Frequently Asked Questions

Q: How do I sign up for a minor?

Answer: There is a blue *Curriculum Add/Drop Form* that you must fill out and have signed by the advisor in the program that administers the minor you are signing up for. Changes are official for a semester when the form is completed by the end of week 1.

Q: How do I drop a minor?

Answer: the blue *Curriculum Add/Drop Form* is used also for dropping a minor. You do not need any approval signatures; just fill it out and take it to the Registrar's Office

Q: Do credits from a minor double count towards my major?

Answer: Yes, they may, but you must earn 6 credits of 3000 or higher level that do not double count towards your major except as free elective. You must have 6 non-overlapping credits not double counting for each minor that you expect to receive.

Q: Can I minor in more than one thing?

Answer: Yes. See above for rules on double counting.

Q: What courses are offered and when?

Answer: The course schedule is on the web: *http://www.mtu.edu/registrar/*

Michigan Technological University
Department of Chemical Engineering

Faculty Involved with the Alternative Energy Minor:

- **Dr. Jeff Allen (MEEM)**
- **Mr. Jay Meldrum (KRC)**
- **Dr. Michael Mullins (CM)**
- **Dr. Joshua Pearce (MY/EE)**
- **Dr. David Shonnard (CM)**
- **Dr. Wen Zhou (CM)**
- **Dr. Wayne Weaver (EE)**

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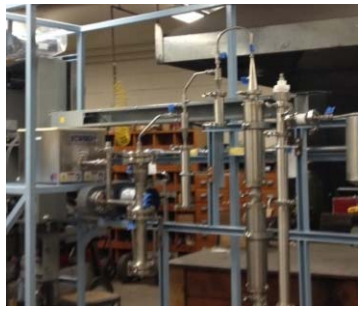
Version 09/15/14

Minor in Alternative Energy Technology at Michigan Tech



The interdisciplinary minor in alternative energy prepares students for careers in energy and related fields. The search for alternative energy sources is an area that has received great attention on and off over the last few decades. A growing area of research and development is currently occurring in the area of hydrogen fuel cells, biofuels, and solar cells. Such technologies have been suggested for transportation (motor vehicles) and stationary (heating and electricity) applications.

Required credits: 16cr
Required classes: See other side

Michigan Tech
Degree Services
Registrar's Office

Department of Chemical Engineering

Interdisciplinary Minor in Alternative Energy Technology

IMAE

Name (please print): _____
(Last) (First) (Middle)

Student Number: _____

Primary Major: _____ Expected Major Completion Term: _____

Required Courses (Select one set of courses, 6-8 credits):

_____ CM3110 Transport/Unit Operations I (3) **and**
CM3120 Transport/Unit Operations II (3) **OR**

_____ MEEM3210 Fluid Mechanics (3) **and**
MEEM3230 Heat Transfer (3) **OR**

_____ MET3250 Applied Fluid Mechanics (4) **and**
MET4300 Applied Heat ransfer (3) **OR**

_____ MY3100 Materials Processing I (4) **and**
MY3110 Materials Processing II (4)

Required Courses (Select one course, 3-4 credits):

_____ EE2110 Electrical Circuits (3)
_____ EE3010 Circuits and Instrumentation (3)
_____ EE2120 Circuits II (4)
_____ EET3131 Instrumentation (3)

Energy Technologies Courses (Select 4-6 credits):

_____ CM/ENT 3974 Fuel Cell Fundamentals (1) **OR**
_____ MEEM4260 Fuel Cell Technology (3)

_____ EC 4620 Energy Economics (3)*
_____ EE 3120 Introduction to Energy Systems (3)
_____ ENG/SS4510 Sustainable Futures I (3)*
_____ ENG/SS4520 Sustainable Futures II (3)*
_____ MEEM4200 Principles of Energy Conversion (3)
_____ MET4900 Alternative Energy Systems (3)
_____ SS3800 Energy Technology and Policy (3)*

Credits Required = 16

Total Credits _____

Elective Courses (Select 1-6 credits):

_____ CM4000 Chemical Engineering Research (1-3)**
_____ CM4550 Industrial Chemical Production (3)
_____ CM4990 Special Topics in Chemical Engg (1-3)**
_____ EE3221 Introduction to Motor Drives (3)
_____ EE4000 Electrical Eng. Undergrad Research (1-3)**
_____ EET3390 Power Systems (3)
_____ ENT3975 Intro to Vehicle Design & System Modeling (1)
_____ ENT39xx Enterprise Project Work (up to 4 cr)**
_____ ENT49xx Enterprise Project Work (up to 4 cr)**
_____ MEEM3999 MEEM Undergrad Research Project (3)**
_____ MEEM4220 Internal Combustion Engines I (3)
_____ MEEM4240 Combustion & Air Pollution
_____ MET4390 Internal Combustion Engines (3)
_____ MY4140 Science of Ceramic Materials (3)
_____ MY4990 MSE Undergraduate Research (1-3)**

***Students are encouraged, though not required, to take at least one of these courses relating to the broader context and societal impacts of alternative technology.**

****** Topics must be approved by the minor program coordinator.**

Courses listed in this minor have the following prerequisites (shown in parenthesis). Concurrency is illustrated by the letter C: ENT4961 (ENT3950 and ENT3960 and ENT4950 and ENT4960), CM/ENT3974 (CH1100 or CH1110 or CH1150), CM3110 (CM2120 and PH2100 and (MA3520 or 3521 or 3530 or 3560)), CM3120 (CM3110 and (MA3520 or 3521 or 3530 or 3560)), CM4550 ((CH2400 or CH2410) and CM3510(C)), EC4620 ((EC3001 or EC3002 or EC3003) and UN2002), EE2110 (EE2150 and (MA3520 or 3521 or 3530 or 3560)), EE3120 (EE2110 or EE3010), EE3221 (EE2110 or EE3010), EET2120 (EET1120 and (MA1161 (C)) or MA1161 (C)), EET3131 (EET1141 or EET2311 or EET2220), EET3390 (EET2233), ENG/SS4510 (UN2002), ENT3975 (ENG1102), MEEM3210 (MEEM2200 and MEEM2700 (C)), MEEM3230 (MEEM3210 and (MA3520 or equivalent)), MEEM4220 (MEEM3210), MET3250 (MET2130), MET4300 (MET3600), MET4390 (MET3600 (C)), MET4900(MET3600), MY3100 (MY2100), MY3110 (MY3100), MY4140 (MY2100), SS3800 (UN2002).

Refer to the University Catalog for information on university minor requirements.

_____ _____
Student Signature Date Minor Advisor Signature Date

Academic Year 2013-14