Undergraduate

Computer Engineering

SIUe

School of Engineering
Department of Electrical and Computer Engineering

Degrees Available at SIUE

- Bachelor of Science, Computer Engineering

Computer 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, computer vision and 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 GPA of at least 2.0 (on a 4.0 scale).

ABET Engineering Accreditation Commission

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

Steven 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

SOUTHERN ILLINOIS UNIVERSITY EDWARDSVILLE
SCHOOL OF ENGINEERING

Sample Curriculum for the Bachelor of Science in Computer Engineering

	Fall Semester		Spring Semester	
Year 1	**CHEM 131** Engineering Chemistry (BPS)	4	**CS 140** Introduction to Computing I	4
	CHEM 135 Engineering Chemistry Lab (EL)	1	ENG 102 English Composition II	3
	ENG 101 English Composition I	3	**MATH 152** Calculus II (BPS)	5
	IE 106 Engineering Problem Solving	3	**PHYS 141** Physics I for Engineering (BPS)	3
	Math 150 Calculus I (QR)	5	**PHYS 151L** University Physics I Lab (EL)	1
	FST 101 Succeeding & Engaging at SIUE	1	Total Credits	16
	Total Credits	17		
Year 2	**ECE 210** Circuit Analysis I	3	ECE 211 Circuit Analysis II	4
	CS 150 Introduction to Computing II	3	ECE 282 Digital Systems Design	4
	MATH 250 Calculus III (BPS)	4	CS 240 Introduction to Computing III	3
	PHYS 142 Physics II for Engineering (BPS)	3	**MATH 305** Differential Equations I	3
	PHYS 152L University Physics II Lab (EL)	1	ACS 103 Interpersonal Communication (EUSC)	3
	Total Credits	14	Total Credits	17
Year 3	ECE 326 Electronic Circuits I	4	Breadth Life Science (BLS)	3
	ECE 351 Signals and Systems	3	ECE 381 Microcontrollers	3
	ECE 352 Stochastic Processes	3	ECE 483 Adv. Digital Systems Eng.	3
	CS 286 Intro to Comp. Org.	3	ECE/CS Elective I	3
	MATH 224 Discrete Mathematics	3	ECON 111 Macroeconomics (BSS)	3
	Total Credits	16	Breadth Fine & Performing Arts (BFPA)	3
			Total Credits	18
Year 4	ECE 404 ECE Design	3	ECE 405 ECE Design Laboratory	3
	ECE/CS Elective II	3	ECE/CS Elective III	3
	CS 314 Operating Systems	3	CS 340 Algorithms and Data Structures	3
	Breadth Info & Communication in Society (BICS)	3	IE 345 Engineering Economic Analysis	3
	PHIL 323 Engineering, Ethics & Professionalism (BHUM)	3	Interdisciplinary Studies (IS) (EGC)	3
	Health Experience	0-2	Total Credits	15
	Total Credits	15-17		
			Total Hours	128-130

Transfer Students: To 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 'Academic Emphasis Area' requirements are shown, discuss careful course selection with the academic advising contact listed. Visit siue.edu/transfer to find course equivalency guides.

Graduation Requirements for Electrical Engineering and Computer Engineering Programs

- Satisfactory completion of all University requirements for graduation
- A cumulative GPA of 2.0 or higher for courses taught in the School of Engineering
- A GPA of 2.0 or higher 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

Contact Information

Department of Electrical and Computer Engineering
School of Engineering
Phone: 618-650-2524

This information is concurrent with the 2019-2020 Academic Catalog.
Courses are subject to change at any time.

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