Minor in Energy Systems
2012-2013

This minor will provide students enrolled in any of the engineering programs within the LC Smith College of Engineering and Computer Science with a grouping of courses/electives that will provide academic depth in the field of energy related systems in 4 different but related tracks. These 4 tracks are: (1) Thermo-Mechanical Energy Systems Track; (2) Nuclear Energy Track; (3) Renewable Energy Track and (4) Electric Power Track.

Requirements

Admission to the energy systems minor is by permission of an academic advisor and requires students to be enrolled in a BS program in Engineering within the LC Smith College of Engineering and Computer Science. Students with sufficient technical background from other Syracuse University Academic Units may be considered for admission to the Minor in Energy Systems and such decisions will be made by the LC Smith Energy Systems Committee.

Course Requirements

The following courses must be taken by all students within the minor regardless of the specific track.

ECN203 Economic Ideas and Issues
MAE251 or CEN252 Thermodynamics
MAE/CIE548 Engineering Economics and Technology Valuation
MAE/CIE551 Energy Conversion

In addition, 3 track-specific courses must be taken from a list of required and elective courses for each of the 4 individual tracks. These 4 track specific lists are available from an academic advisor

Track Specific Course Lists

1) **Thermo-Mechanical Energy Systems Track**

   Select any 2 of MAE553, MAE554, MAE585, MAE457, + 1 Elective from any of the 4 Energy Systems Tracks:

   Elective MAE553 HVAC Systems Design and Analysis
   Elective MAE554 Principles of Refrigeration
   Elective MAE585 Principles of Turbomachinery
   Elective MAE457 Automotive Engineering

   Others to be announced.

2) **Nuclear Energy Track**

   Required NUC301 Introduction to Nuclear Engineering and Reactor Safety

   Select either NUC510 or NUC520, + 1 of the remaining NUC Electives, or 1 Elective from other Energy Systems Track:

   Elective NUC510 Nuclear Power Plant Design, Operation & Safety
   Elective NUC520 Radiochemistry, Nuclear Fuel Reprocessing and Nonproliferation
   Elective NUC/ELE530 Electric Power Generation and Distribution
   Elective NUC540 Experiential Studies

   Others to be announced

3) **Renewable Energy Track**

   Select any 2 of MAE587, MAE588, PHY305, CEN551, + 1 Elective from any of the 4 Energy Systems Tracks:

   Elective MAE587 Design of Solar energy Systems
   Elective MAE588 Principles of Wind Turbines
   Elective PHY305 Solar Energy and Architectures
   Elective CEN551 Biochemical Engineering (Professor Ren will cover some biofuels)

   Others to be announced (examples may include; relevant ESF courses, CIE may offer a class in Environmental Aspects of Energy Production)

4) **Electric Power Track**

   Select any 3 electives from the following list:

   Elective ELE324 Electromagnetics I
   Elective ELE416 Electromechanical Devices
   Elective ELE514 Electric Power Systems
   Elective NUC/ELE530 Electric Power Generation & Distribution

   Others to be announced.