

Technical Minor: Department of Mechanical Engineering and Mechanics

ENERGY ENGINEERING

The minor in energy engineering touches upon the technologies associated with generation, storage and usage of energy in various forms. Since every engineering sector and economy requires energy usage of one form or another, the courses included in this minor program will permit student exposure to fossil-based, nuclear and renewable energy technologies. The mechanical engineering curriculum provides the fundamental knowledge in thermodynamics, fluid mechanics and other related areas leading up to the courses for the energy engineering minor. The courses offer various topics, including fundamental, analytical and design aspects of energy conservation and various forms of energy used in power generation, transportation and heavy industry. The energy engineering minor requires 15 credits, of which 12 credits must be taken from MEM offerings. The minor in energy is primarily intended for ME majors, but students with other majors can take some or all the related courses. Five courses are required, starting with one foundational course (to be chosen from ME 304 or ME 331), three electives in energy-related courses (with some degree of choice), and an additional elective that must be selected from a broader set to provide breadth.

Foundational Requirement: Select **one** of the following (3 credits):

Courses	Name	Prerequisites
ME 304 (Spring)	Thermodynamics II	ME 104 or equivalent
ME 331 (Fall)	Advanced Fluid Mechanics	ME 231 or equivalent

Depth Requirement: Select at least **three** of the following (9 credits):

Courses	Name	Prerequisites
ME 360 (Spring)	Nuclear Reactor Engineering	ME 104 or equivalent
ME 362 (Fall)	Nuclear Fusion and Radiation Protection	ME 104 or equivalent
ME 364 (Fall)	Renewable Energy	ME104, ME 231
ME 366 (Spring)	Power Generation Technologies	ME 104 or equivalent

Breadth Requirement: Select **one** of the following (3 Credits):

Courses	Name	Prerequisites
ME 322 (Spring)	Gas Dynamics	ME 231 or equivalent
ME 323 (Spring)	Reciprocating & Centrifugal Engines	ME 104
ME 343 (Fall)	Control Systems	ME 245 or ECE 125
ME 368 (Fall/Spring)	Fundamentals of Energy Efficiency Practicum	ME104, ME 231
CHE/ME 376 (Spring)	Energy: Issues & Technology	CHE 210 or ME 104

Other Energy-related 300-level courses may be used with the approval of the Minor Chair.

Minor Chair: **Prof. Arindam Banerjee, MEM (Email: arb612@lehigh.edu)**

Technical Minor
Department of Mechanical Engineering and Mechanics

ENERGY TECHNICAL MINOR DECLARATION FORM

Student's Name:

Student LIN #:

Student email:

Major Department:

Expected Graduation Date:

Major Advisor:

<u>Required Course:</u>	Credit Hours	Semester/Year
-------------------------	---------------------	----------------------

ME 304 Thermodynamics II	3	
--------------------------	---	--

ME 331 Advanced Fluid Dynamics	3	
--------------------------------	---	--

Depth Requirement: Select at least three of the following (9 credits):

3

3

<u>Optional Courses:</u>	3	
---------------------------------	---	--

Breadth Requirement: Select one of the following (3 Credits):

3

Remarks

Student Signature

Date:

Approved by:

Arindam Banerjee, Energy Minor Chair

Date:

Approved by:

Christina Haden, Associate Chair, MEM Department

Date: