

B.S. in Electrical and Computer Engineering

Catalog Year 2024-25

Below is the *advised sequence* of courses for this degree program as of 10/17/2023.

Official degree requirements and course prerequisites are found in the University General Catalog; prerequisites are subject to change.

Course Number and Title	Units	Prerequisites/Enrollment Requirements
1st Semester		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
*CHEM 151 Chemical Thinking I or CHEM 161/163	4	Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/102B Introduction to Engineering or ENGR 102	3	<u>ENGR102A</u> :MATH 112 <u>ENGR102B</u> : Pre- or Co-requisite of MATH 112 or higher; First-Year Status; College of Engineering Major
UNIV 101 Intro to the General Education Experience	1	
Semester Total		16/14
2nd Semester		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
ECE 101 Programming I	4	MATH 112
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or Appropriate Math Placement Level
ENGL 102 or 108 First Year Composition	3	ENGL 101 or ENGL 107
General Education: Exploring Perspectives (Artist)	3	
Semester Total		17
3rd Semester		
ECE 274A Digital Logic	4	ECE 101, Concurrent enrollment or completion of MATH 129
ECE 201 Programming II	3	Pre – MATH 112; ECE 101 with C or higher
MATH 223 Vector Calculus	4	MATH 129 with C or better
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	<u>PHYS 241 or 261H</u> : PHYS 141 or 140 or 161H; MATH 129 or Appropriate Math Placement Level
General Education: Exploring Perspectives (Humanist)	3	
Semester Total		18
4th Semester		
ECE 220 Basic Circuits	5	MATH 129, PHYS 241
PHYS 143 Introductory Optics and Thermodynamics or PHYS 142 or PHYS 162H	2	PHYS 141 or 140 or 161H, MATH 129 or Appropriate Math Placement Level
MATH 243 Discrete Mathematics	3	MATH 122B or 125 or 129 (transfer credit ok)
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total		16

*Each of the following foundational science courses satisfies the requirements for General Education: Exploring Perspectives (Natural Scientist): CHEM 151 or 152 or 161 or 162; or PHYS 141 or 161H.

Course Number and Title	Units	Prerequisites/Enrollment Requirements
-------------------------	-------	---------------------------------------

ELECTRICAL OPTION

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
-------------------------	-------	----------

5th Semester

ECE 310 Applications of Engineering Mathematics	4	
ECE 320A Circuit Theory	3	
ECE 372A Microprocessor Organization	4	
Technical Elective	3	Consult major advisor for course approval
ECE 311 Engineering Ethics and Contemporary Issues	1	
†General Education: Building Connections	3	
Semester Total	18	

6th Semester

ECE 340A Introduction to Communications	3	
ECE 351C Electronic Circuits	4	
ECE 381A Introductory Electromagnetics (Spring Only)	4	
ECE 352 Device Electronics (Spring Only)	3	
†General Education: Building Connections	3	
Semester Total	17	

7th Semester

ENGR 498A Interdisciplinary Capstone	3	Senior Status
Engineering Electrical Course II	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
Semester Total	15	

8th Semester

ENGR 498B Interdisciplinary Capstone	3	Senior Status
Technical Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Semester Total	13	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.

COMPUTER OPTION

Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).

Course Number and Title	Units	Comments
5th Semester		
ECE 310 Applications of Engineering Mathematics	4	
ECE 369A Fundamentals of Computer Organization (Fall Only)	4	
ECE 320A Circuit Theory	3	
ECE 373 Object-Oriented Software Design (Fall Only)	3	
ECE 311 Engineering Ethics and Contemporary Issues	1	
†General Education: Building Connections	3	
Semester Total	18	
6th Semester		
Technical Elective	3	Consult major advisor for course approval
ECE 351C Electronic Circuits	4	
ECE 340A Introduction to Communications	3	
ECE 372A Microprocessor Organization	4	
†General Education: Building Connections	3	
Semester Total	17	
7th Semester		
ENGR 498A Interdisciplinary Capstone (Fall Only)	3	Senior Status
Required Computer Course	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
Semester Total	15	
8th Semester		
ENGR 498B Interdisciplinary Capstone (Spring Only)	3	Senior Status
Technical Elective	3	Consult major advisor for course approval
Technical Elective	3	Consult major advisor for course approval
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Semester Total	13	

†Students should work closely with their academic advisor to select General Education: Building Connections courses; some course work in the major, such as some Technical Elective courses, may also fulfill General Education: Building Connections requirements.