

WHY CHOOSE ENERGY ENGINEERING?



Energy poses some of the greatest challenges of our time—from meeting growing demand to minimizing the environmental impact of energy production. Duke's Minor in Energy Engineering prepares future leaders to solve these problems. The program offers Pratt School of Engineering BSE candidates rigorous exposure to fundamentals of energy engineering, providing the technical skills necessary for careers focused on energy generation, delivery, conversion and efficiency.

Our program adds value to your engineering degree.

The Energy Engineering Minor at Duke adds breadth, depth and diversity to enrolled students' educational experience. Graduates will be prepared to:

- Engage in engineering careers in diverse areas with particular emphasis on energy-related matters
- Pursue graduate education and research in energy engineering or energy-related fields
- Integrate energy concepts in their primary engineering discipline and/or optimize the use of energy within their professional pursuits and in society

Gain hands-on experience in energy engineering.

Only Duke engineering undergraduates are eligible to participate in the Energy Engineering program and qualify for the minor.

Students enrolled in the program complete a core course in energy engineering, plus an additional four courses selected from topics such as bioenergy, nuclear engineering, renewable energy technologies, electrical conversion, transportation energy, design of solar thermal systems and more.

A required capstone design course related to energy engineering gives students the opportunity to synthesize and demonstrate their knowledge.

Learn more: energy.pratt.duke.edu

Requirements

Five unique courses and one capstone design course must be completed to earn the Minor in Energy Engineering. The requirements for the minor are as follows:

Core Course (1 required)

- **ENRGYEGR 310:** Introduction to Energy Generation, Delivery, Conversion and Efficiency
- **ME 461:** Energy Engineering and the Environment

Energy Engineering Area Courses (4 required, at least 1 in each category, up to 2 outside Duke)

Generation and Delivery

- **ENRGYEGR 490.01:** Special Topics - Bioenergy or **BAE 528***: Biomass to Renewable Energy Processes
- **ENRGYEGR 490.03:** Special Topics - Renewable Energy Technologies
- **ENRGYEGR 490.05:** Special Topics - Modern Power Systems
- **NE 301:** Fundamentals of Nuclear Engineering (taught at NCSU)
- **MAE 503:** Advanced Power Plant (taught at NCSU)

Conversion and Efficiency

- **ENRGYEGR 490.02:** Special Topics - Energy for the Built Environment
- **ENRGYEGR 490.04:** Special Topics - Power Electronics, or **ECE 534***: Power Electronics (or equivalent course at Duke)
- **ENRGYEGR 490.06 (ENRGYEGR 370):** Special Topics - Transportation Energy
- **MAE 421:** Design of Solar Thermal Systems (taught at NCSU)

Capstone Design (1 required)

- **EGR 424L**
- **Departmental capstone** (if the project is energy-related, with prior approval by the Energy Engineering Program Director)

Other courses may be applied to the Minor in Energy Engineering with the approval of the Program Director. To view a full list of energy courses offered at Duke, please visit: energy.duke.edu/education/energy-courses

Energy Engineering Program Contacts

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Tentative Course Schedule

ENRGYEGR	Short Title	F 14	S 15	F 15	S 16	F 16	S 17
310	Intro	1		1			
490.01	Bioenergy						
490.02	Built Environment		3				
490.03	Renewable		*				
490.04	Electric Conversion	3			*		*
490.05	Power Systems	4					
490.06	Transportation	2					

* – The course will probably be taught that semester, but that situation could change

1 – Taught together with ME 461 Energy Engineering and the Environment, at least in the next 1-2 offerings

2 – Taught as ME 490.01 Special Topics: Transportation Energy (Prof. J. Knight)

3 – Taught as ME 490.01 Special Topics: Energy & Building (Prof. W.N. Simmons)

4 – Taught as ECE 590.04 Advanced Topics in ECE: Introduction to Electrical Energy Conversion (but is accessible to advanced undergraduates) (Prof. A. Peterchev)





Energy & Environment Certificate

This interdisciplinary program, open to students in both engineering and non-engineering majors, is designed to provide Duke undergraduates with an understanding of the breadth of issues that confront our society in its need for clean, affordable and reliable energy. The goal of the Certificate is to develop innovative thinkers and leaders who understand the energy system as a whole and the important interconnections among policy, markets, technology and the environment.

The Certificate is offered through the Gendell Center for Engineering, Energy & the Environment and is separate from the Energy Engineering minor.

Learn more: gendell.pratt.duke.edu

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