B.S. IN SYSTEMS ENGINEERING
CATALOG YEAR 2021-2022

Below is the *advised sequence* of courses for this degree program and prerequisites as of 12/18/20.
The official degree requirements and prerequisites found in the University General Catalog and the prerequisites are subject to change.

COURSE NUMBER AND TITLE	UNITS	PREREQUISITES
1ST SEMESTER		
MATH 122A/B or MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
CHEM 151 General Chemistry 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
Tier I General Education	3	
Semester Total	18/16	
2ND SEMESTER		
MATH 129 Calculus II	3	MATH 122B or 125 with C or better
CHEM 152 General Chemistry 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 161/163; For MCB 181R/L: Appropriate Math Placement level
ECE 175 Computer Programming for Engineering Applications or CSC 110 Intro to Computer Programming I	3/4	For ECE 175: Concurrent Enrollment or completion of MATH122B or 125 or For 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	
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	For PHYS 241 or 261H: PHYS 141 or 161H; MATH 129 or Appropriate Math Placement Level
SIE 277 Object-Oriented Modeling and Design	3	ECE 175 or CSC 110
Tier I General Education	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
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 or 223 with C or better
Engineering Minor Course	3	
Tier I General Education	3	
Semester Total	16	

COURSE NUMBER AND TITLE	UNITS	
CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG		
ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)		
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	
Engineering Minor Course	3	
Engineering Minor Course	3	
Semester Total	**15**	
6TH SEMESTER		
SIE 321 Probabilistic Models in Operations Research	3	
SIE 330R Engineering Experiment Design	3	
SIE 370 Embedded Computer Systems	4	
Engineering Minor Course	3	
Tier I General Education	3	
Semester Total	**16**	
7TH SEMESTER		
ENGR 498A Cross-disciplinary Design (Fall Only) – Senior Status	3	
SIE 410A Human Factors & Ergonomics in Design or SIE 411 Human Machine Interaction	3	
SIE 431 Simulation Modeling and Analysis	3	
SIE 454A The Systems Engineering Process	3	
Technical Writing – See major advisor for course approval	3	
Semester Total	**15**	
8TH SEMESTER		
ENGR 498B Cross-disciplinary Design (Spring Only) – Senior Status	3	
Engineering Minor Course	3	
Engineering Minor Course	3	
Tier II General Education	3	
Tier II General Education	3	
Free Elective-See major advisor for course approval	1	
Semester Total	**16**	

*Tier I and II General Education Courses must meet University general education requirements. One course must be recognized by the university as meeting the Diversity Requirement.