

# B.S. in Software Engineering

Catalog Year 2025-26

Below is the *advised sequence* of courses for this degree program on Main Campus as of 1/16/2025.

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
<b>1<sup>st</sup> Semester</b>		
MATH 122A/B or MATH 125 Calculus I with Applications	3/5	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 & 102B: Pre- or Co-requisite of MATH 112 or higher; First-Year Status; College of Engineering Major; must not have taken ENGR102
UNIV 101 Intro to the General Education Experience	1	
Semester Total		<b>14/16</b>
<b>2<sup>nd</sup> Semester</b>		
MATH 129 Calculus II	3	MATH 122B or 125 with C or higher
SFWE 101 Introduction to Software Engineering	3	MATH 112 or higher with C or higher
ECE 101 Programming 1	4	MATH 112, 120R, 122B or 125 or placement at the level of MATH 120R
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	CHEM 152 and MSE 110: CHEM 151 or 141/143 or 161/163; MCB 181R/L: Appropriate Math Placement level
Semester Total		<b>17</b>
<b>3<sup>rd</sup> Semester</b>		
MATH 243 Discrete Mathematics in Computer Science	3	MATH 122B, 125 or 129 (transfer credit allowed)
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B, 125 or Appropriate Math Placement Level
ECE 201 Programming 2	3	ECE 101 with C or better
General Education: Exploring Perspectives (Artist)	3	
General Education: Exploring Perspectives (Humanist)	3	
Semester Total		<b>16</b>
<b>4<sup>th</sup> Semester</b>		
SIE 277 Object-Oriented Modeling and Design	3	ECE 101 or CSC 110
ECE 274A Digital Logic	4	ECE 101; Concurrent enrollment or completion of MATH 129
SFWE 201 Software Engineering Sophomore Colloquium	1	SFWE 101 or ECE 101
PHYS 241 Introductory Electricity and Magnetism or PHYS 261H	4	PHYS 241 or 261H: PHYS 141 or 140 or 161H; MATH 129 or Appropriate Math Placement
MATH/STAT Elective - Consult with faculty advisor	3	Appropriate Math Placement
Semester Total		<b>15</b>

\*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.

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

Course Number and Title	Units	Comments
<b>5<sup>th</sup> Semester</b>		
SIE 305 Introduction to Engineering Probability and Statistics	3	
SFWE 301 Software Requirements Analysis and Test (Fall Only)	3	
SFWE 303 Data Persistence	3	
ECE 369A Fundamentals of Computer Organization (Fall Only)	4	
Semester Total	<b>13</b>	
<b>6<sup>th</sup> Semester</b>		
SFWE 302 or 405 Software Architecture and Design (Spring Only)	3	
SFWE 401 Software Assurance and Security (Spring Only)	3	
ECE 311 Engineering Ethics and Contemporary Issues	1	
CSC 355 Discrete Structures and Basic Algorithms or CSC 345 Analysis of Discrete Structure	3	
Technical Elective	3	Consult with faculty advisor
†General Education: Building Connections	3	
Semester Total	<b>16</b>	
<b>7<sup>th</sup> Semester</b>		
SFWE 403 Software Project Management (Fall Only)	3	
ENGR 498A Interdisciplinary Capstone	3	Senior Status
General Education: Exploring Perspectives (Social Scientist)	3	
Technical Elective	3	Consult with faculty advisor
†General Education: Building Connections	3	
Semester Total	<b>15</b>	
<b>8<sup>th</sup> Semester</b>		
SFWE 402 DevOps (Spring Only)	3	
Technical Elective	<b>1 - 3</b>	Consult faculty advisor for course approval
ENGR 498B Interdisciplinary Capstone	3	Senior Status
Technical Elective	3	Consult with faculty advisor
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Semester Total	<b>14/16</b>	

†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.