What is Electrical Engineering?

Electrical engineering is a driving force in the improvement of how we interact in today's world. Whether we consider the fundamentals behind today's cable, wireless, and fiber-optic communications systems, the ever-increasing speed of computers, the intelligence embedded into our home appliances and automobiles, or emerging alternative energy sources, electrical engineering plays a dominant role.

Electrical engineering was founded formally more than a century ago when Ampere, Faraday, and Ohm discovered the electrical quantities known as charge, potential and current, and the dynamics of their interactions. Electrical engineering is the application of applied physics toward the understanding of how these quantities can be used to serve humankind. It is integrated into all fields of engineering through measurement devices and equipment, electronic control systems, visual displays, and remote monitoring. Electrical engineers are major players in the design of technologically advanced systems that include commercial applications, space exploration, national defense, scientific discovery, and medical technology.

The Bachelor of Electrical Engineering Degree Program
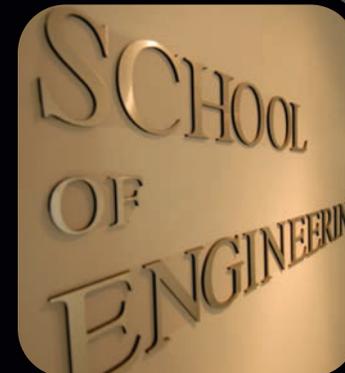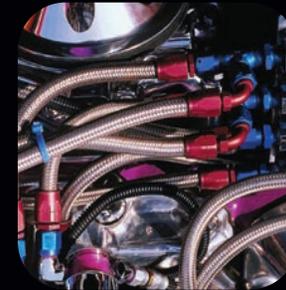
Department of Electrical Engineering and Computer Science

Phone: 202-319-5193
Fax: 202-319-5195
E-mail: EECS Adminstrative Office

THE CATHOLIC UNIVERSITY OF AMERICA
Washington, DC 20064

THE CATHOLIC UNIVERSITY OF AMERICA
School of Engineering

The CUA undergraduate program leading to the degree of Bachelor of Electrical Engineering prepares students for direct entry into a career in engineering or for further studies at the graduate level. The program is accredited by the Accreditation Board for Engineering and Technology.

Our program prepares students not only for the rapidly evolving field of electrical engineering, but also for a world that requires critical thinking and dedication to lifelong learning. CUA electrical engineering graduates enjoy successful careers as engineers and scientists, but also use their background in engineering to enter the fields of law, management, medicine, and education.

A Solid Foundation for the Working World

The primary objective of the electrical engineering program is to provide students with a solid foundation in mathematics, science, and engineering, combined with a strong liberal arts component, in a four-year program. This prepares our graduates for direct entry into the workforce, or for continued education at the master's or Ph.D. level.

Fully integrated throughout the four-year program are hands-on laboratory and design experiences that culminate in the yearlong Senior Design Project. This project integrates engineering design, project planning and budgeting, teamwork, and actual implementation. Senior design projects are closely allied with faculty research themes, offering students unique access to emerging and cutting-edge fields and technologies — lasers, nanotechnology, electromagnetics, optics, signal and image processing, communication and computer networks, and alternative energy.

Our location in the nation's capital also offers privileged access to government laboratories, private sector companies, and funding agencies, with many students benefiting from summer internships that open doors to future employment opportunities. Present funding sources for research work within the University's electrical engineering department include the National Institutes of Health, the National Science Foundation, and various Department of Defense laboratories, in addition to private enterprises.

The CUA Experience

CUA's 180-acre campus combines the best of both campus life and city living. Our favorable student-to-faculty ratio offers a personalized learning environment and support structure that is unrivaled in larger schools. The university offers more than 80 campus organizations, from sports teams to pre-professional groups. Extensive internship opportunities and education abroad programs provide career preparation and a well-rounded university experience.

The School of Engineering has entered into several agreements that make it possible for students of our rigorous programs to study in select schools. Please see "Student Exchange" on the School of Engineering Web site, http://engineering.cua.edu, for the most up-to-date information.

CUA is one of the many prestigious universities within the Consortium of Universities of the Washington Metropolitan Area, offering collectively extensive library services, a rich student life and ample social interaction. Student life is dynamic in a city famous for its museums, theaters, historic landmark monuments, concert halls, and numerous other cultural attractions. Most are minutes away by Metrorail, Washington, D.C.'s extensive commuter rail system, with a station (Brookland/CUA) a few steps from the engineering school in Pangborn Hall.

Did You Know ...

- Charles H. Kaman, founder of the Ovation Guitar Company, is a graduate of CUA's School of Engineering.

- Other CUA alumni include Brian Williams (NBC News), Jon Voigt (acclaimed actor), Judge Colleen Kollar-Kotelly (ruling in the Microsoft anti-trust trial), Terry McAuliffe (Democratic Party leader), Ed Gillespie (Republican Party leader), and many other notables.

- CUA was rated by *PC Magazine* among the top "wired universities" in the United States.

- CUA has been rated among the most cost-effective educational programs in the United States.

- The rise in energy costs is expected to reverse outsourcing trends, resulting in a huge demand for electrical engineers in the United States.

- Alternative energy is expected to be a major factor of sustained economic development in the 21st century; CUA offers a concentration in alternative and renewable energy.

- The electrical engineering department has surpassed $4 million in external research funding over the past few years.