ELECTRICAL AND COMPUTER ENGINEERING

Electrical and computer engineers are making unprecedented contributions to fields that are at the center of significant innovation, including energy, medicine, banking, agriculture, defense, marine life, and entertainment. The internet, smart phones and tablets, and renewable energy technologies—products that improve our society and quality of life—are all products of electrical and computer engineering.

Today’s technology also enables us to amass large amounts of information on both local and global scales, and electrical and computer engineering expertise is essential to understanding and utilizing it. Examples include disease diagnosis from medical images and biometrics, surveillance and security, and renewable energy, as well as robotics and the control of autonomous vehicles.

Illinois Tech’s Department of Electrical and Computer Engineering has a tradition of innovation dating back to 1906, when faculty member Lee DeForest invented the first vacuum tube capable of amplifying an electrical signal. Our small, faculty-led courses allow you to interact with professors who are renowned experts in energy, medical imaging, computer networks, and other disciplines.

You will graduate with the distinctive education necessary to change the world, whether that includes developing technologies from alternative energy resources and communications advancements, or improving medical imaging and computer hardware and software capabilities.

B.S. DEGREES IN ELECTRICAL AND COMPUTER ENGINEERING (ECE) AT ILLINOIS TECH

- B.S. in Computer Engineering
- B.S. in Electrical Engineering
- B.S. in Computer and Cybersecurity Engineering
- B.S. in Electrical and Computer Engineering Dual Degree

Illinois Tech’s ECE degree program is accredited by the Engineering Accreditation Commission of ABET.

The electrical and computer engineering dual degree combines all the traditional and progressive aspects of these two disciplines. You will receive the foundation to succeed in fields where computer hardware and software are used, such as telecommunications, power electronics, digital signal processing, computer networks, and control systems.

Did you ever wonder if you could make your own computer? In our computer engineering program you will learn everything from the hardware to the software to design your own. That is what’s great about computer engineering: you are exposed to it all, from microprocessors to embedded computing, and from cybersecurity, artificial intelligence, and machine learning to Internet of Things and cyber physical systems.

Choose your specialization among the computer engineering undergraduate tracks:

- Communications and Networking Systems
- Computer Systems and Microelectronics
- Cyber Security Systems
- Robotics and Automation
- Machine Learning and Image Processing
- Fire Protection and Life Safety

RESEARCH—EVEN AS AN UNDERGRAD!

Our faculty are pushing the boundaries of what we know in many areas of electrical and computer engineering—and there are countless opportunities for undergraduates to participate.

ECE professors Miles Wernick and Yongyi Yang are developing algorithms for crime prediction, which are in use in the Chicago Police Department. This project has been featured around the world, including in the New York Times, NBC Nightly News, The Economist, and others. With a $4 million grant from the National Institutes of Health, the professors also are developing a method of producing medical images of heart disease that promises to reduce radiation received by the patient by a factor of eight, thereby potentially saving thousands of lives per year in the U.S.

ECE Assistant Professor Lin Cai was a 2016 recipient of a prestigious National Science Foundation CAREER Award, given to university faculty who are also excellent teachers. Her current research project explores how to optimize the use of energy harvested by renewable sources to meet the quality of service requirements of end users while ensuring sustainable operation of a communication system.
LEARN TO INNOVATE IN IPROS

In Illinois Tech’s signature Interprofessional Projects (IPRO) Program, you’ll work with students from various majors to solve real-world problems. Recent ECE-oriented IPROs include:

- Automotive systems innovation, including adaptive-cycle hybrid vehicles
- Smart microgrids within contemporary electrical generation, transmission, and distribution networks
- Auto engines as combined heat+power systems
- Mobilus: robotic standing wheelchair with arm component

Distinctive Education

At Armour College of Engineering, we integrate innovative thought, entrepreneurship, creativity, and design with engineering theory, research, and practice. You will get the chance to work on projects that are normally open only to graduate students—and have the opportunity to apply what you have learned in the classroom to some of the most complex problems facing society today.

We enhance our college’s already strong curriculum with lecture series, forums, interactive problem solving, professional site exploration, and team-intensive engineering projects focusing on four themes: water, health, energy, and security. As you take part in these theme opportunities, your activity is tracked in your own personal online portfolio for use as a supplement to your résumé or as additional material for your application to graduate school.

Having a complete understanding of the research and development process will also help ensure your success after you graduate. Our Armour R&D Program includes two programs: Program for Undergraduate Research Education (PURE), which focuses on research, and Mentored Innovation and Development (MIND), which focuses on developing research-based technology. Both programs aim to give undergraduate students a hands-on experience with research and development that is unique to Armour College.

All distinctive education programs are designed to give you a competitive edge and tangible experience in global issues. Be confident in the fact that when you graduate from Armour College of Engineering, you will already be working on relevant and impactful solutions.

“It is a very rigorous program that works you very hard. This trains you for the real world so that you can come up with solutions to problems quickly.”

—Samuel Rarick
Electrical and Computer Engineering (‘17)
Chicago

Our graduates are far from ordinary. But we expect them to be extraordinary.

Just a few of Illinois Tech’s accomplished ECE alumni include:

- Martin Cooper—Inventor of the cell phone
- Leonard Reiffel—Inventor of the Telestrator (used to highlight sports plays on TV)
- Nabeel Riza—Professor and dean, School of Engineering, University College Cork (Ireland)
- Mahesh A. Iyer—Intel fellow, Intel Corporation
- Ganesh Krishnamoorthy—Chief technology officer, GK Software Associates
- Wenwu Zhu—Professor and head of the Computer Science Department, Tsinghua University (China)