

Electrical Engineering

Degrees Available at SIUE

- Bachelor of Science in Electrical Engineering

Electrical Engineering at SIUE

Electrical engineering and computer engineering disciplines are concerned with the development and application of electrical and computer technology to enhance and enrich all life. Electrical and computer engineers, as part of this mission, are engaged in a wide variety of activities that include:

- Space exploration and remote sensing
- Process control and automation
- Automatic control systems for use in robotics, missiles, aircraft and manufacturing plants
- Electric power generation and distribution, environmentally responsible generation and use of energy
- Audio- video- and data-communication systems, and satellite communications
- Digital processing of signals and images using the computer
- Design and manufacturing of faster and more capable microprocessors for the computers of tomorrow
- Applications of technology in the healthcare field through computerized ultrasound, radiology, tomography and imaging systems, computer - aided diagnosis and treatment, and tele-surgery

The applications listed above require a solid foundation in mathematics and physics, thus requiring electrical and computer engineering students to go through a substantial set of courses in these areas. In addition, today's engineers also must be aware of a wide variety of global, social, ethical, economic and environmental issues that are relevant to the systems they design and build. Our bachelor's degree programs include courses and projects designed to build this awareness. The electrical and computer engineering program mission is consistent with the mission of the University and the School of Engineering.

The Department of Electrical and Computer Engineering has several well-equipped modern laboratories for computation, simulation and measurement. Individual laboratories to support elective courses in the areas of computers, control, digital signal processing, image processing, and power also are available to students.

Career Opportunities

Electrical and computer engineers find employment in a wide variety of manufacturing companies such as aerospace and aircraft, electric manufacturers, computer circuit (a.k.a. "chip") manufacturers, and medical equipment manufacturers. They are employed in the fields of research, design, manufacturing and sales. Many public utilities, which include power companies and telephone companies, employ both computer engineers and electrical engineers. Other potential employers include oil companies, railroads, food processing plants, chemical and biological laboratories, chemical plants, various branches of federal government, and many consulting engineering companies.

Admission Requirements

To be admitted to the Bachelor of Science program, students must:

- Complete all Academic Development courses required by the University.
- Complete any courses required to address high school deficiencies.
- Complete MATH 120, College Algebra (or high school equivalents) with a grade of C or better.
- Attain a cumulative grade point average (GPA) of at least 2.0 on a 4.0 scale.

Graduation Requirements

- Satisfactory completion of all University requirements for graduation
- A cumulative grade point average (GPA) of 2.0 or higher on a 4.0 scale for courses taught in the School of Engineering
- A GPA of 2.0 or higher on a 4.0 scale in electrical engineering and computer science courses numbered above 299
- Completion of at least 30 hours of the required electrical engineering and computer science courses at SIUE
- Completion of senior assignment contained in ECE 404 and 405.



School of Engineering Department of Electrical and Computer Engineering



Faculty

George L. Engel, DSc

1990, Washington University

Jon D. Klingensmith, PhD

2003, Case Western Reserve University

Robert W. LeAnder, PhD

2002, University of Illinois - Chicago

Andy G. Lozowski, PhD

1999, University of Louisville

Steve Muren, MS

2000, Southern Illinois University Edwardsville

Brad Noble, DSc

2000, Washington University

Ying Shang, PhD

2006, University of Notre Dame

Scott E Umbaugh, PhD

1990, Missouri University of Science and Technology

Xin Wang, PhD

2011, Marquette University

Yadong Wang, PhD

2010, University of Oklahoma

Timothy York, PhD

2015, Washington University

Sample Four-Year Curriculum

	Fall Semester	Spring Semester
Year 1	CHEM 131 Engineering Chemistry (BPS) 4 CHEM 135 Engineering Chemistry Lab (EL) 1 ENG 101 English Composition I 3 IE 106 Engineering Problem Solving 3 Math 150 Calculus I (QR) 5 Total Credits 16	ENG 102 English Composition II 3 MATH 152 Calculus II (BPS) 5 PHYS 141 Physics I for Engineering (BPS) 3 PHYS 151L University Physics I Lab (EL) 1 ACS 103 Interpersonal Communication Skills (EUSC) 3 Total Credits 15
Year 2	ECE 210 Circuit Analysis I 3 CS 145 Introduction to Computing I 3 MATH 250 Calculus III (BPS) 4 PHYS 142 Physics II for Engineering (BPS) 3 PHYS 152L University Physics II Lab 1 Total Credits 14	ECE 211 Circuit Analysis II 4 ECE 282 Digital Systems Design 4 Breadth Fine & Performing Arts (BFPA) 3 MATH 305 Differential Equations I 3 ECON 111 Macroeconomics (BSS) 3 Total Credits 17
Year 3	ECE 326 Electronic Circuits I 4 ECE 351 Signals and Systems 3 ECE 352 Stochastic Processes 3 MATH 355 Engineering Mathematics 5 Health Experience (EH) 0-2 Total Credits 15-17	ECE 340 Engineering Electromagnetics 3 ECE 365 Control Systems 3 ECE 375 Introduction to Communications 3 Non ECE Tech Elective 3 Breadth Info & Communication in Society (BICS) 3 Breadth Life Science (BLS) 3 Total Credits 18
Year 4	ECE 341 Electromechanical Energy Conv. 4 ECE 404 ECE Design 3 ECE Elective I 3 ECE Elective II 3 PHIL 323 Engineering, Ethics & Professionalism (BHUM) 3 Total Credits 16	ECE 405 ECE Design Laboratory 3 ECE Elective III 3 ECE Elective IV 3 IE 345 Engineering Economic Analysis 3 Interdisciplinary Studies (IS) 3 Total Credits 15

Transfer Students To maximize your transfer experience, complete the **bolded** courses/requirements pre-transfer **AND** satisfy either 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.

Contact Information

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 School of Engineering
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