

# The Minor in Energy Engineering

**Objective:** The goal of this minor is to provide students with a course work experience that will enhance their background, knowledge and skills in the topical area of energy engineering. The minor encompasses courses in several fields of science and engineering, including the Department of Energy, Environmental & Chemical Engineering; the Department of Electrical & Systems Engineering; and the Department of Mechanical Engineering & Materials Science.

A minor in energy engineering requires the completion of 18 units selected from the following lists. It is open to any undergraduate student pursuing an engineering major, a major in the sciences (biology, chemistry, physics) in Arts & Sciences, or the environmental studies major.

Interested departments should expose students to energy and related concepts in their introductory courses.

**Basic and Applied Sciences** (fundamental content) (two courses):

Code	Title	Units
EECE 205	Process Analysis and Thermodynamics (fall)	4 or 3
or MEMS 301	Thermodynamics	
EECE 301	Transport Phenomena I: Basics and Fluid Mechanics (spring)	3
or MEMS 3410	Fluid Mechanics	
EECE 307	Transport Phenomena II: Energy and Mass Transfer (fall)	3 or 4
or MEMS 3420	Heat Transfer	
ESE 332	Power, Energy, and Polyphase Circuits (spring)	3

\* EECE 303 Transport III: Energy Transfer Processes also fulfilled this requirement, but this course is no longer offered.

**Social Science/Policy/Economics Elective** (students choose one course):

Code	Title	Units
Anthro 3472	Global Energy and the American Dream	3
EnSt 347	Sustainable Cities	3
EnSt 350W	Writing Skills for Environmental Professionals (spring)	3
EnSt 357	Multiparty Environmental Decision Making	3
EnSt 407	RESET - Renewable Energy Policy, Engineering and Business	3
EnSt 451	Environmental Policy (fall)	3

**Electives:**

Students choose three courses. One of the courses is required to be chosen from outside of the student's major degree department. A partner department may approve the use of a course listed under basic and applied sciences as an elective.

Code	Title	Units
EECE 311	Green Engineering (fall)	3
EECE 411	International Experience in EECE (summer/fall)	3
EECE 413	Energy Conversion and Storage	3
EECE 512	Combustion Phenomena (fall)	3
EECE 552	Biomass Energy Systems and Engineering (spring)	3
ESE 434	Solid-State Power Circuits and Applications (fall)	3
ESE 435	Electrical Energy Laboratory (spring)	3
MEMS 412	Design of Thermal Systems (spring)	3
MEMS 5422	Solar Thermal Energy Systems (summer)	3
MEMS 5423	Sustainable Environmental Building Systems (fall)	3
MEMS 5424	Thermo-Fluid Modeling of Renewable Energy Systems	3
MEMS 5705	Wind Energy Systems (spring)	3

## Committee to Oversee Energy Engineering Minor

Peng Bai (EECE, Coordinator); Bruno Sinopoli (ESE); David Peters (MEMS)

The committee ensures that any course added to the above lists contains a significant amount of energy topics and that the entire program is cohesive.