

Electrical 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: (31)

*CEM 141 General Chemistry	4
*EGR 100 Introduction to Engineering Design	2
*CSE 220 Programming in C	3
*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
<i>*College Admission Requirement</i>	

3. Major Requirements: (61)

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

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

b. Complete all of the following courses: (39)

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 305 Electromagnetic Fields & Waves I	4
ECE 313 Control Systems	3
ECE 320 Energy Conversion & Pwr Electronics	3
ECE 331 Microprocessors & Digital Systems	4
ECE 366 Introduction to Signal Processing	3
ECE 390 Ethics, Professionalism and Contemporary Issues	1
ECE 480 Senior Design (W)	4

c. Select one of the following courses: (3)

CE 221 Statics	3
ME 201 Thermodynamics	3

d. Major Electives: (18)

A minimum of six courses totaling a minimum of 18 credits, of 3- or 4-credits each, selected from at least four different areas. A laboratory course ("L") must be included. Students may substitute, for one of the six required courses, a 3- or 4-credit experiential education experience obtained in a minimum of three out-of-classroom experiences through engineering cooperative education or independent study. Students interested in the experiential education experience must contact the department for approval.

Electromagnetics

ECE 405 Electromagnetic Fields and Waves II (L)	4
ECE 407 Electromagnetic Compatibility (L)	4

Power

ECE 420 Machines and Power Laboratory	1
ECE 423 Power System Analysis	3
ECE 425 Solid State Power Conversion	3

Integrated Circuits / VLSI

ECE 402 Applications of Analog Integrated Circuits (L)	4
ECE 404 Radio Frequency Electronic Circuits (L)	4
ECE 410 VLSI Design (L)	4
ECE 411 Electronic Design Automation (L)	4
ECE 412 Intro to Mixed-Signal Integrated Circuits (L)	4

Solid-State Electronics / Electro-optics

ECE 474 Principles of Electronic Devices	3
ECE 476 Electro-Optics (L)	4
ECE 477 Microelectronic Fabrication (L)	3

Communications / Signal Processing

ECE 442 Introduction to Communication Networks	3
ECE 456 Intro to Communication & Networks Security	3
ECE 457 Communication Systems	3
ECE 458 Communication Systems Laboratory	1
ECE 466 Digital Signal Processing and Filter Design	3

Control / Robotics

ECE 415 Computer Aided Manufacturing (L)	3
ECE 416 Digital Control (L)	3

Biomedical Engineering

ECE 445 Biomedical Instrumentation (L)	3
ECE 446 Biomedical Signal Processing	3
ECE 447 Intro to Biomedical Imaging	3
ECE 448 Modeling & Analys of Bioelectrical Systems	3
ECE 449 Fundamentals of Acoustics	3

Electrical Engineering Sample Program

Freshman Year				Sophomore Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
Bioscience	3/4	Elective	4	CEM 161	1	ME 201 or CE 221	3
CEM 141	4	CSE 220	3	ECE 201	3	ECE 202 & 203	4
EGR 100	2	MTH 133	4	MTH 234	4	ECE 280	3
MTH 132	3	PHY 183	4	PHY 184	4	MTH 235	3
WRA 101	4	IAH 201-210	4	ISS 2XX	4	ECE 230	3
Total	16/17	Total	19	Total	16	Total	16
Junior Year				Senior Year			
Fall	Credits	Spring	Credits	Fall	Credits	Spring	Credits
Elective	3/4	ECE 366	3	Major Elective	3/4	Elective	3/4
ECE 313	3	ECE 320	3	Major Elective	3/4	ECE 480	4
ECE 302 & 303	4	ECE 331	4	Major Elective	3/4	Major Elective	3/4
ECE 305	4	Elective	3/4	Major Elective	3/4	Major Elective	3/4
ISS 3XX	4	IAH 211 or >	4	ECE 390	1		
Total	18/19	Total	17/18	Total	13/17	Total	13/16

Last revised May 2017

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.