Industrial Power Systems (Power and Energy Systems) [1]

About the Industrial Power Systems Online M.S. Program

The Department of Electrical and Computer Engineering (ECE) offers a non-thesis online M.S. in Electrical Engineering, with specialization in Industrial Power Systems (MSEE-IPS). 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.

Why the University of Houston?

The programs directly support the uniquely diverse industrial and technological environment of the greater Houston area, which is involved in electrical generation, consumption, expansion, and manufacturing. In fact, the programs were developed at the request of industry with participation from a significant number of prominent electrical industry representatives. The programs exemplify the University of Houston’s responsiveness to meet industry needs in an area considered by many as the energy capital of the world.

The courses offered in the programs are designed to concentrate on global industrial workplace and market applications. Each course presents the most current information for topics such as industrial power system engineering, design criteria, material procurement, system operation, manufacturing, and management. Students will gain knowledge that will provide the foundation for economic profit, safety, health, and environmental advancements as an individual, as well as a professional member of a company or community. Instructors who have significant practical experience in industry, mainly the petrochemical field, teach the program specific courses. This distinct advantage ensures that the content covered in the courses remains relevant, practical, and congruent to current technologies and applications.

Careers in Industrial Power Systems
Graduates of the IPS program will be prepared with both the technical and business expertise required to take on leadership roles within the electrical industry. Students will gain knowledge that will provide the foundation for economic profit, safety, health, and environmental advancements as an individual, as well as a professional member of a company or community.

Career opportunities in industrial power systems and electrical engineering 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.

A 2015 salary survey produced by the National Association of Colleges and Employers found that new graduates with an M.S. in electrical engineering earn an average starting salary of $71,747.

Courses and Curriculum

To provide the most flexibility for working professionals, all core courses required for the IPS program are offered online and other elective ECE courses are offered as evening on-campus classes.

The online based MSEE-IPS degree counts as one year of experience towards licensure as a professional engineer. For those who already have their professional license, the courses can be used to meet the requirements for continuing education.

The online based MSEE-IPS degree is a 30-hour program that can be completed in as little as two years. To meet the requirements for the MSEE-IPS specialization, 21 hours (seven courses) should be selected from the PES prefix courses.

IPS core courses that will be offered as online classes include:

- PES 6310 - Power Electronics Converters and Control
- PES 6320 - Transformers and Electric Machines
- PES 6330 - Power System Analysis
- PES 6340 - Renewable Energy and Distributed Power Generation

Elective IPS classes include:

- PES 6314 - Adjustable Speed Motor Drive Systems
- PES 6332 - Smart Grid Systems
- PES 6334 - Power System Protection, Monitoring and Control
- PES 6336 - High Voltage Electrical Substations Design and Architecture
- PES 6316 - Advanced Power Converters

All students enrolled in an online section are required to attend an on-campus orientation and come to the UH main campus (dates and times TBA) to take exams. Students living outside the Houston metropolitan area or on work-related travel may make special arrangements with the instructor to take an exam at another location under the supervision of a proctor.

A description of the courses listed above can be obtained from the MSEE-IPS website:
http://pemses.ece.uh.edu/education/ [2]
A description of all graduate electrical engineering courses can be obtained from the following web site: www.egr.uh.edu/ece/academics/graduate/?e=courses or from the University of Houston Graduate and Professional Studies Catalog.

Each student’s education is complemented with courses offered by the College of Engineering, College of Business Administration, and the College of Natural Sciences and Mathematics.

Additional Information:

For degree objectives and application information:
http://www.ece.uh.edu/graduate/degree-programs

For admission requirements, advising, and other information specific to the MEE program:
http://www.ece.uh.edu/graduate/admission-guidelines

Application forms and other information related to admission can be obtained by e-mailing the Graduate Admission Analyst at ece_grad_admit[at]uh[dot]edu.

To receive additional information regarding this program contact the Program Advisors:

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Links: