The American University in Cairo

School of Sciences and Engineering

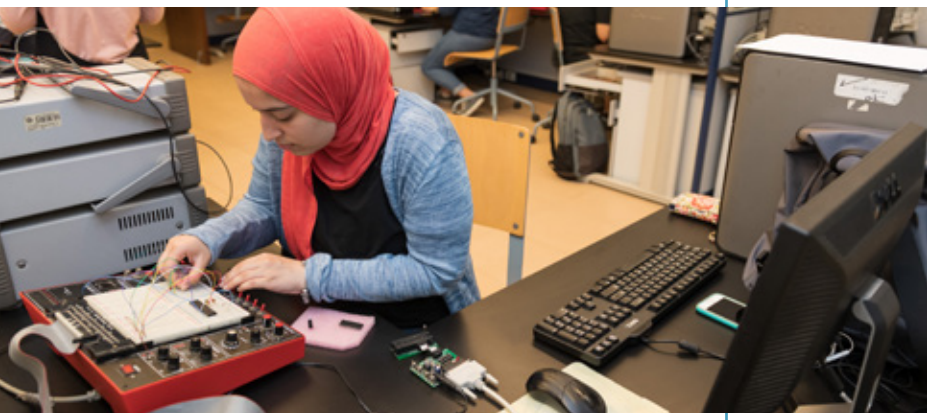
Department of Electronics and Communications Engineering

Undergraduate

Electronics and Communications Engineering

Bachelor of Science in Electronics and Communications Engineering

DEPARTMENT OF ELECTRONICS AND COMMUNICATIONS ENGINEERING



The electronics and communications engineering curriculum requires a solid core of foundation courses in physics, mathematics, computer science and general engineering. Concentration courses in electronics and communications engineering that integrate theory and laboratory wherever possible, cover electromagnetism, circuits, electronics, digital design and communications. Courses in electric machinery, classical control and computer systems are also required, as well as the capstone senior thesis and an industrial internship. The specific objectives of the program at AUC are to prepare graduates to meet the expectations of employers and to pursue advanced studies, if desired.

Mission

The mission of the Electronics and Communications Engineering program at AUC is to provide students with the highest quality education. The Electronics and Communications Engineering curriculum is designed to strike a balance between theoretical and practical experience, and to impart solid understanding of the principles required for a successful career in electronics and communications engineering. Graduates of the program are prepared for a career in Egypt or abroad.

Academic Offerings

The Department of Electronics and Communications Engineering offers a Bachelor of Science in electronics and communications engineering.

Admission Requirements

Students are admitted to the Electronics and Communications Engineering program either upon admission to AUC or after successful completion of criteria courses. High-school students with a mathematics or science background are accepted depending on their high-school grades and the available space in the Electronics and Communications Engineering program. Undeclared students or students who wish to change their major to Electronics and Communications Engineering may also be accepted into the program when they finish criteria courses set by the department. Admission to the program is supervised by the department and depends on available places and the student's performance record in the criteria courses. Transfer students are also accepted into the program based on available places, the student's performance at his or her current institution and high-school grades.

Graduation Requirements

A total of 162 credits are required for the bachelor's degree in Electronics and Communications engineering:

Core Curriculum Requirements	36 credits
Engineering Core Requirements	57 credits
Concentration Requirements	54 credits
Concentration Electives	12 credits
General Electives	3 credits

Facilities and Specialized Laboratories

The Electronics and Communications Engineering curriculum is served by well-equipped laboratories of the science departments and the specialized electronics and communications engineering laboratories. The Electronics and Communications Engineering department currently has several multidisciplinary laboratories with state-of-the-art equipment and software in the areas of circuits, electronics, digital design, microcontrollers, communications, control, microwave, photonics and optical communications, and VLSI. The number of laboratories quadrupled in the new campus. The labs are organized in stations with only one student per station.

The AUC library collection fully supports the Electronics and Communications Engineering program with materials ranging from recently published textbooks and references to current issues of relevant scientific journals. The library has extensive electronic resources that are accessible by students on or off campus.

Extracurricular Activities

Students participate in many extracurricular professional activities throughout their years of study. They are encouraged to participate in local and international professional societies and to establish links with the industry.

Electronics and Communications Engineering Association (ECEA)

The Electronics and Communications Engineering Association (ECEA) was established several years ago to serve the department's students. It seeks to enhance and raise the academic standards of the students to enable them to be competitive in the job market by the time they graduate. They achieve this through short courses, awareness sessions, and other activities. In addition to academic and career enhancement, the ECEA organizes social activities that provide a sense of community within the department. The ECEA also represents students inside and outside the department and promotes student causes.

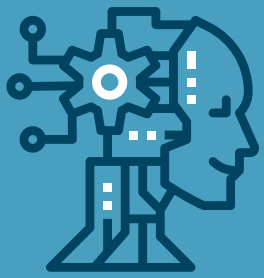
After Graduation

Electronics and Communications Engineering graduates currently work for highly prestigious companies such as Vodafone, IBM, Ericsson, Alcatel, Valeo, Etisalat, Microsoft, Orange, ITWorx, Halliburton, Booz Allen Hamilton and P&G.

Electronics and Communications Engineering graduates have also pursued graduate degrees in top universities around the world such as Stanford and Harvard.

Faculty

Abdel Azeem, Sherif; Professor; PhD 1995, Queen's University
Abou-Auf, Ahmed; Professor; PhD 1993, University of Maryland
Amer, Hassanein; Professor; PhD 1987, Stanford University
Anis, Mohab; Professor; PhD 2003, University of Waterloo
Elezabi, Ayman; Associate Professor; PhD 2000, North Carolina State University
Gadallah, Yasser; Professor and Chair; PhD 2005, Carleton University
Ismail, Yehea; Professor; PhD 2000, University of Rochester
Seddik, Karim; Professor; PhD 2008, University of Maryland



Research

Faculty members are engaged in research in the areas of automatic recognition of handwritten text; the Internet of Things (IoT), machine-to-machine communications, wireless communication including spread-spectrum systems, interference cancellation, diversity and coding, and broadband wireless access; failure analysis, fault modeling and test for VLSI device exposed to space radiation environment; three-dimensional imaging system based on incoherent FM/CW laser-radar technology; system-on-chip implementation of wireless communication systems; improving the reliability and thermal management of high power RF devices, and implementing innovative concepts in monolithic microwave integrated circuit with emphasis on wide band gap semiconductors; reliability and testing of digital and mixed signal circuits, reliability modeling, self-checking circuits, analysis of temporary failures, cache memory systems; and wireless sensor networks and networked control systems. In addition, research is conducted that analyzes and designs mitigation methods for leakage power, process variations, signal and thermal integrity in nanometer chips.

Accreditation

- AUC is accredited in the United States by the Commission on Higher Education of the Middle States Association of Colleges and Schools.
- The Bachelor of Science in Electronics and Communications Engineering is accredited in Egypt by the Supreme Council of Universities in Egypt.
- The Electronics and Communications Engineering program is also accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

Why Join AUC's Electronics and Communications Engineering Program?

- AUC provides quality professional education that advances the ideals of American liberal arts and lifelong learning. As freedom of academic expression is fundamental to this effort, AUC encourages the free exchange of ideas and promotes open and ongoing interaction with scholarly institutions throughout Egypt and other parts of the world.
- The university environment is designed to advance proficient use of the tools of learning as well as students' thinking capabilities, language and personal skills.
- Students are taught by outstanding faculty with PhD degrees from leading universities in the United States, Canada, Europe and Egypt.
- AUC has one of the best English-language libraries in the Middle East, equipped with state-of-the-art information access technologies.
- The campus includes up-to-date computer facilities and software as well as well-equipped experimental laboratories in nearly every specialty.
- Students have access to a rich and diverse student life with a broad array of extracurricular activities.
- A modern campus in New Cairo that is spacious, technologically advanced, environmentally sensitive and equipped with world-class educational resources.

The American University in Cairo

www.aucegypt.edu

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