UNIVERSITY OF KENTUCKY

Electrical Engineering

College of Engineering

The undergraduate electrical engineering degree program seeks to produce graduates who are trained in the theory and practice of electrical and computer engineering and are well prepared to handle the professional and leadership challenges of their careers. The program allows students to specialize in high performance and embedded computing, microelectronics and nanotechnology, power and energy, signal processing and communications, high frequency circuits and fields, and control systems, among others.

Degree Requirements

The following curriculum meets the requirements for a B.S. in Electrical Engineering, provided the student satisfies UK Core requirements and graduation requirements of the College of Engineering.

Freshman Year

First Semester	Hours
EE 101 Creativity and Design in Electrical and Computer Engineering†	3
MA 113 Calculus I	4
CS 115 Introduction to Computer Programming	3
CIS/WRD 110 Composition and Communication I	3
UK Core – Humanities	3

Second Semester	
MA 114 Calculus II	4
PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
CHE 105 General College Chemistry I	4
EE 280 Design of Logic Circuits	3
UK Core – Social Sciences	3

Sophomore Year

First Semester	Hours
MA 213 Calculus III	4
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
EE 211 Circuits I	4
CIS/WRD 111 Composition and Communication II	3

Second Semester	
MA 214 Calculus IV	3
EE 221 Circuits II	3
EE 222 Electrical Engineering Laboratory I	2
EE 360 Introduction to Semiconductor Devices	3
CS 215 Introduction to Program Design, Abstraction, and Problem Solving	4
UK Core – Citizenship - USA	3

Junior Year

First Semester	Hours
EE 415G Electromechanics	3
EE 421G Signals and Systems	3
Elective EE Laboratory [L]	2
EE 380 Microcomputer Organization	3
EE 461G Introduction to Electronics	3
MA 320 Introductory Probability	3

Second Semester	
EE 468G Introduction to Engineering Electromagnetics	4
Elective EE Laboratory [L]	2
Engineering/Science Elective [E]	3
Technical Elective [T]	3
UK Core – Statistical/Inferential Reasoning	3

Senior Year

First Semester	Hours
EE 490 Electrical Engineering Capstone Design I††	3
EE Technical Electives**	6
Elective EE Laboratory [L]	2
Math/Statistics Elective [M]	3
UK Core – Global Dynamics	3

Second Semester	
EE 491 Electrical Engineering Capstone Design II††	3
EE Technical Electives**	6
Supportive Elective*	3
Engineering/Science Elective [E]	3

**Supportive elective* is to be chosen from any University courses, excluding more elementary versions of required courses, such as precalculus mathematics or PHY 211.

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*[M] **Math/Statistics Elective:** Any upper-division (300-level or higher) math or statistics course excluding MA 308 and MA 310 (3 credit hours total).*

*[E] **Engineering/Science Electives:** Any engineering, physics, computer science, or math course at the 200-level or higher, other than an electrical engineering course and excluding MA 308, MA 310, and more elementary versions of required courses (6 credit hours total). Cooperative education credit may not be used to satisfy this requirement.*

*[T] **Technical elective** may be selected from upper-division (300-level or higher) engineering, mathematics, statistics, computer science, physics, or other technically-related fields excluding MA 308, MA 310, EE 305, and more elementary versions of required courses, to be selected in consultation with the academic advisor (3 credit hours total). Cooperative education credit may not be used to satisfy this requirement.*

*[L] **Electrical Engineering Laboratory Elective:** EE 281, EE 462G, EE 422G, EE 416G (6 credit hours total).*

†EE 101 is a 3-hour course that will satisfy the UK Core I. – Intellectual Inquiry in Arts and Creativity requirement.

††EE 490 is only taught in the fall semester. EE 491 is only taught in the spring semester.

***EE Technical Electives** (must be 500-level courses). Courses recommended as electrical engineering technical electives are listed below (each course is 3 credit hours):*

EE 511 Introduction to Communication Systems
EE 512 Digital Communication Systems
EE 513 Audio Signals and Systems
EE 517 Advanced Electromechanics
EE 518 Electric Drives
EE 521 Introduction to Wireless Communications
EE 522 Antenna Design
EE 523 Microwave Circuit Design
EE 525 Numerical Methods and Electromagnetics
EE 527 Electromagnetic Compatibility

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EE 531 Alternative and Renewable Energy Systems
EE 535 Power Systems: Generation, Operation and Control
EE 536 Power System Fault Analysis and Protection
EE 537 Electric Power Systems I
EE 538 Electric Power Systems II
EE 539 Power Distribution Systems
EE 560 Semiconductor Device Design
EE 561 Electric and Magnetic Properties of Materials
EE 562 Analog Electronic Circuits
EE 564 Digital Electronic Circuits
EE 565 Circuit Design With Analog Integrated Circuits
EE 567 Introduction to Lasers and Masers
EE 568 Fiber Optics
EE 569 Electronic Packaging Systems and Manufacturing Processes
EE 571 Feedback Control Design
EE 572 Digital Control of Dynamic Systems
EE 581 Advanced Logical Design
EE 582 Hardware Description Languages and Programmable Logic
EE 584 Introduction of VLSI Testing and Design
EE 585 Fault Tolerant Computing
EE 586 Communication and Switching Networks
EE 587 Microcomputer Systems Design
EE 589 Advanced VLSI
EE 599 Topics in Electrical Engineering (Subtitle required)