

UNDERGRADUATE MINOR IN “ENERGY ENGINEERING”

Objective: The goal is to provide students a list of classes that will enhance their background, knowledge and skills in the topical area of Energy Engineering. The Minor covers classes in several fields of science and engineering which encompasses the Department of Energy, Environmental and Chemical Engineering, the Department of Electrical and Systems Engineering and Department of Mechanical Engineering and Materials Science.

A minor in Energy Engineering requires the completion of 18 units selected from the following menus. It is open to any UG student pursuing an Engineering major, students from the Sciences (Biology, Chemistry, Physics) in Arts and Sciences, and the Environmental Studies Major.

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

Basic and Applied Sciences (fundamental content) (2 courses)

EECE 203	Thermodynamics I OR MEMS 301 Thermodynamics
MEMS 3410	Fluid Mechanics or ChE 367 Transport I (Fluids)
EECE 303	Transport Phenomena III: Energy Transfer Processes or MEMS 342 Heat Transfer (Spring)
ESE 332	Power, Energy and Polyphase Circuits (Spring)

Social Science/Policy/Economics Elective (1 course)

EnSt 357	Environmental Problem Solving (Spring)
EnSt 451	Environmental Policy (Fall)
EnSt 350 W	Environmental Issues: Writing (Spring)

Electives (Choose 3 courses. One of the courses is required to be chosen from outside your major degree department. A partner department may approve the use of a course listed under Basic and Applied Sciences as an elective.)

EECE 411	Intl. Experience in Energy, Environment & Chem. Engr. (Summer/Fall)
EECE 412	Sustainability Exchange: Community and University Practicums (Fall/Spring)
EECE 591	Energy and Buildings (Fall)
EECE 512/MASE 5404	Combustion Phenomena (Fall)
EECE 311	Green Engineering (Fall)
EECE 421	Advanced Energy Laboratory (Fall)
EECE 552	Biomass Energy Systems and Engineering (Spring)

MEMS 5422	Solar Energy Thermal Processes (Summer)
MEMS 5420	HVAC I (Fall)
MEMS 5421	HVAC II (Spring)
MEMS 5705	Wind Energy Systems (Spring)
MEMS 412	Design of Thermal Systems (Spring)
MEMS 5423	Sustainable Energy Environmental Building Systems (Fall)

ESE 434	Solid State Power Circuits and Applications (Fall)
ESE 435	Electrical Energy Laboratory (Spring)
ESE 437	Sustainable Energy (Spring)

Committee to Oversee Energy Engineering Minor:

Pratim Biswas (EECE, Coordinator); Hiro Mukai (ESE); David Peters (MEMS)

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