Five-year Academic Plan

for students starting in Precalculus
2018-19 Academic Year

B.S. in Chemical Engineering

Michigan Tech
Chemical Engineering

This suggested schedule includes a full-year of organic chemistry. Two semesters of organic chemistry are recommended to all chemical engineering students and is especially encouraged to those planning to minor in *Polymer Science and Engineering* or *Mineral Processing*.

Freshman Year

Fall Semester

Course	Title	Cr
CH 1150	University Chemistry I	3
CH 1151	University Chemistry I Lab	1
CH 1153	University Chemistry I Rec	1
CM 1000	Intro to Chemical Engg*	1
ENG 1001	Engineering Problem Solving	2
MA 1032	Precalculus	4
UN 1015	Compositions	3
	Co-Curricular (1 cr)* **Total**	**16**

Spring Semester

Course	Title	Cr
CH 1160	University Chemistry II	3
CH 1161	University Chemistry II Lab	1
CH 1163	University Chemistry II Rec++	1
ENG 1100	Engineering Analysis	2
MA 1161	Calculus with Technology I	5
UN 1025	Global Issues**	3
	Co-Curricular (1 cr)* **Total**	**16**

++Note: CH 1163 is recommended but not required.

Sophomore Year

Fall Semester

Course	Title	Cr
CH 2410	Organic Chemistry I	3
CH 2411	Organic Chemistry Lab I	1
ENG 1102	Eng Modeling and Design	3
MA 2160	Calculus with Technology II	4
PH 1100	Physics by Inquiry I	1
	Critical & Creat Think Course*	3
	Co-Curricular (1 cr)* **Total**	**16**

Spring Semester

Course	Title	Cr
CH 2420	Organic Chemistry II*	3
MA 3160	Multivariable Calc with Techn	4
PH 2100	University Physics I	3
	Social Resp & Eth Reas Course*	3
	Total	**13**

Junior Year

Fall Semester

Course	Title	Cr
CM 2110	Fundamentals of ChE I	3
MA 2320	Elementary Linear Algebra	2
PH 1200	Physics by Inquiry II	1
PH 2200	University Physics II	3
	HASS Course*	3
	Total	**12**

Spring Semester

Course	Title	Cr
CH 3510	Physical Chemistry I	3
CH 3511	Physical Chemistry Lab I	2
CM 2120	Fundamentals of ChE II	3
MA 3520	Elem Differential Equations	2
	HASS Course*	3
	Total	**13**

Senior Year

Fall Semester

Course	Title	Cr
CM 3110	Transport/Unit Operations I	3
CM 3215	Fundamentals of ChE Lab	3
CM 3230	Thermodynamics for ChE	4
	Technical Elective	3
	Total	**13**

Spring Semester

Course	Title	Cr
CM 3120	Transport/Unit Operations II	3
CM 3310	Process Control	3
CM 3510	Chemical Reaction Eng	3
	Technical Elective	2
	HASS Course (3000+ level)*	3
	Total	**14**

Senior Year 2

Fall Semester

Course	Title	Cr
CM 4110	Unit Operations Lab	3
CM 4310	Process Safety/Environment	3
CM 4855	ChE Proc Anal & Design I	3
	Core Engineering Elective*	4
	Total	**13**

Spring Semester

Course	Title	Cr
CM 4120	Chemical Plant Operations Lab	3
CM 4860	ChE Proc Anal & Design II	2
CM 4861	ChE Design Lab II	1
	Technical Elective*	3
	HASS Course (3000+ level)*	3
	Total	**12**

* See back for description. *Updated 5/14/2018*

** A 3000-level or higher modern language course may be taken in place of UN 1025 Global Issues.

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

Elective Worksheet - 5 year plan

Major Requirements - Technical Electives (**16 credits** total)

3-4 credits of Organic Chemistry II or sub

_____

At least 5 credits of Core Engineering Elective

CM 1000 1 cr

_____

_____

Additional Technical Electives to get to 16 cr

_____

_____

_____

_____

Elective courses must total to at least 16 credits. Credits above 16 may be used towards free electives.

The list of approved elective courses is available on the department's advising webpage: www.mtu.edu/chemical/undergraduate/advising

General Education Requirements (24 credits total)

Core Courses (12 credits)

Compositions

UN 1015 3 cr

Global Issues

UN 1025 or 3000+ level language 3 cr

Critical and Creative Thinking List

_____ 3 cr

Social Resp. & Ethical Reasoning List

_____ 3 cr

Recommended HASS course: EC 3400 Economic Decision Analysis, taken prior or during fall senior classes because it helps with ChE Design. This course counts as a 3000-level Social and Behavioral Science HASS course.

HASS Courses (12 credits)

Communication/Composition List

_____ 3 cr

Humanities/Fine Arts List

_____ 3 cr

Social and Behavioral Science List

_____ 3 cr

Any List above or Restricted HASS List

_____ 3 cr

Upper Division Check:
At least 6 credits of HASS must be at the upper division, 3000-4000 level. UN 1025 (or 3000+ level language course) and UN 1015 are prerequisites for all upper division HASS courses.

_____ 3 cr

_____ 3 cr

Co-Curricular Activities (3 credits total)

_____

_____

_____

_____

_____

_____

Co-curricular courses count for financial aid and full-time student status; however they are not included in GPA calculations or in the 131 credits total required for graduation.

Co-curricular courses can only be used once for this requirement, except PE 0210 Special Topics and PE 0425 Intramurals, which may be used twice.

Free Elective Requirement (3 credits total)

MA 1032 4 cr

Free electives are any class, 1000-level or higher that are not co-curricular courses. They may be taken pass/fail, unless the course is being used for a minor.