAR.

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Co-cur Unit
F, S, Su

Year 2

Fall

MA3160 (4)
CALCULUS III
F, S, Su

MA2160 MA2320 → **MA3520 (2)**
DIFFERENTIAL EQUATIONS
F,S,Su

SU2050 (3)
PLANE SURVEYING
F

(C) **SU2000 (2)**
FUNDMENTALS OF SURVEYING
F,S

ENG1102 MA2160 PH2100 → **ENG2120 (4)**
STATICS-STRENGTH MAT'LS
S

_____ (3)
**CRITICAL & CREATIVE THINKING
Elective from List

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Co-cur Unit
F, S, Su

Spring

MA2160 → **MA3710 (3)**
ENG STATISTICS
F,S,Su

_____ (3)
MATH and/or SCIENCE ELECTIVE
F,S,Su

or SU2000 → **SU2220 (3)**
ROUTE/ CONSTRUCTION SURVEYING
S

_____ (3)
**SOCIAL RES. & ETHICAL REASONING
Elective from List

** 2ND-YEAR CORE MAY BE TAKEN IN EITHER ORDER IN THE SECOND YEAR.

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Co-cur Unit
F, S, Su

Year 3

Fall

_____ (2)
MATH and/or SCIENCE ELECTIVE
F,S,Su

MA0131 (C) or MA1032 (C) → **CS1121 (3)**
INTRO TO COMPUER SCIENCE 1
F

SU2000 or SU2050 SU3110 (C) MA2320 MA3160 (C) MA3710 (C) → **SU3600 (4)**
SURVEYING COMPUTATIONS & ADJUSTMENTS
F

_____ (3) D
DIRECTED ELECTIVE

EE3010 (3)
CIRCUTS & INSTRUMENTATION
F,S,Su

_____ (3)
COMMUNICATION/ COMPOSITON
*** HASS

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Co-cur Unit
F, S, Su

Spring

UN1015 UN1025 JR. STDG. → **EC3400 (3)**
ECONOMIC DECISION ANALYSIS
F,S,Su

MA3710 → **SU3540 (4)**
GEOSPATIAL INFO TECH W/ CATOGRAPHY
S

_____ (3) D
DIRECTED ELECTIVE

ENG1102 MA2160 PH2100 CH1150 → **ENG3200 (4)**
THERMO/FLUIDS
F,S

_____ (3)
HU/FA
*** HASS

***** HASS Requirement**
- 6 credits must be upper division 3000-4000 level
- UN1015 & UN1025 are prerequisites for all upper division HASS courses
- HASS course may be taken in any order.

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Co-cur Unit
F, S, Su

Year 4

Fall

CEE3332 (3)
FUND OF CONSTRUCTION ENGINEERING
S

SU4140 (3)
PHOTOGRAMMETRY
F,S

_____ (4) D
DIRECTED ELECTIVE

CS 1121 EE 3010 ENG 1101 ENG 1102 ENG 2120 ENG 3200 → **ENG3830 (1)**
ENGINEERING PROFESIONALISM

_____ (4)
FREE ELECTIVE

_____ (3)
EC/PSY/SS
*** HASS
(EC3400 recommended)

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Co-cur Unit
F, S, Su

Spring

_____
Tech Elective (3)
SU4010 or SU4045 or SU4480

SU3600 (C) or SU3250 → **SU4060 (3) D**
GEODESY
S

_____ (3) D
DIRECTED ELECTIVE

SR DESIGN READY SEE #1 ON BACK → **SU4900 (3)**
CAPSTONE DESIGN
F,S

_____ (3)
ANY LIST
*** HASS

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Co-cur Unit
F, S, Su

BSE with Geospatial Emphasis 2017-18 (minimum of 128 credits)

Academic questions: E-mail **efadvise@mtu.edu**

1 Senior Design Ready:

a. Senior Design Prerequisite courses:
CS1121, CEE3332, EE3010, ENG1101, ENG1102, ENG2120, ENG3200, ENG3830.

b. Core Competency Check test - Take and pass the test; test topics include all ENG4905 prerequisite courses except CEE3332 and ENG3830.

2 General Education Requirements (24 credits + 3 PE units):

I. Core Courses (12 credits)

___ UN1015 Composition

___ UN1025 Global Issues or 3000+ Modern Language_____

___ Critical/Creative Think List _____

___ Social Resp./Ethical Reason List_____

II. HASS Courses Requirements (12 credits)

(www.admin.mtu.edu/em/documents/HASS Distribution List.pdf)

- *6 credits upper level (3000- 4999)*
- *3 credits from each listed below*

___ *Communication/Composition* _____

___ *Humanities/Fine Arts List (HU/FA)* _____

___ *Social & Behavioral Science List (EC/PSY/SS)* _____

___ *3 credits from any list* _____

* **EC3400** is required by the degree and may **NOT** be counted as a HASS course.

III. Co-curricular activities (3 units)

In the co-curricular requirement, the three semester units will be physical education activities. These units are required for graduation, but are not included in the calculation of the GPA, nor 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_____

3 Geospatial Directed Electives (16 credits):

Required course

___ SU4060 – 3 Geodesy (see Spring 4)

Select 13 credits (prerequisite)

___ ACC 2000 – 3 Accounting Principles I

___ BUS 2200 – 3 Business Law

___ CS 1122 – 2 (CS 1121) Intro to Computer Science II

___ CS 2321 – 3 (CS 1122) Data Structures

___ FW 4540 – 3 Remote Sensing of the Environment

___ GE 3250 – 3 (MA 1160) Computational Geosciences

___ PH 1200 / 2200 – 1 or 4 (MA 2160 & PH 2100) University Physics II

___ PH 1600/1610 – 2 or 3 Introductory Astronomy

___ SU 3110 – 4 (SU 2220) Surveying Field Practice

___ SU 3180 – 3 (SU 3600(C)) Boundary Surveying Principles

___ SU4045 – 3 Geospatial Data Fusion

___ SU 4100 – 3 (SU 4060(C)) Geodetic Positioning

___ SU 4142 – 3 (SU 3600) Terrestrial Lidar Scanning

___ SU4990 – 3 Professional Practice Seminar

___ UN 3002 – 1-2 Undergraduate Cooperative Education Laboratory

___ UN 4000 – 1 Remote Sensing Seminar