ENGINEERING: ENERGY SYSTEMS, MENG

for the degree of Master of Engineering in Engineering, Energy Systems Concentration

The MEng in Engineering, Energy Systems Concentration is a professionally oriented degree program for students whose primary intent is a career in industry or government. This degree differs from the Master of Science degree in that it is a terminal degree and not a pathway to a doctoral program. Concentrations under the MEng in Engineering major include Aerospace Systems Engineering (http://catalog.illinois.edu/graduate/engineering/engineering-meng/aerospace-systems/), Autonomy and Robotics (http://catalog.illinois.edu/graduate/engineering/engineering-meng/autonomy-robotics/), Digital Agriculture (http://catalog.illinois.edu/graduate/engineering/engineering-meng/digital-agriculture/), Energy Systems (p. 1), Instrumentation and Applied Physics (http://catalog.illinois.edu/graduate/engineering/engineering-meng/instrumentation-applied-physics/), Plasma Engineering (http://catalog.illinois.edu/graduate/engineering/engineering-meng/plasma-engineering/), and Railway Engineering (http://catalog.illinois.edu/graduate/engineering/engineering-meng/railway/).

Admission

Students with bachelor's or master's degrees in engineering or related fields will be considered for admission if they have a grade point average of at least 3.00 (A = 4.00) for the last two years of undergraduate study. Admission is possible for the spring term, but most admissions are for the fall term. Full details of admission requirements are on the Energy Systems Concentration website (https://energysystemsmeng.engineering.illinois.edu/).

All applicants whose native language is not English are required to submit TOEFL (http://www.toefl.org/) or International English Language Testing System (IELTS) (http://www.ielts.org/) scores as evidence of English proficiency. Minimum admission requirements (https://grad.illinois.edu/admissions/instructions/04c/) are set by the Graduate College.

Financial Aid

Students in concentrations under the MEng in Engineering major are not eligible for Board of Trustees (BOT) tuition-waiver generating assistantships at the University of Illinois.

Other Graduate Programs in the Department of Nuclear, Plasma & Radiological Engineering

degrees:

Nuclear, Plasma, & Radiological Engineering, MS (http://catalog.illinois.edu/graduate/engineering/nuclear-plasma-radiological-engineering-ms/)

optional concentrations:

- Computational Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/)
- Nuclear, Plasma, & Radiological Engineering, PhD (http://catalog.illinois.edu/graduate/engineering/nuclear-plasma-radiological-engineering-phd/)

optional concentrations:

- Computational Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/)

concentrations:

Plasma Engineering (http://catalog.illinois.edu/graduate/engineering/engineering-meng/plasma-engineering/)

available for:

Engineering, MENG (http://catalog.illinois.edu/graduate/engineering/engineering-meng/)

The Department of Nuclear, Plasma & Radiological Engineering (NPRE) offers programs leading to degrees of Master of Science and Doctor of Philosophy in Nuclear, Plasma & Radiological Engineering, as well as Master of Engineering in Engineering with a Concentration in Energy Systems or a Concentration in Plasma Engineering. The Master of Science and Doctor of Philosophy degree programs are centered around three theme areas:

- nuclear power engineering
- fusion and plasma science and engineering
- radiological engineering and medical physics

Advanced course work and active research programs are offered in all of these areas.

for the degree of Master of Engineering, Major in Engineering, Energy Systems Concentration
For additional details and requirements refer to the program’s Website (https://energysystemsmeng.engineering.illinois.edu/curriculum/) and the Graduate College Handbook (http://grad.illinois.edu/gradhandbook/).

This degree program can be completed either on campus or online; the requirements are listed below:

### Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 471</td>
<td>Seminar Energy &amp; Sustain Engrg</td>
<td>12</td>
</tr>
<tr>
<td>ENG 571</td>
<td>Theory Energy &amp; Sustain Engrg</td>
<td></td>
</tr>
<tr>
<td>ABE 436</td>
<td>Renewable Energy Systems</td>
<td></td>
</tr>
<tr>
<td>NPRE 480</td>
<td>Energy and Security</td>
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<tr>
<td>or NPRE 481</td>
<td>Writing on Technol &amp; Security</td>
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</table>

**Electives (approved by academic advisor)**  

Professional Development (choose from these 3 options):  

- ENG 572  
  Professional Practicum (4 hours)  
- ENG 573  
  Capstone Project (4 hours)  
- Select a different course with professional development components in consultation with advisor

**Total Hours**  

32

### Other Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other requirements may overlap</td>
<td></td>
</tr>
<tr>
<td>A minimum of 20 credit hours must be</td>
<td>taken from the University of Illinois Urbana-</td>
</tr>
<tr>
<td>Champaign campus.</td>
<td></td>
</tr>
<tr>
<td>A minimum of 12 500-level credit</td>
<td>hours, with a minimum of 8 hours of ENG or NPRE</td>
</tr>
<tr>
<td>500-level coursework.</td>
<td></td>
</tr>
<tr>
<td>A maximum of one 1-credit-hour course</td>
<td>applied toward the minimum 12 500-level credit-</td>
</tr>
<tr>
<td>hour requirement.</td>
<td></td>
</tr>
<tr>
<td>No courses used to fulfill any</td>
<td>degree requirement may be taken using the</td>
</tr>
<tr>
<td>degree requirement may be taken using</td>
<td>“Credit/No Credit” option.</td>
</tr>
<tr>
<td>Minimum GPA:</td>
<td>3.0</td>
</tr>
</tbody>
</table>

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1. Develop an ability to analyze energy systems at a holistic level and perform lifecycle assessment.
2. Obtain an understanding (at the graduate level) of fundamental limits to energy production, transmission, storage and consumption due to physics and chemistry constraints.
3. Understand the concepts of engineering and economic optimization, and learn their application.
4. Develop an interdisciplinary breadth of understanding of the variety of approaches to development, deployment and sustainability of global energy resources.
5. Develop an understanding of the broader policy and decision-making context in which development of and deployment of energy systems takes place.
6. Complete a study of a particular problem relevant to energy systems in a manner analogous to a professional career assignment.

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**Department Head** Rizwan Uddin (rizwan@illinois.edu)

Energy Systems MEng, Graduate Admissions & Requirements (https://energysystemsmeng.engineering.illinois.edu/admissions/)

Graduate College Admissions (https://grad.illinois.edu/admissions/apply/)

Department Website (https://npre.illinois.edu/)

Energy Systems MEng Program Website (https://energysystemsmeng.engineering.illinois.edu/)

*Information listed in this catalog is current as of 09/2022*
Grainger College of Engineering Website (https://grainger.illinois.edu/)

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