Certificate Programs in Power & Energy Systems

About the Program

The Department of Electrical and Computer Engineering (ECE) of the University of Houston offers two Graduate Certificate programs in Power and Energy Systems.

1. Power Electronics and Renewable Energy Technologies: This program focuses on power electronics, electric machines, adjustable drive systems, and renewable energy technologies

2. Power Systems and Smart Grid: This program focuses on the advanced courses related to power systems, smart grid, and power system protection.

The courses offered are relevant to the industries such as oil and gas, power industries, utilities, and renewable energy. The program provides advanced instruction to give individuals the level of technical and business expertise needed to meet the increased industry demand for highly skilled professionals. The time to complete each certificate will be one year.

The courses will be taught by the ECE power faculty and industry experts located in Houston. To provide the most flexibility for working professionals, all courses of the certification programs will be offered in the evenings as well as online.

University of Houston and Energy

University of Houston is the Energy University in Energy capital of the world. In addition, Houston has a large base of power and energy industries that need talented engineers to meet their growing demands for performing critical electric energy related tasks. The programs directly support the uniquely diverse industrial and technological environment of the greater Houston area, which is involved in electrical power generation, consumption, expansion, conversion, and manufacturing. The programs were developed at the request of industry with participation from a significant number of prominent electrical industry representatives. The courses offered are designed to concentrate on global industrial workplace and market applications. Each course presents the most current information on topics such as power system engineering, power electronics, smart grid, system operation, and energy management.

Careers in Power and Energy Systems
The students of the PES program will be prepared with both the technical and business expertise required to take on leadership roles within the electrical industry. Career opportunities in power and energy systems are excellent, especially in the city of Houston, the Energy Capital of the World. Alumni of the electrical engineering graduate program work locally and overseas for Halliburton, Schlumberger, CenterPoint Energy and Burns & McDonnell, among many other companies.

Courses and Curriculum

The Certificate in Power Electronics and Renewable Energy Technologies program will require students to take the following two courses:
PES 6310 Power Electronics Converters and Control
PES 6340 Renewable Energy and Distributed Power Generation

In addition, students must take one of the following courses:
PES 6320 Transformers and Electric Machines
PES 6314 Adjustable speed Motor Drive systems

The Certificate in Power Systems and Smart Grid program will require students to take the following two courses:
PES 6330 Power System Analysis
PES 6332 Smart Grid Systems

In addition, students must take one of the following courses:
PES 6334 Power System Protection, Monitoring and Control
PES 6336 High Voltage Electrical Substations Design and Architecture

A description and schedule of all courses can be found here.

Application Requirements

A four-year bachelor's degree in engineering or an electrical engineering related field is required.

The GRE exam is waived for the Certificate Programs in Power and Energy Systems.

The application fee cannot be waived.

TOEFL or IELTS exam is required for applicants who did not graduate from an approved native English-speaking country (University code is 6870). A list of approved countries can be found here.

Applicants for the Certificate Programs in Power & Energy Systems must apply through ApplyWeb and choose a non-degree objective.

Please view the complete application instructions here. The application deadline is July 15.

Additional Information

For additional questions, please email the graduate advisor at eceGradAdmit@uh.edu