University of Kentucky

Computer Engineering

College of Engineering

Computer Engineers shape the way people work, play, live and learn in the modern world and develop the infrastructure and devices people can't imagine living without. Computer Engineering is a dynamic and rewarding field that draws upon Electrical Engineering and Computer Science. Computer Engineers solve today's most challenging technology problems by applying their expertise in both hardware and software systems. Leveraging everything from the world's smallest micro-controllers to the largest server farms on the planet, Computer Engineers have revolutionized modern entertainment, medicine, telecommunications, transportation, and Information Technology. Computer Engineering graduates find employment in positions requiring Computer Science, Electrical Engineering or Computer Engineering expertise, are in high demand in virtually all industries, and are among the highest compensated specialties in engineering. Admission to the degree program is selective. Students should refer to the UK *Bulletin* for general information concerning admission and graduation requirements.

Degree Requirements

In addition to fulfilling UK Core and College of Engineering requirements, students must complete the computer engineering curriculum. The following curriculum meets the requirements for the B.S. degree.

Freshman Year

First Semester	Hours
EGR 101 Engineering Exploration I Δ §	1
EGR 102 Fundamentals of Engineering Computing	2
Gen Univ Phy or CHE 105 Gen Col Chem I ●	4
PHY 241 General University Physics Laboratory ‡	1
CIS/WRD 110 Composition and Communication I	3
MA 113 Calculus I	4

Second Semester	Hours
EGR 103 Engineering Exploration II Δ	2
CIS/WRD 111 Composition and Communication II	3
MA 114 Calculus II	4
CHE 105 Gen Col Chem I or Gen Univ Phy ●	4
CS 215 Introduction to Program Design, Abstraction, and Problem Solving Techniques	4

Sophomore Year

First Semester	Hours
MA 213 Calculus III	4
General University Physics	4
PHY 242 General University Physics Laboratory	1
CS 216 Introduction to Software Engineering Techniques	3
CPE 282 Digital Logic Design	4

Second Semester	Hours
MA 214 Calculus IV	3
EE 211 Circuits I	4
CPE 287 Introduction to Embedded Systems	4
CS 270 Systems Programming	3
CS 275 Discrete Mathematics	4

Junior Year

First Semester	Hours
EE 223 AC Circuits	4
CS 315 Algorithm Design and Analysis	3
CPE 380 Microcomputer Organization	3
STA 381 Engineering Statistics A Conceptual Approach	3
UK Core (Humanities)	3

Second Semester	Hours
EE 421G Signals and Systems	3
EE 461G Introduction to Electronics	3
CPE 480 Advanced Computer Architecture**	3
CPE Elective	3
Technical Elective†	3
UK Core (Social Sciences)	3

Senior Year

First Semester	Hours
CPE 490 ECE Capstone Design I**,†, ***	3
CPE Elective††	3
Technical Elective†	3
Supportive Elective*	3
UK Core (Citizenship – USA)	3

Second Semester	Hours
CPE 491 ECE Capstone Design II**,†	3
Hardware Elective ϕ	3
Software Elective θ	3
CPE Elective††	3
UK Core (Global Dynamics)	3

**Supportive elective is to be chosen from any University courses, excluding more elementary versions of required courses, such as precalculus mathematics, MA308, MA310 or PHY211.*

***CPE480 is only taught in the spring semester. CPE490 is only taught in the fall semester. CPE491 is only taught in the spring semester.*

****Graduation Composition and Communication Requirement (GCCR) course.*

†Technical elective may be selected from upper-division engineering, mathematics, statistics, computer science, physics, or other technically-related fields excluding more elementary version of required courses. To be selected in consultation with academic advisor. If a student wishes to use CS 499 instead of CPE 490 and CPE 491 to fulfill the GCCR and senior design requirements, the student must receive approval from the DUS to select an additional technical elective that supports the proposed CS 499 project.

††400 level CS courses and 500 level CPE courses with emphasis in the computer engineering area and excluding EE 595. To be selected in consultation with academic advisor.

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Δ *Both classes must be taken to fulfill UK Core: Arts & Creativity requirement.*

● *Based on advisor consult*

§ *Transfer students who declare a major will take EGR 112 Engineering Exploration for Transfer Students in place of EGR 101.*

‡ *Only if enrolled in*

ϕ *Hardware electives are senior level course in the CPE or EE disciplines and shall be selected from the following list and/or selected in consultation with academic advisor:*

EE 582 Hardware Description Languages and Programmable Logic
CPE 584 Introduction of VLSI Design and Testing
CPE 585Fault Tolerant Computing
CPE 586 Communication and Switching Networks

θ *Software electives are senior level course in the CPE or CS disciplines and shall be selected from the following list and/or selected with academic advisor:*

CS 441G Compilers for Algorithmic Languages
CS 471G Networking and Distributed Operating Systems
CS 570 Modern Operating Systems
CPE 588 Real-Time Digital Systems