

B.S. Chemical Engineering Degree

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

First Year

Fall

Course	Prerequisite	Credit
CH1150 University Chemistry I	CH1151 (Corequisite)	3
CH1151 University Chemistry I Lab	CH1150 (Corequisite)	1
CH1153 University Chem I Recitation	CH1150 (Corequisite)	1
CM1000 Intro to Chemical Engineering		1
ENG1101 Engineering Analysis & Problem Solving	MA1031 (Concurrent) or higher	3
MA1132 Precalculus (use as free elective)		4
UN 1015 Composition		3
Total		16

Spring

Course	Prerequisite	Credit
CH1160 University Chemistry II	CH1150 & 1151	3
CH1161 University Chemistry II Lab	CH1160 (Corequisite)	1
CH1163 University Chemistry II Recitation (Recommended, not required)		1
ENG1102 Engineering Modeling and Design	MA1160 (Concurrent), ENG1101	3
MA1161 Calculus w/ Technology I		5
<i>Essential Education: Foundations of the Human World*</i>		3
Total		17

Second Year

Fall

Course	Prerequisite	Credit
CH2410 Organic Chemistry I	CH1160 & 1161	3
CH2411 Organic Chemistry I Lab	CH2410 (Concurrent)	1
MA2160 Multivariable Calculus w/ Tech	MA1161	4
PH1100 Physics by Inquiry I	MA1161 (Concurrent)	1
PH2100 University Physics I	MA1161, PH1100 (Concurrent)	3
<i>Essential Ed: Communication Intensive*</i>		3
<i>Essential Ed: Activities for Well-Being and Success*</i>		1
Total		16

Spring

Course	Prerequisite	Credit
MA3160 Multivariable Calculus w/ Tech	MA2160	4
PH1200 Physics by Inquiry II	PH1100	1
PH2200 University Physics II	PH1200 (Concurrent), PH2100, MA2160	3
Technical Elective*		3
<i>Essential Education: Arts & Culture*</i>		3
<i>Essential Ed: Activities for Well-Being and Success*</i>		1
Total		15

Third Year

Fall

Course	Prerequisite	Credit
CH3510 Physical Chemistry I	CH1160 & 1161, MA2160, PH2200 (Concurrent)	3
CM2110 Material and Energy Balances	MA1160, CH1150 & 1151	3
MA2321 Linear Algebra	MA1160	2
MA3521 Differential Equations	MA2160, MA2321 (Corequisite)	2
<i>Essential Ed: Intercultural Competency*</i>		3
Total		13

Spring

Course	Prerequisite	Credit
CM3230 Thermodynamics	CM2110, MA2160, PH2100	4
CM3110 Transport and UO I	CM2110, MA3160, MA3521, PH2100	3
Technical Elective*		3
<i>Essential Education: SHAPE*</i>		3
Total		13

Fourth Year

Fall

Course	Prerequisite	Credit
CM3215 ChE Fundamentals Lab	CM3110 (Concurrent), UN1015	3
CM3240 Separations	CM3230, MA2160	3
CM3980 Sustainable ChE	CM2110, MA3521	1
Technical Elective*		3
<i>Essential Education: Experience*</i>		3
Total		13

Spring

Course	Prerequisite	Credit
CM4120 Unit and Plant Operations Lab II	CM4110	3
CM3120 Transport and UO II	CM3110, CM3230	3
CM3310 Process Control	CM2110, MA3521, PH2200	4
CM3510 Chemical Reaction Engineering	CM2110, CM3110, CM3230, MA3521	3
Technical Elective*		3
Total		13

Fifth Year

Fall

Course	Prerequisite	Credit
CM4110 Unit and Plant Operations Lab I	CM3120, CM3215, CM3240, CM3310, CM3510, CM4320 (Concurrent)	3
CM4320 Process Safety	CM3120, CM3230, CM3510	2
CM4855 Process Analysis & Design	CM3120, CM3215, CM3240, CM3510, CH2410, CM3980 (Concurrent)	3
Technical Elective*		1
Optional extra course		3
Total		12

Spring

Course	Prerequisite	Credit
CM4120 Unit and Plant Operations Lab II	CM4110	3
CM4860 Process Analysis & Design II	CM4855, CM3980	2
CM4861 Capstone Design Project	CM4860 (Concurrent), CM3980	1
Technical Elective*		3
Optional extra course		3
Total		12

Grand Total = 140 Credits (includes CH1163 and optional extra courses)

*Starred courses are electives. Choose from the correct electives list following degree requirements.

NOTES:

1. Essential Education Requirements: 24 total credits. Required courses are UN1015-Composition (3 credits), a Foundations in the Human World course (3 credits), a Communication Intensive course (3 credits), an Arts & Culture course (3 credits), an Intercultural Competency (3000+) course (3 credits), a SHAPE course (3 credits), an Essential Education Experience (3000+) course (3 credits), and 3 credits of Activities for Wellbeing and Success (see note 8).
2. Math: Math placement is based on ACT/SAT/AP math score or transfer credit.
3. Free Electives: Any Michigan Tech course(s) or approved transfer course(s) that are 1000-level or above and are not duplicated or equivalent courses.
4. Pre-requisite course must be successfully completed prior to taking the subsequent course.
5. Concurrent Pre-requisites may be taken at the same time, although it is not necessary to take these courses together if the pre-requisite course is completed first.
6. Co-requisite courses are courses that must be taken together in the same semester.
7. Transfer, Advanced Placement, or Study Abroad Courses are not included in credit hours used for GPA calculations. Transfer credit is awarded for Michigan Tech equivalent coursework only if a grade of 'C' or better (2.00/4.00) or equivalent is earned at a transfer institution. Study abroad credit will be awarded by International Programs and Services based on passing a course according to equivalent international standards. Advanced Placement credit is awarded according to published AP Exam score standards.
8. Activities for Well-being and Success: Mainly physical education courses with some additions. Three credits are required for graduation. These credits will be included as earned hours and may be used to determine full-time enrollment status.