B.S. in Software Engineering

Catalog Year 2023–24

Below is the *advised sequence* of courses for this degree program on Main Campus as of 9/16/2022.

Official degree requirements and course prerequisites are 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	
ENGR102A/B Introduction to Engineering or ENGR 102	3	ENGR102A: MATH 112; ENGR102B: Concurrently enrolled or completion of MATH 122B or 125; FR & SOPH Status
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 higher
SFWE 101 Introduction to Software Engineering	3	MATH 112 with C or higher
ECE 175 Computer Programming for Engineering Applications	3	Concurrent Enrollment or completion of MATH122B or 125
ENGL 102 or 108 First-Year Composition	3	ENGL 101 or ENGL 107
*CHEM 152 Chemical Thinking II or CHEM 162/164 or MSE 110 Solid State Chemistry or MCB 181R/L Intro Biology I	4	For CHEM 152 and MSE 110: CHEM 151 or 141/143 or 161/163; For MCB181R/L: Appropriate Math Placement level
Semester Total	**16**	
3rd Semester		
MATH 243 Discrete Mathematics in Computer Science	3	MATH 122B or 125 or 129 (transfer credit ok)
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or Appropriate Math Placement Level
ECE 275 Computer Programming for Engineering Applications II	3	ECE 175
General Education: Exploring Perspectives (Artist)	3	
General Education: Exploring Perspectives (Humanist)	3	
Semester Total	**16**	
4th Semester		
SIE 277 Object Oriented Modeling and Design	3	ECE 175 or CSC 110
ECE 274A Digital Logic	4	ECE 175; Concurrent Enrollment or completion of MATH 129
SFWE 201 Software Engineering Sophomore Colloquium	1	SFWE 101 or ECE 175
PHYS 241 Introductory Electricity and Magnetism	4	For PHYS 241 or 261H: PHYS 141 or 140 or 161H; MATH 129 or Appropriate Math Placement Level
MATH/STAT Elective - Consult with faculty advisor	3	Appropriate Math Placement Level
Semester Total	**15**	

*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	Comments
Advanced Standing is required for 300- and 400-level engineering courses (see your academic advisor for details).		
5th Semester		
SIE 305 Introduction to Engineering Probability and Statistics	3	
SFWE 301 Software Requirements Analysis and Test (Fall Only)	3	
CSC 355 Discrete Structures and Basic Algorithms or CSC 345 Analysis of Discrete Structure	3	
CSC 252 Computer Organization or ECE 369A Fundamentals of Computer Organization (Fall Only)	3/4	
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total	**15**/16	
6th Semester		
SFWE 302 Software Design Process (Spring Only)	3	
SFWE 401 Software Assurance and Security (Spring Only)	3	
ECE 311 Engineering Ethics and Contemporary Issues	1	
SIE 464 Cost Estimation (Spring Only)	3	
Technical Elective	3	Consult with faculty advisor
†General Education: Building Connections	3	
Semester Total	**16**	
7th Semester		
SFWE 403 Software Project Management (Fall Only)	3	
ENGR 498A Cross-disciplinary Design (Fall Only)	3	Senior Status
Technical Elective	3	Consult with faculty advisor
Technical Elective	3	Consult with faculty advisor
†General Education: Building Connections	3	
Semester Total	**15**	
8th Semester		
SFWE 402 DevOps (Spring Only)	4	Consult with faculty advisor
Technical Elective	**1 - 3**	Consult faculty advisor for course approval
SFWE 491 Software Preceptor	1	
ENGR 498B Cross-disciplinary Design (Spring Only)	3	Senior Status
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Semester Total	**13**/15	

†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.