

# ELECTRICAL ENGINEERING

School of Engineering • Department of Electrical and Computer Engineering

Undergraduate Degree Available at SIUE

- Bachelor of Science (ABET-Accredited)



## Why Electrical Engineering?

It is hard to imagine any part of our daily lives where we don't use some contribution of electrical engineers. It is also not possible to provide, in the limited space available on this page, an exhaustive list of what electrical engineers do. Below are a few examples of the kinds of activities that involve electrical engineers:

**Power generation and distribution:** Electrical engineers work on the generation and distribution of electric power. They design, build, and operate systems that produce electric power from a variety of sources, and distribute that power to businesses and residences. The recent emphasis on alternative energy sources such as wind and solar power has made this area even more important.

**Communications:** Electrical engineers are responsible for design and operation of wired and wireless communication systems including cable and satellite communications, global positioning systems, radio and TV broadcast, and mobile phone systems.

**Medical equipment and instrumentation:** A lot of the equipment that you see in hospitals and doctors' offices involve applications of electrical engineering. Examples are computerized tomography (CT) and magnetic resonance imaging (MRI) equipment, ultrasound and EKG devices, and digital patient monitoring systems.

**Automation and control:** Electrical engineers work on designing and building systems that facilitate automation in factories through the use of robotics and programmable controllers. They also design automation and control systems used in airplanes and automobiles.

**Small to mid-size electrical and electronic equipment:** Applications of electrical engineering make their way into household appliances we use every day, as well as electronic devices such as digital audio and video equipment, computers, personal media players and cell phones.

## Electrical Engineering at SIUE

Members of the faculty of the Department of Electrical and Computer Engineering at SIUE hold doctoral degrees in their areas of specialty. They are active in both teaching and research. The department has modern laboratory facilities, and utilizes modern multimedia-equipped classrooms for teaching. The bachelor of science program in electrical engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

## Career Outlook

Electrical engineering graduates find employment both in our region and in other parts of the country. Employers of our graduates include federal and state agencies, large companies in the defense sector, utility companies, small and mid-size consulting firms, small and mid-size manufacturing companies that produce electrical components, semiconductor devices, electronic devices and components, and medical equipment. Some of our graduates continue their education for more advanced degrees at master's and doctoral levels. .



## Faculty

### Oktay Alkin, Ph.D.

1986, University of Alabama

### Jen-Shiun Chen, Ph.D.

1983, Ohio State University

### George L. Engel, D.Sc.

1990, Washington University

### Robert W. LeAnder, Ph.D.

2002, University of Illinois at Chicago

### Andy G. Lozowski, Ph.D.

1999, University of Louisville

### Brad Noble, D.Sc.

2000, Washington University

### Ying Shang, D.Eng.

2006, University of Notre Dame

### Scott R. Smith, Ph.D.

1991, University of Illinois

### Scott E. Umbaugh, Ph.D.

1989, University of Missouri Rolla

### Luis T. Youn (Chair), Ph.D.

1985, University of Houston

## Sample Four-Year Curriculum (See Undergraduate Catalog for Additional Information)

	FALL	SPRING
YEAR 1	CHEM 131 Engineering Chemistry (4) or <b>CHEM 121A</b> CHEM 135 Engineering Chemistry Lab (1) or <b>CHEM 125A</b> <b>ENG 101</b> English Composition I (3) IME 106 Engineering Problem Solving (3) OR <b>PHIL 106</b> <b>MATH 150</b> Calculus I (5) Total 16	<b>ENG 102</b> English Composition II (3) <b>MATH 152</b> Calculus II (5) <b>PHYS 151</b> University Physics I (4) <b>PHYS 151L</b> University Physics Lab I (1) SPC 103 Interpersonal Communications (3) Total 16
YEAR 2	<b>ECE 210</b> Circuit Analysis I (3) <b>CS 145</b> Introduction to Computing I (3) or <b>CS 140</b> <b>ECON 111</b> Macroeconomics (3) <b>MATH 250</b> Calculus III (4) <b>PHYS 152</b> University Physics II (4) <b>PHYS 152L</b> University Physics Lab II (1) Total 18	<b>ECE 211</b> Circuit Analysis II (4) <b>ECE 282</b> Digital Systems Design (4) FAH or SS Intro (3) <b>MATH 305</b> Differential Equations I (3) Distribution Social Science (3) Total 17
YEAR 3	ECE 326 Electronic Circuits I (4) ECE 351 Signals and Systems (3) ECE 352 Engineering Probability & Statistics (3) MATH 355 Engineering Mathematics (5) Total 15	Non-ECE Technical Elective (3) ECE 340 Engineering Electromagnetics (3) ECE 365 Control Systems (3) ECE 375 Introduction to Communications (3) Introductory Fine Arts & Humanities (3) Total 15
YEAR 4	ECE 341 Electromechanical Energy Conversion (4) ECE 404 ECE Design (3) ECE ELEC Elective I (3) ECE ELEC Elective II (3) PHIL 323 Engineering, Ethics & Professionalism (3) Total 16	ECE 405 ECE Design Laboratory (3) ECE ELEC Elective III (3) ECE ELEC Elective IV (3) IME 345 Engineering Economic Analysis (3) Interdisciplinary Studies (3) Total 15

**TRANSFER STUDENTS** Maximize your transfer experience - complete the **bolded** courses/requirements pre-transfer **AND** satisfy the Illinois Articulation Initiative (IAI) General Ed Core or receive an AA, AS, or AAT (early childhood, special ed, or math) degree from an IAI community college. If 'Minor' requirements are shown, discuss careful course selection with the academic advising contact listed. Transfer Credit Equivalency Guides are located at [siue.edu/transfer/](http://siue.edu/transfer/)

### Admission Requirements

Students admitted to programs offered in the School of Engineering shall have met the University admission requirements and the following additional School of Engineering requirements:

- completion of all Academic Development courses required by the University
- completion of any courses required to address School of Engineering high school deficiencies
- eligibility to enroll in MATH 125 - Pre-Calculus at a minimum
- maintenance of a cumulative grade point average of at least 2.0 (on a 4.0 scale)

### Exit Requirements

Satisfactory completion of all university, program and departmental requirements as outlined in the undergraduate catalog.

### Other Engineering Programs at SIUE

Civil Engineering\*, Construction Management, Computer Science\*, Computer Engineering, Industrial Engineering\*, Manufacturing Engineering, Mechanical Engineering\*

\* graduate program also available

### Academic Advising Information

Engineering Student Services  
 SIUE, School of Engineering  
 Campus Box 1806, Edwardsville, IL 62026-1806  
 618.650-2524  
[www.siue.edu/engineering/studentsservices](http://www.siue.edu/engineering/studentsservices)

### Contact Info

Department of Electrical Engineering  
 School of Engineering  
 Southern Illinois University Edwardsville  
 Campus Box 1801  
 Edwardsville, IL 62026-1801  
 618.650.2524

