Michigan Tech

Transfer Guide

Northwestern Michigan College (NMC) to Michigan Technological University

NMC Major: Associate of Science in Engineering
Michigan Tech Major: BS in Chemical Engineering
Academic Years effective: 2025-2026 through 2032-2033

Contacts

NMC Contact	Michigan Tech Contact
Dr. Jay Smith	Brooke Forseth
Science and Math Instructor	Advisor
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Michigan Tech Admissions/Program Information

- Only courses with a grade of "C" or better (2.0 on a 4.0 scale) will be accepted for transfer.
- To be admitted to the Chemical Engineering (BS) program at Michigan Tech, students must:
  - have a minimum cumulative college GPA of 2.5 or higher
  - follow the standard application procedure for transfer students
- To complete the Chemical Engineering (BS) program at Michigan Tech a student must:
  - complete the courses identified as part of this transfer guide.
  - complete at least 30 credit hours of advanced-level courses (3000 or higher) at MTU
  - earn a minimum of **131** credit hours.
  - have a minimum GPA of 2.00 both overall and in the designated major department at Michigan Tech.
- Students who have completed Michigan Transfer Agreement (MTA) and whose transcripts are endorsed as "MTA Satisfied", have satisfied Michigan Tech's Essential Education requirement. No additional courses need to be taken for Essential Ed.
  - When choosing to complete the MTA to satisfy Essential Education, please confirm the best courses to take to fulfill the agreement with your academic adviser at NMC.
  - If you intend to transfer without the MTA, you can choose to complete the MTA via reverse transfer to NMC or complete additional coursework to fulfill Michigan Tech's Essential Education requirements.
  - AP, IB, CLEP scores may be used to satisfy the MTA at NMC but will be re-evaluated for transfer equivalencies at MTU. *It is possible that a score will satisfy the MTA requirements but not be brought in as specific transfer credit.*
- This agreement is consistent with the **2025-2026** catalog. Students may not graduate using a catalog that is more than seven years old. If a student does not complete the program within seven years, they may be required to have their credits reevaluated.

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Course Equivalencies

NMC Courses	Cr	MTU Equivalency	Cr
Core Gen Ed Requirements (48)		**Group Equivalencies (48)**	
ENG111 – English Composition	4	UN 1015 – Composition + HU 1XXX – Humanities transfer	4
ENG 112 – English Composition	4	HU 1XX5 – HU Transfer	4
Humanities – Any Group 1	3	*Dependent on selected course*	3
MTH 141 – Calculus I	5	MA 1160 – Calc w/ Technology I + MA 1XXX – Math Transfer	5
MTH 142 – Calculus II	5	MA 2160 – Calc w/ Technology II + MA 1XXX – Math Transfer	5
MTH 241 – Calculus III	5	MA 3160 – Multivar Calc + MA 1XXX – Math Transfer	5
MTH 251 – Diff Eq.	4	MA2320 – Elem Linear Algebra + MA 3520 Elem Diff Eq.	4
CHM 150, 150R, 150L – Gen Chemistry I	5	CH 1150/1151/1153 University Chemistry I	5
PHY 221, 221R, 221L – P&P Physics I	5	PH 2100/1100 – University Physics I + PH 1XXE – Physics Elective	5
PHY 222, 222R, 222L – P&P Physics II	5	PH 2200/1200 – University Physics II + PH 1XXE – Physics Elective	5
Social Science – Any Group 1	3	*Dependent on selected course*	3
Directed Electives (25 credits)	**-**	**Group Equivalencies (25 credits)**	-
CIT 110 – Programming Design	3	ENG 1101T	3
EGR 101 – Intro to Engineering	1	ENG 1XXE – ENG elective	1
EGR 113 – Engineering Graphics I	3	ENG 1102 – Eng Modeling & Design	3
CHM 151, 151R, 151L – Gen Chemistry II	5	CH1160/1161/1163 University Chemistry II	4
CHM 250, 250L – Organic Chemistry I	5	CH 2410/2411 Organic Chemistry I + CH2XXX Approved Science-Chemistry	5
CHM 251, 251L – Organic Chemistry II	5	CH2420/2421 Organic Chemistry II* (will count as technical elective)	5
EGR 221 – Material Science	3	MSE 2100 – Introduction to Material Science and Engineering* (will count as technical elective)	3
Total NMC Credits	**73**	**Total MTU Transfer Credits**	**73**

*These are recommended courses to count toward the technical elective requirements for the chemical engineering degree at MTU. A student can choose to take a different directed elective, and if it transfers to MTU as a 2000+ level math, science, or engineering course, it will count as a technical elective. *Some* 1000 level courses are accepted as technical electives.

Michigan Transfer Agreement (MTA):

Additional courses/credits needed to satisfy the MTA are listed below.
MTA requirements can also be completed at MTU through reverse transfer.

MTA Requirement	Credits Needed / Met
2 courses in English Composition	Met
1 course in Mathematics	Met
2 courses in Social Sciences	3 credits min
2 courses in Humanities	3 credits min
2 courses in Natural Science, including one with a lab	Met
Total Additional Credits	**6**

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Additional MTU courses for BS in Chemical Engineering – with MTA completion

Course Number	Course Title	Credits
CH3510	Physical Chemistry I – Thermodynamics, Equilibrium, Kinetics	3
CM2110	Material and Energy Balances	3
CM3230	Thermodynamics for Chemical Engineers	4
CM3110	Transport Phenomena and Unit Operations I	3
CM3215	Chemical Engineering Fundamentals Laboratory	3
CM3240	Stagewise Separation Processes	3
CM3120	Transport Phenomena and Unit Operations II	3
CM3310	Process Control	4
CM3510	Chemical Reaction Engineering	3
CM3980	Sustainable Chemical Engineering	1
CM4110	Unit and Plant Operations Laboratory I	3
CM4320	Chemical Process Safety	2
CM4855	Process Analysis & Design I	3
CM4120	Unit and Plant Operations Laboratory II	3
CM4860	Process Analysis & Design II	2
CM4861	Capstone Design Project	1
	Technical Electives	9
	Total additional credits required:	**53**

Credit Summary

Credits at Northwestern Michigan College: **79**
Credits at Michigan Tech: **53**
Total Credits: **131**

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B.S. Chemical Engineering at Michigan Tech – with MTA completion, Sample Schedule

Year 3

Summer

Summer Courses	Pre-Requisite(s)	Credits
CM2110 Material and Energy Balances	CH1150, CH1151, MA1160	3
Total		**3**

Fall

Fall Courses	Pre-Requisite(s)	Credits
CM3230 – Thermodynamics	CM2110, MA2160, PH2100	4
CM3110 – Transport & UO I	CM2110, MA3160, MA3521	3
CM3215 – ChE Fundamentals Lab	CM3110 (C), UN1015	3
CH3510 – Physical Chemistry	CH1160, CH1161, MA2160, PH2200 (C)	3
Total		**13**

Spring

Spring Courses	Pre-Requisite(s)	Credits
CM3120 – Transport & UO II	CM3110, CM3230	3
CM3310 – Process Control	CM2110, MA3521, PH2200	4
CM3510 – Chemical Reaction Eng	CM2110, CM3110, CM3230, MA3521	3
CM3240 - Separations	CM3230, MA2160	3
Total		**13**

Year 4

Fall

Fall Courses	Pre-Requisite(s)	Credits
CM4110 – UO Lab I	CM3120, CM3215, CM3240, CM3310, CM3510	3
CM4320 – Process Safety	CM3120, CM3230, CM3510	2
CM4855 – Process Design I	CH2410, CM3120, CM3215, CM3980 (C), CM3240, CM3510	3
CM3980 – Sustainable ChE	CM2110, MA3521	1
Technical elective		3
Total		**12**

Spring

Spring Courses	Pre-Requisite(s)	Credits
CM4120 – UO Lab II	CM4110	3
CM4860 – Process Design II	CM4855, CM3980	2
CM4861 – Capstone Project	CM4860(C), CM3980	1
Technical elective		3
Technical elective		3
Total		**12**

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Credit Summary

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Definitions

Pre-Requisite: must be successfully completed PRIOR to taking the listed course.
Concurrent Pre-Requisite (C): may be taken at the same time as the listed course.
Required Co-Requisite: courses listed together with “AND” MUST be taken together in the same semester.

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