

## Michigan Technological University

### Bachelor of Science Degree Audit

#### Major Program: Engineering

Program Code EBS, Academic Year 2018-19

Total credits required for the degree: 127 - 131

#### Major Requirements: 37 to 39 credits

Course	Credits
CH 1150	3
CH 1151	1
EE 3010	3
ENG 1101 or ENG 1001 and ENG 1100	3/4
ENG 1102	3
MA 1160 or MA 1161	4/5
MA 2160	4
MA 2320 or MA 2321	2/2
MA 3160	4
MA 3710 or CE 3710	3
PH 1100	1
PH 2100	3

#### Multidisciplinary Senior Design Project: 3 credits

Course	Credits
ENG 4905	3

#### Free Electives: 6 credits

Any coursework is allowable, excluding co-curricular and coursework below the 1000-level.

Course	Credits

#### Engineering + OPTIONS: See Pages 2-3

Students must choose one of the following options:  
Geospatial, Mining, Systems, or Faculty Defined

#### General Education Core and HASS

Courses used to complete Core and HASS requirements may not be used to complete other degree requirements. Students must complete 12 credits of Core coursework and 12 credits of Humanities, Fine Arts, and Social Science (HASS) coursework. Repeatable courses may not be repeated for general education credit. Core and HASS courses can be found on the [General Education](#) page.

##### Core: 12 credits

Course	Credits
UN 1015	3
UN 1025 or an upper level modern language	3
Critical and Creative Thinking	3
Social Responsibility and Ethical Reasoning	3

##### HASS: 12 credits

Six of the 12 HASS credits must be at the 3000 or 4000 level (an upper division language course in place of UN1025 does not meet this requirement). No more than three credits may come from the HASS Restricted course list.

Course	Credits
Communication/ Composition	Minimum 3
Humanities and Fine Arts	Minimum 3
Social and Behavioral Sciences	Minimum 3
Course from any list above or from the Restricted HASS course list	0 to 3

#### Co-curricular Activities: 3 credits

Required for graduation, but not included in the GPA calculation or in the overall credits required for the degree.

Course	Credits

**Geospatial Emphasis: 63 credits**

Core Modifications: 18 credits

Course	Credits
CEE 3332	3
CS 1121	3
EC 3400	3
ENG 2120	4
ENG 3200	4
ENG 3830	1

Technical Emphasis: 22 credits

Course	Credits
SU 2000	2
SU 2050	3
SU 2220	3
SU 3540	4
SU 3600	4
SU 4060	3
SU 4140	3

Technical Electives: 3 credits

Course	Credits
SU 4010 or SU 4045 or SU 4480	3

Pre-approved Geospatial Directed Electives: 13 credits

Course	Credits
ACC 2000	3
BUS 2200	3
CS 1122	3
CS 2321	3
FW 4540	3
GE 3250	3
PH 1200	1
PH 1600	2
PH 1610	1
PH 2200	3
SU 3110	4
SU 3180	3
SU 4045	3
SU 4100	3
SU 4142	3
SU 4990	3
UN 3002	1-2
UN 4000	1

Pre-approved Geospatial Mathematics and/or Science Electives: 7 credits

Course	Credits
MA 3520 or MA 3521	2/2

*Select remaining 5 credits with approval by academic advisor*

Course	Credits

**Mining Emphasis: 64 credits**

Core Modifications: 18 credits

Course	Credits
EC 3400	3
ENG 2120	4
ENG 3200	4
ENG 3830	1
GE 2300	3
GE 3880	3

Mining Technical Emphasis: 22 credits

Course	Credits
CEE 3810	4
CM 2200	3
GE 2320	3
GE 3400	3
GE 3860	3
GE 4360	3
MEEM 2700	3

Mining Technical Electives: 6 credits

Course	Credits

Pre-approved Mining Directed Electives: 13 credits

Course	Credits
GE 1100	1
GE 2020	3
GE 3430	1
GE 3870	3
SU 2000	2
GE 4290	3

Pre-approved Mining Mathematics and/or Science Electives: 5 credits

Course	Credits
GE 2000	3
MA 3520 or MA 3521	2/2

**Systems Emphasis: 67 credits****Core Modification: 17 credits**

Course	Credits
CEE 3332	3
EC 2001 or EC 3400	3
ENG 2120	4
ENG 3200	4
MSE 2100	3

**Systems Pre-approved Technical Emphasis: 23 credits**

Course	Credits
BE 2700	3
CEE 3501 or CEE 3503	3
CEE 4506	3
ENG 1505	1
ENG 2505	3
ENG 3505	1
ENG 4300	3
ENG 4505	3
ENG 4510	3

**Systems Electives Core: 9 credits in a coherent plan of study, with BSE program approval**

Course	Credits
	3
	3
	3

**Systems Pre-approved Mathematics and/or Science Electives: 6 credits minimum**

Course	Credits
BE 2400 or (BL 1010 and BL 1020)	3 4/4
FW 4260 or FW 3410	3

**Systems Pre-approved Directed Electives:**

Select one of the following options:

**Enterprise: 12 credits**

Course	Credits
ENT 3950	1
ENT 3960	1
ENT 4950	2
ENT 4960	2
ENT 2961	2
ENT 2962	1
ENT 3984 or ENT 3959 and ENT 3967 and ENT 3982	3 1 1 1

**Minor: Select 12 credits in a coherent plan of study as partial fulfillment of a university minor, with BSE program approval**

Course	Credits

**Faculty Defined Emphasis: 60 credits**

A coherent plan of study that is approved by the Academic Advisor for the Bachelor of Science in Engineering program, Department Chair of Engineering Fundamentals, and Academic Dean for the College of Eng.

**Required Core Courses: 4 credits**

Course	Credits
EC 3400	3
ENG 3830	1

**Core Modifications: select one course for 3 credits**

Course	Credits
CEE 3101	3
CS 1121	3
GE 2300	3
MSE 2100	3

**Select – Minimum 4 credits**

Course	Credits
ENG2120 or (MEEM 2110 and MEEM 2150)	4/6

**Select – Minimum 4 credits**

Course	Credits
ENG 3200 or MEEM 2201 and (MEEM 3201 or MEEM 3210)	4 6/7

**Design Implementation – Select One Course for 3 cr.**

Course	Credits
CEE 3332	3
GE 3880	3
MEEM 3600	3
SSE 3730	3

**Technical Emphasis: 22 to 23 credits**

Select 22 to 23 engineering credits in a coherent plan of study that is approved by the Academic Advisor for the Bachelor of Science in Engineering program, Department Chair of Engineering Fundamentals and Academic Dean for the College of Engineering.

Course	Credits

**Directed Electives: 13 credits**

Select 13 credits in a coherent plan of study such as partial fulfillment of a university approved minor, or a self-defined program with the advice of Michigan Tech faculty.

Course	Credits

**Faculty Defined Math and/or Science Electives: 7 credits**

Course	Credits