ENERGY ENGINEERING, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Description
The minor in Energy Engineering is designed to provide students in engineering, science, and energy business and finance (EBF) with additional courses, exposure, and experiences to the principles and applications of energy engineering. Courses available to students include thermal sciences; petroleum and natural gas processing; renewable/sustainable energy; chemistry of fuels; electrochemical, chemical, and nuclear energy conversion processes; physical processes in energy engineering; air pollution; and green engineering and environmental compliance. As a result, the selection of this minor can provide additional career options for students in a wide range of offerings at Penn State.

What is Energy Engineering?
Energy engineers are equipped with required engineering knowledge and skills needed to solve problems in the production, processing, storage, distribution, and utilization of energy. Energy processes include natural resources, such as the extraction of oil and gas, as well as from renewable or sustainable sources of energy, including biofuels, hydro, wind, and solar power.

You Might Like This Program If...
• You aspire to be a lifelong learner, problem solver, and leader in the energy industry.
• You excel at math, science, and engineering and seek a broad overview of energy fields.
• You are interested in a well-rounded education in all facets of the energy market, including renewable energy.

Program Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements for the Minor</td>
<td>18</td>
</tr>
</tbody>
</table>

Requirements for the Minor
A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGEE 302</td>
<td>Principles of Energy Engineering</td>
<td></td>
</tr>
<tr>
<td>EGEE 304</td>
<td>Heat and Mass Transfer</td>
<td></td>
</tr>
<tr>
<td>EGEE 411W</td>
<td>Energy Science and Engineering Lab</td>
<td></td>
</tr>
<tr>
<td>EGEE 420</td>
<td>Hydrogen and Fuel Cells</td>
<td></td>
</tr>
<tr>
<td>EGEE 430</td>
<td>Introduction to Combustion</td>
<td></td>
</tr>
<tr>
<td>EME 301</td>
<td>Thermodynamics in Energy and Mineral Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Select 9 credits of the following:
- EGEE 433 Physical Processes in Energy Engineering
- EGEE 437 Design of Solar Energy Conversion Systems
- EGEE 438 Wind and Hydropower Energy Conversion
- EGEE 441 Electrochemical Engineering Fundamentals
- EGEE 451 Energy Conversion Processes
- EGEE 464 Energy Design Project
- EGEE 470 Air Pollutants from Combustion Sources
- FSC 431 The Chemistry of Fuels
- FSC 432 Petroleum Processing

Academic Advising
The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of-class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information need to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy)

Contact
University Park
Jonathan Mathews
Undergraduate Program Chair of Energy Engineering
126 Hosler Building
University Park, PA 16802
814-863-6213
jpm10@psu.edu

University Park
JOHN AND WILLIE LEONE FAMILY DEPARTMENT OF ENERGY AND MINERAL ENGINEERING
113 Hosler Building
University Park, PA 16802
814-865-3437
eme@ems.psu.edu
http://www.ems.psu.edu