B.S. in Industrial Engineering

Catalog Year 2024-25

Below is the *advised sequence* of courses for this degree program on Main Campus as of 10/16/2023.

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	
ENGR 102A/B 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	16/**14**	
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	CHEM 152 and MSE 110: CHEM 151 or 141/143 or 161/163. MCB181R/L: Appropriate Math Placement Level
ECE 101 Programming I or ECE 175 Computer Programming for Engr Applications or CSC 110 Intro to Computer Programming I	**3**/4	ECE 101: Math 112; ECE175: Concurrent Enrollment or completion of MATH 122B or 125; CSC110: MATH 112 with C or better
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	**17**/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	PHYS 241 or 261H: 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
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	ECE 207: PHYS 241; ECE 220: PHYS 241, MATH 129; AME 230: PHYS 141; CE 214: PHYS 141, MATH 129; CHEE 201: MATH 122B, 129, CHEM 152 (MATH 129 & CHEM 152 pre-or co-req); BE 284: 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**
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, Prerequisite: SIE 383, SIE 370, Corequisite: 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	2	Depends on selection of General Education course, Consult major advisor for course approval
Semester Total	**18**	

†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.