B.S. in Systems Engineering

Catalog Year 2026-27

Below is the *advised sequence* of courses for this degree program on Main Campus as of Jan 2026.

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	**3**/5	Appropriate Math Placement
*CHEM 151 Chemical Thinking I or CHEM 161/163 or MSE 109 Foundations of Materials Chemistry for Applications	4	Appropriate Math Placement
WRIT 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	**14**/16	
2nd Semester		
MATH 129 Calculus II	3	MATH 122B or 125 with C or higher
*CHEM 152 General Chemistry 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
ECE 101 Programming 1 or CSC 110 Intro to Computer Programming I	4	ECE 101: MATH 112, 120R, 122B or 125 or placement at the level of MATH 120R; CSC 110: MATH 112 with C or higher
WRIT 102 or 108 First-Year Composition	3	ENGL 101 or ENGL 107
*PHYS 141 Introductory Mechanics or PHYS 161H	4	MATH 122B or 125 or Appropriate Math Placement
Semester Total	**18**	
3rd Semester		
SIE 250 Introduction to Systems and Industrial Engineering	3	MATH 129
MATH 223 Vector Calculus or MATH 313 Linear Algebra	3/**4**	MATH 129 with C or higher
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
SIE 277 Object-Oriented Modeling and Design	3	ECE 101 or CSC 110
General Education: Exploring Perspectives (Humanist)	3	
Semester Total	16/**17**	
4th Semester		
SIE 265 Engineering Management I	3	MATH 122B or 125
SIE 270 Mathematical Foundations of SIE	3	ECE 101 or CSC 110; MATH 129; PHYS 141
SIE 295S Systems and Industrial Engineering Sophomore Colloquium	1	SIE 250 or SIE 265 concurrent enrollment
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or higher
Engineering Minor Course	3	
General Education: Exploring Perspectives (Artist)	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.

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		
SIE 305 Introduction to Engineering Probability and Statistics	3	
SIE 340 Deterministic Operations Research	3	
ECE 207 Elements of Electrical Engineering or ECE 220 Basic Circuits or AME 230 Thermodynamics or BE 284 Biosystems Thermal Engineering (Fall Only) or CE 214 Statics **or** CHEE 201 Elements of Chemical Engineering I (Fall Only)	**3**-5	
Engineering Minor Course	3	
Engineering Minor Course	3	
Semester Total	**15**/17	
6th Semester		
SIE 321 Probabilistic Models in Operations Research	3	
SIE 330R Engineering Experiment Design	3	
SIE 370 Embedded Computer Systems	4	
SIE 454A The Systems Engineering Process	3	
General Education: Exploring Perspectives (Social Scientist)	3	
Semester Total	**16**	
7th Semester		
ENGR 498A Interdisciplinary Capstone	3	Senior Status, Pre-requisite: SIE 454A, SIE 370; Co-requisite: SIE 330R, SIE 410A
SIE 410A Human Factors & Ergonomics in Design or SIE 411 Human Machine Interaction	3	
SIE 431 Simulation Modeling and Analysis	3	
Engineering Minor Course	3	
**Technical Writing: CE 301 or ENGL 306 or 307 or 308 or SIE 415	3	Consult major advisor for course approval
†General Education: Building Connections	3	
Semester Total	**18**	
8th Semester		
ENGR 498B Interdisciplinary Capstone	3	Senior Status
Engineering Minor Course	3	
Engineering Minor Course	3	
†General Education: Building Connections	3	
UNIV 301 General Education Portfolio	1	
Free Elective	**1**-2	Dependent on selection of General Education course, consult major advisor for course approval
Semester Total	**14**/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.

**CE 301 or ENGL 307 or 308 (UWGEC Approved) will fulfill GE Building Connections if taken as a technical writing course.