

Michigan Technological University
Interdisciplinary Minor in Alternative Energy Technology
Program Code IMAE, Academic Year 2026-2027
Department of Chemical Engineering
Minimum Credits Required: 18

The interdisciplinary minor in alternative energy technology prepares students for careers in energy and related fields by providing students with relevant technical expertise in alternative energy technologies, and a knowledge of how energy intersects with society and/or the environment.

Required THERMODYNAMICS course: select one course, 2 to 4 credits

- CEE 3200 Thermodynamics/Fluid Mechanics (4) *Prereqs: (CH1150 and CH1151) and PH2100 and (ENG1101 or ENG1101T) and MA2160*
- CM 3230 Thermodynamics for Chemical Engineers (4) *Prereqs: CM2110 and MA2160 and PH2100*
- ME/MEEM 2201 Introductory Thermodynamics (3) *Prereqs: MA2160 and CH1150 and CH1151. Restrictions: Must be enrolled in College of Engineering*
- MET 3700 Applied Thermodynamics (3) *Prereqs: MET3400. Restrictions: Must be a Junior or Senior*
- MSE 3100 Materials Processing I (3) *Prereqs: (MY2100 or MSE2100 or BE2800) and MA2160*
- PH 2300 University Physics III – Fluid and Thermodynamics (2) *Prereqs: PH1160 or PH2100*

Required CIRCUITS course: select one course, 3 to 4 credits

- EE 2112 Electric Circuits and Lab (4) *Prereqs: MA3520(C) or MA3521(C) or MA3530(C) or MA3560(C)*
- EE 3010 Circuits and Instrumentation for Cyber Physical Systems (3) *Prereqs: MA1121 or MA1160 or MA1161. Restrictions: May not be enrolled in Electrical Engineering or Computer Engineering majors*
- EET 1121 Circuits I (3) *Prereqs: MA1031 or MA1032 or MA1120 or MA1121 or MA1135 or MA1160 or MA1161*
- EET 1411 Basic Electronics (3) *Prereqs: MA1031 or MA1032 or MA1120 or MA1121(C) or MA1135(C) or MA1160(C) or MA1161(C)*

Required ENERGY TECHNOLOGY course: select 3 or more credits

- CM 3979 Alternative Energy Tech and Processes (1) *Prereqs: none*
- EE 3120 Electric Energy Systems (3) *Prereqs: EE2010 or EE3010 or EE2112(C) or EE2111*
- EE/ME/MEEM 4295 Introduction to Propulsion Systems for Hybrid Electric Vehicles (3) *Prereqs: MEEM2700 or ME2700 or EE2112 or Graduate Status. Restrictions: Must be enrolled in College of Engineering or College of Computing; May not be a Freshman or Sophomore*
- EE/ME/MEEM 4296 Vehicle Electrification Lab (3) *Prereqs: none*
- ME/MEEM 4200 Principles of Energy Conversion (3) *Prereqs: ME/MEEM3201 or CM3230 or ENG3200 or CEE3200 or MSE3100*
- ME/MEEM 4235 Wind Energy (3) *Prereqs: ME/MEEM3201*
- ME/MEEM 4260 Fuel Cell Technology (3) *Prereqs: ME/MEEM3201 or CM3110. Restrictions: Must be in the College of Engineering; Must be a Senior*

Required ENERGY & SOCIETY course: select 3 or more credits

- CM 3980 Sustainable Chemical Engineering (1) *Prereqs: CM2110 and (MA3520 or MA3521 or MA3530 or MA3560)*
- EC 4620 Energy Economics (3) *Prereqs: EC2001*
- ENG 4515 Introduction to Sustainability and Resilience (3) *Prereqs: none. Restrictions: May not be a Freshman or Sophomore*
- ENG 4525 System Analysis for Sustainability and Resilience (3) *Prereqs: none. Restrictions: May not be a Freshman or Sophomore*
- ME/MEEM 4240 Combustion and Air Pollution (3) *Prereqs: ME/MEEM2201 or CEE3200 or ENG3200. Restrictions: Must be in the College of Engineering; May not be a Freshman, Sophomore, or Junior*
- SS 3800 Energy Technology and Policy (3) *Prereqs: UN1015. Restrictions: May not be a Freshman*
- SS 3811 Energy Security and Justice (3) *Prereqs: UN1015*
- SS 3815 Energy and Society (3) *Prereqs: UN1015*

Interdisciplinary Minor in Alternative Energy Technology, continued

Select remaining credits from the Energy Technology and Energy & Society on page 1, or the optional elective courses below. Credits to total 18.

Optional ELECTIVE courses:

- AE 4540 Introduction to Aerospace Propulsion (3) *Prereqs: AE4530(C)*
- CM 4080 Undergraduate Research in Biofuels Engineering (1 to 6) *Prereqs: none*
- EE 4219 Introduction to Electric Machinery and Drives (3) *Prereqs: (EE2112 or EE3010) and EE3120*
- EE 4226 Power Engineering Laboratory (1) *Prereqs: EE4221 and EE4222(C). Restrictions: Instructor permission required*
- EE 4227 Power Electronics (3) *Prereqs: EE3120 and (EE3130(C) and EE3131)*
- ENT 29xx/39xx/49xx Enterprise Project Work (*AEE or by approval*)
- ME/MEEM 4220 Internal Combustion Engines I (3) *Prereqs: ME/MEEM3201*
- ME/MEEM 4250 Heating/Ventilation/Air Conditioning (3) *Prereqs: ME/MEEM3201*
- MET 4390 Internal Combustion Engines (3) *Prereqs: MET4300 or (MET3700 and MET4360(C))*
- MSE 4410 Science of Ceramic Materials (3) *Prereqs: MY2100 or MSE2100 or BE2800*
- Undergraduate Research by approval (1 to 6) *Prereqs: none*