BS in Computer Engineering

Program Codes:
20FQ0109BS

Degree Requirements

To earn a Bachelor of Science in Computer Engineering degree from UIC, students need to complete university, college, and department degree requirements. The Department of Electrical and Computer Engineering degree requirements are outlined below. Students should consult the *College of Engineering* section for additional degree requirements and college academic policies. See the ECE Department website for any revisions of the CE curriculum.

Code	Title	Hours
Summary of Requirements		
Nonengineering and General Education Requirements		53
Required in the College of Engineering		58
Technical Electives		17
Total Hours		**128**

Nonengineering and General Education Requirements

Code	Title	Hours
Required Courses		
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
Exploring World Cultures course [a]		3
Understanding the Creative Arts course [a]		3
Understanding the Past course [a]		3
Understanding the Individual and Society course [a]		3
Understanding U.S. Society course [a]		3
MATH 180	Calculus I [b]	4
MATH 181	Calculus II [b]	4
MATH 210	Calculus III [b]	3
MATH 220	Introduction to Differential Equations	3
MATH 310	Applied Linear Algebra	3
PHYS 141	General Physics I (Mechanics) [b]	4
PHYS 142	General Physics II (Electricity and Magnetism) [b]	4
PHYS 260	Introduction to Thermal Physics	2
CHEM 122	Matter and Energy [c]	3
CHEM 123	Foundations of Chemical Inquiry I [b,c]	2
Total Hours		**53**

a *Students should consult the General Education section of the catalog for a list of approved courses in this category.*

b *This course is approved for the Analyzing the Natural World General Education category.*

c *General Education credit is given for successful completion of both CHEM 122 and CHEM 123.*

Required in the College of Engineering

Code	Title	Hours
Computer Engineering Core Courses		
ENGR 100	Engineering Orientation [a]	1
CS 107	Introduction to Computing and Programming	4
CS 151	Mathematical Foundations of Computing	3
CS 251	Data Structures	4
ECE 115	Introduction to Electrical and Computer Engineering	4
ECE 225	Circuit Analysis	4
ECE 265	Introduction to Logic Design	4
ECE 266	Introduction to Embedded Systems	4
ECE 310	Discrete and Continuous Signals and Systems	3
ECE 333	Computer Communication Networks I	4
ECE 340	Electronics I	4
ECE 341	Probability and Random Processes for Engineers	3
ECE 366	Computer Organization	3
ECE 396	Senior Design I	2
ECE 397	Senior Design II	2
ECE 465	Digital Systems Design	3
ECE 466	Advanced Computer Architecture	3
ECE 467	Introduction to VLSI Design	4
ECE 499	Professional Development Seminar	0
Total Hours		**58**

a *ENGR 100 is a one-semester-hour course, but the hour does not count toward the total hours required for graduation.*

Technical Electives

No more than a total of two courses below the 400-level may be used to meet the technical elective requirement. Also, at most one course from outside of the Department of Electrical and Computer Engineering or the Department of Computer Science may be used to meet the technical elective requirement.[a]

Code	Title	Hours
Courses		
Select 17 hours from the following:		17
CS 361	Systems Programming	
CS 401	Computer Algorithms I	
ECE 311	Communication Engineering	
ECE 317	Digital Signal Processing I	
ECE 322	Introduction to Electromagnetics and Applications	
ECE 342	Electronics II	
ECE 346	Solid State Device Theory	
ECE 347	Integrated Circuit Engineering	
ECE 350	Principles of Automatic Control	
ECE 407	Pattern Recognition I	

ECE 410	Advanced Circuit Analysis
ECE 412	Introduction to Filter Synthesis
ECE 415	Image Analysis and Computer Vision I
ECE 417	Digital Signal Processing II
ECE 418	Statistical Digital Signal Processing
ECE 421	Introduction to Antennas and Wireless Propagation
ECE 423	Electromagnetic Compatibility
ECE 424	RF and Microwave Guided Propagation
ECE 432	Digital Communications
ECE 434	Multimedia Systems
ECE 436	Computer Communication Networks II
ECE 437	Wireless Communications
ECE 440	Nanoelectronics
ECE 442	Power Semiconductor Devices and Integrated Circuits
ECE 445	Analysis and Design of Power Electronic Circuits
ECE 448	Transistors
ECE 449	Microdevices and Micromachining Technology
ECE 451	Control Engineering
ECE 452	Robotics: Algorithms and Control
ECE 458	Electromechanical Energy Conversion
ECE 468	Analog and Mixed - Signal Integrated Circuits
ECE 469	Hardware Description Language Based Digital and Computer System Design
MCS 425	Codes and Cryptography
MCS 471	Numerical Analysis
PHYS 240	Fundamentals of Modern Quantum Theory
STAT 471	Linear and Non-Linear Programming
Total Hours	**17**

a *Students preparing for the Fundamentals of Engineering Examination, which leads to becoming a Licensed Professional Engineer, are advised to use these hours to take CME 201, and one of the following to prepare for the Fundamentals of Engineering Exam: CME 203, CME 260, or ME 211.*

Sample Course Schedule

Course	Title	Hours
Freshman Year		
First Semester		
MATH 180	Calculus I	4
CHEM 122	Matter and Energy	3
CHEM 123	Foundations of Chemical Inquiry I	2
ENGL 160	Academic Writing I: Writing in Academic and Public Contexts	3
ECE 115	Introduction to Electrical and Computer Engineering	4
ENGR 100	Engineering Orientation [a]	1
	Hours	**16**
Second Semester		
MATH 181	Calculus II	4
PHYS 141	General Physics I (Mechanics)	4
ENGL 161	Academic Writing II: Writing for Inquiry and Research	3
CS 107	Introduction to Computing and Programming	4
	Hours	**15**
Sophomore Year		
First Semester		
MATH 210	Calculus III	3
PHYS 142	General Physics II (Electricity and Magnetism)	4
CS 151	Mathematical Foundations of Computing	3
ECE 265	Introduction to Logic Design	4
General Education Core course		3
	Hours	**17**
Second Semester		
MATH 220	Introduction to Differential Equations	3
PHYS 260	Introduction to Thermal Physics	2
ECE 266	Introduction to Embedded Systems	4
CS 251	Data Structures	4
General Education Core course		3
	Hours	**16**
Junior Year		
First Semester		
ECE 225	Circuit Analysis	4
ECE 310	Discrete and Continuous Signals and Systems	3
ECE 341	Probability and Random Processes for Engineers	3
ECE 366	Computer Organization	3
General Education Core course		3
	Hours	**16**
Second Semester		
MATH 310	Applied Linear Algebra	3
ECE 333	Computer Communication Networks I	4
ECE 340	Electronics I	4
ECE 465	Digital Systems Design	3
General Education Core course		3
	Hours	**17**
Senior Year		
First Semester		
ECE 396	Senior Design I	2
ECE 466	Advanced Computer Architecture	3
ECE 467	Introduction to VLSI Design	4
Technical Elective		3
General Education Core course		3
	Hours	**15**

Second Semester		
ECE 397	Senior Design II	2
Technical Electives		14
ECE 499	Professional Development Seminar	0
	Hours	**16**
	Total Hours	**128**

a *ENGR 100 is one-semester-hour course, but does not count toward the total hours required for graduation.*