College of Engineering

ELECTRICAL ENGINEERING

Electrical engineers find innovative ways to use electricity, electronic materials and electrical phenomena to improve people's lives.

The field of Electrical Engineering encompasses a very broad spectrum of technical areas, including computers and digital systems, electronics and integrated circuits, communications, systems and control, electromagnetics and electro-optics, energy conversion and power distribution, robotics, signal processing, solid state electronics and photonics.

Electrical engineers work at the frontier of high technology and are involved in research, the creation of new ideas and the design and development of new products, manufacturing and marketing activities.

Pursuing Electrical Engineering at UK

Why UK? One great reason is the University of Kentucky's reputation for strong academics combined with a great success rate for job placement and alumni success. Students who enroll as Electrical Engineering students at UK study at Kentucky's flagship research institution, meaning you'll be learning from topflight people looking to make the next big breakthroughs in their field. The Department of Electrical and Computer Engineering faculty are readily accessible both inside and outside the classroom and students have the chance to grow personally and professionally.

Courses cover all the essentials: circuits, power, semiconductors, embedded systems, computer architecture and more. The undergraduate degree culminates in the capstone design courses where seniors work in teams to handle real-world problems outside the classroom and get a taste of the real world of engineering work.

Undergraduate certificates are also available in Power & Engineering as well as Nanoscale Engineering.

First-Year Engineering Program

The University of Kentucky College of Engineering's First-Year Engineering program is designed to remove as much guesswork from your major selection as possible. Instead of pushing through a major you don't like, or adding time and expense by changing majors, you can make an informed choice thanks to a hands-on, team experience that exposes you to all of our engineering disciplines from the start.

All incoming first-year and transfer engineering students take part in the First-Year Engineering program. Students take a two-semester series which includes an overview of engineering disciplines, computer programming, computer-aided design, MATLAB, engineering design and analysis, project management, ethics in engineering and teamwork, as well as oral and written technical communication. Once specific course requirements are complete, students are eligible to declare one of the nine undergraduate majors offered within the College of Engineering.

Students may directly enroll as pre-engineering students; however, there are minimum admission requirements. Minimum freshman entry requirements are an ACT math score of 23 *or* an old SAT (prior to March 2016) math score of 540 *or* a new SAT (after March 2016) math score of 570. Additionally, students must meet the university's minimum ACT/SAT reading and writing requirements to be admitted to the College of Engineering. Students not eligible to directly enroll in engineering should contact the Director of Recruitment at visit@engr.uky.edu for alternate pathways.

Experiential Education

Growth and learning also happen outside the classroom. They happen in labs working alongside professors and graduate students. They happen on student design teams in the capstone design courses. They happen on cooperative education rotations and internships with companies all over the country. They happen by competing in student robot competitions. There are also numerous Education Abroad programs involving international travel and study.

The Engineering Career Development Office is your one-stop shop for assisting you in the development of job, co-op and internship search skills, participation in Education Abroad programs, participation in research endeavors and building career networks, to eventually help you secure a rewarding career in your chosen field of study.

FOR MORE INFORMATION, VISIT THESE WEBSITES:

Electrical Engineering: www.engr.uky.edu/ece
College of Engineering: www.engr.uky.edu
Visit Engineering: www.engr.uky.edu/visit
University of Kentucky: www.uky.edu
Admissions: www.uky.edu/admissions
Scholarships: www.uky.edu/scholarships

Electrical Engineering Curriculum Sample

This is a sample list of classes a student will take to pursue a degree in Electrical Engineering. In addition to the Electrical Engineering curriculum, students must complete the pre-engineering requirements and general education coursework, called UK Core.

Note: This sample represents one of several paths to a College of Engineering degree. Consult the departmental websites for details on specific paths.

Freshman Year

Engineering Exploration I and II	3
Fundamentals of Engr Computing	2
Calculus I and II	8
Chemistry I and Physics I and lab	9
Composition & Communication I and II	6
UK Core course	3
Total hours	**31**

Sophomore Year

Calculus III and IV	7
Physics II and lab	5
Circuits I	4
AC Circuits	4
Digital Logic Design	4
Intro to Embedded Systems	4
Intro to Program Design	4
UK Core course	3
Total hours	**35**

Junior Year

Electromechanics	3
Signals and Systems	3
Intro to Electronics	3
Intro Probability or Engineering Stats	3
Intro to Engineering Electromagnetics	4
Elective EE labs	4
Engineering/Science elective	3
Technical electives	6
UK Core course	3
Total hours	**32**

Senior Year

EE Capstone Design I and II	6
EE technical electives	12
Math/Statistics elective	3
Engineering/Science elective	3
Supportive elective	3
UK Core courses	6
Total hours	**33**

Student Involvement

Learning also happens in student organizations, on field trips and on community service projects. UK students can get involved with chapters of the Institute of Electrical and Electronics Engineers and the honoraries Eta Kappa Nu and Tau Beta Pi, the Society of Women Engineers and Engineers Without Borders, among others.

Career Prospects in Electrical Engineering

Electrical engineers learn to understand and use electrical energy: make it, control it, transmit it and tame it to design and run all kinds of traditional and advanced technologies. Electrical engineers also understand how to design and make the hardware that helps our newest intelligent tools and machines–and houses and cars–get smarter, smaller, cheaper, faster and safer. And when radical new technologies appear on the horizon that will dramatically change our technological landscape, one thing is certain: they will come from the imaginations of these engineers.

Electrical engineers work in every industry you can think of: film and television, aerospace, automotive, business machines, professional and scientific equipment, computers and electronics, communications and medical technology. They work in public utilities, at NASA, the National Institutes of Health and the Department of Defense. As researchers, they study everything from fuel cells to nanotechnology. If it's got an on/off switch, these engineers have studied it, designed it or produced it.

The University of Kentucky's Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Revised August 2016. Information subject to change. For the most up-to-date information on the UK College of Engineering, visit www.engr.uky.edu.

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