Michigan Technological University
Minor in Polymer Science and Engineering
Program Code ECMM, Academic Year 2026-2027
Department of Chemical Engineering
Minimum Credits Required: 18

Introduction to Polymers Course: select one course for 3 credits

- BE 4300 Polymeric Biomaterials (3) *Prereqs: BE3800*
- CM/CH 4610 Introduction to Polymer Science (3) *Prereqs: CH1122 or (CH1160 and CH1161)*
- MSE 4110 Introduction to Polymer Engineering (3) *Prereq: (MSE2100 or BE2800) and CH1160*

Advanced Chemistry Course: select one course for 3 credits

- CH 2410 Organic Chemistry I (3) *Prereqs: CH1122 or (CH1160 and CH1161)*
- CH 3510 Physical Chemistry I - Thermodynamics, Equilibrium and Kinetics (3) *Prereqs: CH1122 or (CH1160 and CH1161) and MA2160) and (PH2200(C) or PH2260(C))*

Fluid Mechanics Engineering Course: select one course for 3 or 4 credits

- BE 3550 Fluid Mechanics and Heat Transfer (4) *Prereqs: MA3160 and (MA3520 or MA3521) and BE3300*
- CM 3110 Transport and Unit Operations I (3) *Prereqs: CM2110 and (MA3520 or MA3521 or MA3530 or MA3560) and MA3160 and PH2100*
- ME/MEEM 3201 Intro Fluid Mechanics & Heat Transfer (4) *Prereqs: ME/MEEM2201 and ME/MEEM2911 and MA3160. Restrictions: Must be a Mechanical Engineering major*
- MSE 3110 Materials Processing II (4) *Prereqs: (MY/MSE2110) and (MY/MSE3100 and (MA3520 or MA3521 or MA3530 or MA3560)*

Polymer Elective Courses: select one or more courses for 6 to 9 credits

- BE 4300 Polymeric Biomaterials (3) Can be used as an elective, if not used as the intro to polymers course. *Prereqs: BE3800*
- BE 4335 Smart Polymers (3) *Prereqs: BE3350 and BE3800*
- CH/CM 4610 Introduction to Polymer Science (3) Can be used as elective, if not used as the intro to polymers course. *Prereqs: CH1122 or (CH1160 and CH1161)*
- CH/CM 4620 Polymer Chemistry (3) *Prereqs: CH2420 or CH2440*
- CH 4710 Biomolecular Chemistry I (3) *Prereqs: CH2420 or CH2440*
- CM 4060 UG Research in Polymer Engineering (1-6) *Prereqs: none*
- ENG 4515 Introduction to Sustainability and Resilience (3) Polymer-related term project required. Topic must be approved by minor advisor. *Prereqs: none. Restrictions: May not be a Freshman or Sophomore*
- ENG 4525 Systems Analysis for Sustainability and Resilience (3) Polymer-related term project required. Topic must be approved by minor advisor. *Prereqs: none. Restrictions: May not be a Freshman or Sophomore*
- ENT XXXX Enterprise Project Work (1-3) *Topic must be approved by minor academic advisor*
- MSE 3130 Materials Characterization II (4) *Prereqs: M(SE2100 or BE2800) and MSE3120*
- MSE 4110 Introduction to Polymer Engineering (3) Can be used as an elective, if not used as the intro to polymers course. *Prereqs: (MSE2100 or BE2800) and CH1160*
- MSE 4430 Composite Materials (3) Prereqs: *MSE2100 or MY2100 or BE2800. Restrictions: May not be a Freshman or Sophomore*
- Undergraduate Research (1-6) *Topic must be approved by minor academic advisor*

Continued on next page.

Optional Elective Courses: remaining credits may be taken from the polymer elective list or this elective list for 0 to 3 credits

- BE 2800 Fundamentals of Biomaterials (3) *Prereqs: BE2400*
- CH 2420 Organic Chemistry II (3) *Prereqs: CH2410*
- EE 4240 Introduction to MEMS (4) *Restrictions: May not be Freshman, Sophomore, Junior*
- ME/MEEM 4170 Failure of Materials in Mech (3) *Prereqs: ME/MEEM3400*
- MSE 2100 Intro to Material Science and Engineering (3) *Prereqs: CH1112 or CH1122 or (CH1150 and CH1151) or (CH1160 and CH1161)*
- MSE 4530 Scanning Electron Microscopy and Xray Microanalysis (3) *Prereqs: none. Restrictions: May not be a Freshman or Sophomore*
- PH 3210 Optics (3) *Prereqs: MA3520 or MA3521 or MA3530(C) or MA3560*