



Professor Mona Garvin (left) helps students in her algorithms class.

Imagine a world without lights, computers, telephones, cellular phones, PDAs, TVs, microwave ovens, remote controls, sound systems, aviation control systems, hearing aids, or MRI and CT imagery. These are just a few of the amazing innovations introduced by electrical and computer engineers. Although our contributions have been astonishing over the past one hundred years, electrical and computer engineers will continue to play an equally vital role in shaping life in the 21st century. The scope of our field is continually expanding as technology infuses nearly every industry from aerospace to telecommunications.

Why Study at Iowa's Electrical and Computer Engineering Department?

There are approximately 200 undergraduate students in the electrical and computer engineering department, making it one of the largest engineering departments at Iowa. Many students choose to study electrical engineering at Iowa because of the flexible curriculum, small-college environment, and tremendous career opportunities.

Iowa offers all the advantages of a Big Ten research university while providing a supportive student-focused atmosphere. The large network of support services

provided for our students includes advising, tutoring, career services, and a popular mentoring program that pairs upper-level students with new students. All courses are taught by professors or industry professionals—not teaching assistants. Electrical engineering classes are small enough to give students the opportunity for personal interaction with their professors.

New Flexible Curriculum

The field of electrical engineering encompasses a broad spectrum of technical areas, including computers, electronics, integrated circuits, communications, signal processing, wireless systems, and optics. Due to the large scope of our field, Iowa's curriculum is flexible which is essential to gain a competitive advantage in an expanding career field. Elective coursework, combining free and constrained electives, makes up nearly half of our total curriculum. This allows students more options, even as diverse as a minor in Spanish or a certificate in Technological Entrepreneurship. These options are not typical in most engineering programs. Building on a strong foundation in basic electrical engineering, computer, physics, and mathematics, students design their own plan of study at

Iowa. Students select one of two curricular tracks—Electrical or Computer and the courses for their elective focus area (EFA). Within each track, students can tailor their study toward many specialties. Examples include

- General Breadth in EE
- Specialization in Applied Physics
- Specialization in Computer Engineering
- Specialization in Control Systems
- Specialization in Electronics
- Specialization in Communication
- Specialization in Signal Processing
- Specialization in Imaging Processing
- General Breadth in Engineering Fundamentals
- Special Interests in Business
- Special Interests in Technical Entrepreneurship
- Special Interests in Bio-Engineering
- Pre-Med

Joint BS/MS Degree

A maximum of nine credits may be counted toward both the BS and MS degrees.

Electrical Track

Electrical engineers helped develop the technology to engage an anti-lock braking system, track severe weather with Doppler radar, and innovate life-saving 3-D cardiac imaging technology. Because electrical engineering tackles such diverse problems, our electrical engineering track provides a broad foundation in many technical areas including computers, control systems, signal processing, and communications.

The advantage of the broader electrical engineering track is the opportunity to work in wide range of industries and organizations.

Computer Track

Computer track essentially takes computer science one step further. Computer track encompasses many concepts included in computer science, such as computer languages, data structures, and algorithms. Along with programming skills, computer engineers also understand the interfaces between hardware and software and principles of feedback control systems. Essentially our students comprehend computers inside and out which gives them a competitive edge in the workplace.



A look inside the newly renovated and expanded Seamans Center for the Engineering Arts and Sciences

Elective Focus Areas (EFAs)

In addition to selecting a curricular track, students also choose an elective focus area. EFAs consist of 21 credit hours which can be used to achieve virtually any academic objective. Here are a few ways EFA credits can be utilized:

- Study a more applied EE topic like Computer Architecture, Software Engineering, or Image Processing.



Video demonstration of the inverted pendulum experiment in our undergraduate Control Laboratory. Click for demo.

- Obtain one or more minors in Computer Science, Mathematics, or Physics.
- Minor in a non-traditional engineering subject like Spanish or Economics.
- Take additional coursework in a second engineering discipline like Biomedical Engineering.
- Use electives toward a double degree, for example a major in electrical engineering and a major in music.

Iowa's curriculum allows and encourages students to take a diverse set of courses to best meet their educational objectives because that is what is valued in today's global marketplace. For more detailed information regarding the flexible curriculum check out our website at: www.ece.engineering.uiowa.edu

Careers

The median starting salary of the 2008 graduating class was \$57,600 for EE and \$60,300 for CE. CNN Money repeatedly ranks Electrical Engineering among the most lucrative degrees. Electrical engineering is currently one of the largest segments within the engineering profession and is projected to grow. Electrical and computer engineers not only enjoy superior compensation but also career stability.

Internships/Co-ops

To help students achieve their desired careers we encourage our students to complete internships. Last summer electrical and computer engineering interns earned an average of \$14.24/hour and worked at many leading Fortune 500 companies including 3M, Alcoa, Hewlett Packard, and IBM. Engineering Career Services is available to assist with researching job opportunities, developing résumés, practicing interviewing skills, and evaluating job offers.

Quality Education

With a small class sizes and a student to faculty ratio of 13:1 you will receive personalized attention and the chance to get to know your professors. Another advantage of a smaller program is the opportunity to participate in research as an undergraduate. There are numerous research topics that span from optics to medical imaging. Iowa is able to provide all of the previously mentioned benefits at the lowest cost of any Big 10 university.

To Find Out More

- Visit our website at:
www.ece.engineering.uiowa.edu
- E-mail questions to:
dina-blanc@uiowa.edu
- Or call us at 1-800-553-IOWA