

B.S. in Industrial Engineering

Catalog Year 2025-26

Below is the *advised sequence* of courses for this degree program on Main Campus as of 1/15/2025.

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
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 or MSE 109 Foundations of Materials Chemistry for Applications	4	Appropriate Math Placement
ENGL 101 or 107 or 109H First-Year Composition	3	
ENGR 102A/B Introduction to Engineering or ENGR 102	3	<u>ENGR102A & 102B</u> : 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 better
*CHEM 152 Chemical Thinking II or CHEM 162/164 or MSE 110 Solid State Chemistry or MCB 181R/L Intro Biology I	4	<u>CHEM 152 and MSE 110</u> : CHEM 151 or 141/143 or 161/163. <u>MCB181R/L</u> : Appropriate Math Placement Level
ECE 101 Programming 1 or CSC 110 Intro to Computer Programming I	4	<u>ECE 101</u> : MATH 112, 120R, 122B, or 125 or placement at the level of MATH 120R; <u>CSC 110</u> : MATH 112 with C or higher
ENGL 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 Level
Semester Total		18
3rd Semester		
SIE 250 Introduction to Systems and Industrial Engineering	3	MATH 129
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
SIE 277 Object-Oriented Modeling and Design	3	ECE 175 or CSC 110
General Education: Exploring Perspectives (Humanist)	3	
Semester Total		17
4th Semester		
SIE 265 Engineering Management I	3	MATH 122B or 125
SIE 270 Mathematical Foundations of SIE	3	ECE 175 or CSC 110; MATH 129; PHYS 141
SIE 295S Systems and Industrial Engineering Sophomore Colloquium	1	SIE 250 or SIE 265 concurrently enrolled
<u>ECE 207</u> Elements of Electrical Engineering or <u>ECE 220</u> Basic Circuits or <u>AME 230</u> Thermodynamics or <u>BE 284</u> Biosystems Thermal Engineering (Fall Only) or <u>CE 214</u> Statics or <u>CHEE 201</u> Elements of Chemical Engineering I (Fall Only)	3	<u>ECE 207</u> : PHYS 241; <u>ECE 220</u> : PHYS 129, MATH 129; <u>AME 230</u> : PHYS 141; <u>CE 214</u> : PHYS 141, MATH 129; <u>CHEE 201</u> : MATH 122B, 129, CHEM 152 (MATH 129, CHEM 152 pre- or co-req); <u>BE 284</u> : MATH 129, PHYS 141
General Education: Exploring Perspectives (Artist)	3	
†General Education: Building Connections	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
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5th Semester

SIE 305 Introduction to Engineering Probability and Statistics	3	
SIE 340 Deterministic Operations Research	3	
Technical Elective	3	Consult major advisor for course approval
SIE 377 Software for Engineers	3	
SIE 410A Human Factors & Ergonomics in Design or SIE 411 Human Machine Interactions	3	
Semester Total	15	

6th Semester

SIE 321 Probabilistic Models in Operations Research	3	
SIE 383 Integrated Manufacturing Systems	3	
SIE 370 Embedded Computer Systems	4	
SIE 330R Engineering Experiment Design	3	
Technical Elective	3	Consult major advisor for course approval
Semester Total	16	

7th Semester

SIE 431 Simulation Modeling and Analysis	3	
ENGR 498A Interdisciplinary Capstone	3	Senior Status, Pre-requisite: SIE 383, SIE 370; co-requisite: SIE 410A, SIE 330R
Technical Elective	3	Consult major advisor for course approval
**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	15	

8th Semester

ENGR 498B Interdisciplinary Capstone	3	Senior Status
SIE 462 Production Systems Analysis	3	
Technical Elective	3	Consult major advisor for course approval
Social Science Requirement	3	
General Education: Exploring Perspectives (Social Scientist)	3	
UNIV 301 General Education Portfolio	1	
Free Elective	0-1	Depends on selection of General Education course and programming requirement; Consult major advisor for course approval
Semester Total	16/17	

†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) will fulfill GE Building Connections if taken as a technical writing course.