

Computer Engineering

Accredited by the Engineering Accreditation Commission of ABET, www.abet.org

1. University Requirements: (23-24)

Writing, Rhetoric and American Cultures (WRA)	4
Integrative Studies in Humanities (IAH)	8
IAH 201-210 and IAH 211 or >	
Integrative Studies in Social Sciences (ISS)	8
ISS 2XX and ISS 3XX	
Bioscience (one of the following):	
BS 161, ENT 205, IBIO 150, MMG 141,	
MMG 201, PLB 105, PSL 250	3-4

2. College Requirements: (32)

*CEM 141	General Chemistry	4
*CSE 231	Introduction to Programming I	4
*EGR 100	Introduction to Engineering Design	2
*MTH 132	Calculus I	3
*MTH 133	Calculus II	4
MTH 234	Multivariable Calculus	4
MTH 235	Differential Equations	3
*PHY 183	Physics for Scientists & Engineers I	4
PHY 184	Physics for Scientists & Engineers II	4

*College Admission Requirement

3. Major Requirements: (65)

a. Complete one of the following courses: (1)

CEM 161	Chemistry Laboratory I	1
PHY 191	Physics Laboratory for Scientists I	1

b. All of the following courses: (39)

CSE 232	Introduction to Programming II	4
CSE 260	Discrete Structures in Computer Sci	4
CSE 331	Algorithms and Data Structures	3
CSE 325	Computer Systems	3
ECE 201	Circuits and Systems I	3
ECE 202	Circuits and Systems II	3
ECE 203	Electronic Circuits and Systems Lab	1
ECE 230	Digital Logic Fundamentals	3
ECE 280	Electrical Engineering Analysis	3
ECE 302	Electronic Circuits	3
ECE 303	Electronics Laboratory	1
ECE 331	Microprocessors & Digital Systems	4
ECE 366	Introduction to Signal Processing	3
ECE 390	Ethics, Professionalism and Contemporary Issues	1

c. One of the following courses: (4)

ECE 480	Senior Design (W)	4
ECE 489	Independent Senior Design	4

d. Electives: (21)

Complete 21 credits of electives as specified below. Take at least 15 credits from the Focus Tracks below including at least 6 credits from the Core track and at least one course with a lab (L). Additional credits to meet the 21 credit requirement may be taken from Focus Track courses, any 400-level Computer Science and Engineering (CSE) or Electrical and Computer Engineering (ECE) courses, or by completing an approved 3 or 4 credit experiential, out-of-classroom education experience obtained through engineering cooperative education or independent study.

Focus Tracks

a. Core

At least 6 credits from the following:

CSE 335	Object-Oriented Software Design	4
CSE 420	Computer Architecture	3
ECE 430	Embedded Cyber Physical Sys (L)	4
CSE 422	Computer Networks	3
	or	
ECE 442	Intro to Communication Networks	3
CSE 425	Intro to Computer Security	3
	or	
ECE 456	Intro to Comm & Network Security	3

Both CSE 422 and ECE 442 may not be used to fulfill this requirement.

Both CSE 425 and ECE 456 may not be used to fulfill this requirement.

b. Hardware

ECE 402	App of Analog Integ Circuits (L)	4
ECE 410	VSL Design (L)	4
ECE 411	Electronic Design Automation (L)	4
ECE 431	Smart Sensor Systems (L)	3
ECE 445	Biomedical Instrumentation	3

c. Software Systems

CSE 410	Operating Systems	3
CSE 415	Parallel Programming	3
CSE 435	Software Engineering	3
CSE 450	Translation of Prog Languages	3
CSE 476	Mobile Applications Development	3

d. Intelligent Systems

ECE 446	Biomedical Signal Processing	3
ECE 466	Digital Signal Processing	3
CSE 440	Introduction to Artificial Intelligence	3

e. Electrical Systems

ECE 305	Electromagnetic Fields & Waves I	4
ECE 313	Control Systems	3
ECE 377	Principles of Electronic Devices	3
ECE 404	Radio Frequency ELEC Circuits (L)	4
ECE 417	Robotics (L)	3

Other Electives (Variable)

Total credits Required for Degree **128**

Last revised February 2019

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Sample Program

Freshman Year				Sophomore Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
Bioscience	3/4	CSE 231	4	CSE 232	4	CSE 260	4
CEM 141	4	MTH 133	4	CEM 161	1	Elective	3
EGR 100	2	PHY 183	4	ECE 201	3	ECE 202 & 203	4
MTH 132	3	ISS 2XX	4	MTH 234	4	ECE 280	3
WRA 101	4			ECE 230	3	MTH 235	3
Total	16/17	Total	16	Total	15	Total	17

Junior Year				Senior Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
ECE 331	4	CSE 325	3	Major Elective	3	Major Elective	4
ECE 302 & 303	4	CSE 331	3	Major Elective	4	ECE 480 or 489	4
Major Elective	4	Major Elective	3	Major Elective	4	Major Elective	4
IAH 201-210	4	ECE 366	3	ECE 390	1	Major Elective	4
		ISS 3XX	4	IAH 211 or higher	4		
Total	16	Total	16	Total	16	Total	16

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Program Educational Objectives

The bachelor's degree in electrical/computer engineering provides its graduates with a solid foundation on which they can build successful and sustainable careers in the ever-changing global work environment. The program prepares its graduates for a variety of career paths including engineering positions directly after program completion, entry to engineering graduate school, and entry to other professional graduate-level schools, and eventual leadership in technical, organizational, and entrepreneurial arenas.

Specifically, the electrical/computer engineering program prepares its graduates to become successful in:

- maintaining and increasing their technical and/or broad expertise through lifelong learning;
- using/applying their continual improving expertise in the practice of electrical/computer engineering or a related career; and
- sharing their expertise to the benefit of the larger community.

Last revised April 2011