

COMPUTER ENGINEERING

School of Engineering • Department of Electrical and Computer Engineering

Undergraduate Degree Available at SIUE

- Bachelor of Science (ABET-Accredited)



Why Computer Engineering?

Computers have become an integral part of our daily lives. To a computer engineer, the word “computer” means a lot more than just a desktop or portable computer. It also includes microprocessors and microcontrollers that are part of almost every modern device we use; examples are cell phones, media players, remote control units, the electronic circuits in your car, to name a few. It would probably be very hard for you to imagine what your life would be like without the internet and without your cell phone. It is also not possible to provide, in the limited space available on this page, an exhaustive list of what computer engineers do. Below are a few examples:

Communications: All communication systems utilize computers and microprocessors. Computer engineers are responsible for design and operation of wired and wireless communication systems including computer networks, 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 computer engineering. Examples are computerized tomography (CT) and magnetic resonance imaging (MRI) equipment, ultrasound and EKG devices, and digital patient monitoring systems.

Automation and control: Computer 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 computer engineering make their way into household appliances we use every day. A lot of the smart household appliances include programmable processors designed by computer engineers. Electronic devices such as alarm systems, programmable thermostats, digital audio and video equipment, computers, personal media players and cell phones all utilize microprocessors and microcontrollers.

Computer 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 computer engineering is accredited by the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Career Outlook

Computer 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, computer networking companies and departments, small and mid-size consulting firms, small and mid-size manufacturing companies that produce 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, Ph.D. (Chair)

1985, University of Houston

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

	FALL	SPRING
YEAR 1	CHEM 131 Engineering Chemistry (4) or CHEM 121A CHEM 135 Engineering Chemistry Lab (1) or CHEM 125A ENG 101 English Composition I (3) IME 106 Engineering Problem Solving (3) or PHIL 106 MATH 150 Calculus I (5) Total 16	CS 140 Introduction to Computing I (4) ENG 102 English Composition II (3) MATH 152 Calculus II (5) PHYS 151 University Physics I (4) PHYS 151L University Physics Lab I (1) Total 17
YEAR 2	ECE 210 Circuit Analysis I (3) CS 150 Introduction to Computing II (3) FAH or SS Intro (3) MATH 250 Calculus III (4) PHYS 152 University Physics II (4) PHYS 152L University Physics Lab II (1) Total 18	ECE 211 Circuit Analysis II (4) ECE 282 Digital Systems Design (4) CS 240 Introduction to Computing III (3) MATH 305 Differential Equations I (3) SPC 103 Interpersonal Communications (3) Total 17
YEAR 3	ECE 326 Electronic Circuits I (4) ECE 351 Signals and Systems (3) ECE 352 Eng. Probability & Statistics (3) CS 312 Introduction to Computer Organization (3) MATH 224 Discrete Mathematics (3) Total 16	ECE 381 Microcontrollers (3) ECE 483 Advanced Digital Systems Engineering (3) CS 340 Algorithms and Data Structures (3) ECON 111 Macroeconomics (3) Distribution Social Science (3) Total 15
YEAR 4	ECE 404 ECE Design (3) ECE/CS Elective (3) CS 314 Operating Systems (3) Introductory Fine Arts & Humanities (3) PHIL 323 Engineering, Ethics & Professionalism (3) Total 15	ECE 405 ECE Design Laboratory (3) ECE/CS Elective (3) ECE/CS Elective (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/

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

Undergraduate Programs

Civil Engineering*, Construction Management, Computer Science*, Electrical 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

Contact Info

Department of Computer Engineering
 SIUE School of Engineering
 Campus Box 1801
 Edwardsville, IL 62026-1801
 618.650.2524

