B.S. in Computer Science and 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	**3**/5	Appropriate Math Placement
*CHEM 151 Chemical Thinking I or CHEM 161/163 or **GEOS 251 Physical Geology or MCB 181R/L Intro Biology I or PHYS102/181 Intro to Physics/Lab	4	CHEM151; MCB181R/L; PHYS102: Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/102B Introduction to Engineering or ENGR 102	3	ENGR102A:MATH 112 ENGR102B: 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	**14**/16	
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
MATH 243 Discrete Mathematics	3	MATH 122B or 125 or 129 (transfer credit ok)
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	PHYS 241 or 261H: PHYS 141 or 161H; MATH 129 or Appropriate Math Placement Level
ECE 201 Programming II	3	Pre – MATH 112; ECE 101 with C or higher
General Education: Exploring Perspectives (Humanist)	3	
Semester Total	**17**	
4th Semester		
Math Elective (Math 313, Math 315, Math 322)	3	Consult Major Advisor
ECE 220 Basic Circuits	5	MATH 129, PHYS 241
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
†General Education: Building Connections	3	
Semester Total	**14**	

*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.

**Please note the following courses do not satisfy General Education requirements: GEOS251, MCB181R/L, PHYS102/181

Course Number and Title	Units	Comments
Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).		
5th Semester		
CSC 355 Discrete Structures and Basic Algorithms (for Engr)	3	
ECE 369A Fundamental of Computer Organization	4	ECE 201, ECE 274A
SIE 305 Introduction to Engineering Probability and Statistics	3	
ECE 301C Data Management	3	
†General Education: Building Connections	3	
Semester Total	**16**	
6th Semester		
ECE 302C Operating System Design	3	ECE 201 ECE 369A
ECE 311 Engineering Ethics and Contemporary Issues	1	
Upper Division Computing Electives	3	Consult major advisor for course approval
ECE 304C Theory of Computation	3	MATH 243, ECE 201
SFWE 302 Software Architecture and Design	3	
†General Education: Building Connections	3	
Semester Total	**16**	
7th Semester		
ENGR 498A Interdisciplinary Capstone	3	Senior Status
General Education: Exploring Perspectives (Social Scientist)	3	
Upper Division Elective	3	Consult Major Advisor
Upper Division Computing Electives	3	Consult major advisor for course approval
UNIV 301 General Education Portfolio	1	
Semester Total	**13**	
8th Semester		
ENGR 498B Interdisciplinary Capstone	3	Senior Status
Upper Division Elective	3	Consult Major Advisor
SFWE 402 Software DevSecOps	4	
Upper Division Computing Electives	3	Consult major advisor for course approval
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.