

# B.S. IN SYSTEMS ENGINEERING

## CATALOG YEAR 2015-2016

Below is the *advised sequence* of courses for this degree program and prerequisites as of 4/30/15. The official degree requirements and prerequisites can be found in the University General Catalog and the prerequisites are subject to change.

COURSE NUMBER AND TITLE	UNITS	PREREQUISITES
<b>1<sup>ST</sup> SEMESTER</b>		
MATH 122A/B <b>OR</b> MATH 125 Calculus I with Applications	5/3	Appropriate Math Placement
CHEM 151 General Chemistry I <b>OR</b> CHEM 105A/106A	4	
ENGL 101 <b>OR</b> 107 <b>OR</b> 109H First-Year Composition	3	
ENGR102A/B Introduction to Engineering <b>OR</b> ENGR 102	3	Concurrent Enrollment or completion of MATH 122B or MATH 125
Tier I General Education	3	
<b>2<sup>ND</sup> SEMESTER</b>		
MATH 129 Calculus II	3	MATH 122B or MATH 125
CHEM 152 General Chemistry II <b>OR</b> CHEM 105B/106B <b>OR</b> MSE 110 Solid State Chemistry <b>OR</b> MCB 181R/L Intro Biology I	4	For CHEM 152: CHEM 151 or CHEM 105A. For MSE 110: CHEM 151 or CHEM 105A;
ECE 175 Computer Programming for Engineering Applications <b>OR</b> CSC 127A Introduction to Computer Science	3/4	For ECE 175: MATH122B or 125 or Concurrently enrolled
ENGL 102 <b>OR</b> 108 <b>OR</b> 109H First-Year Composition	3	ENGL 101, ENGL 107
PHYS 141 Introductory Mechanics <b>OR</b> PHYS 161H	4	MATH 122B or MATH 125; Concurrent enrollment in MATH 129
<b>3<sup>RD</sup> SEMESTER</b>		
SIE 250 Introduction to Systems and Industrial Engineering	3	ENGR102 A/B or ENGR 102 and MATH 129
MATH 223 Vector Calculus	4	MATH 129 with C or higher
PHYS 241 Introductory Electricity and Magnetism <b>OR</b> PHYS 261H	4	PHYS 141 or PHYS 161H; MATH 129
SIE 277 Object-Oriented Modeling and Design	3	ECE 175 or CSC 127A
Tier I General Education	3	
<b>4<sup>TH</sup> SEMESTER</b>		
SIE 265 Engineering Management I	3	ENGR102 A/B or ENGR 102 and MATH 122B or 125
SIE 270 Mathematical Foundations of SIE	3	ECE 175 or CSC 127A; MATH 129; PHYS 141
SIE 295S Systems and Industrial Engineering Sophomore Colloquium	1	
MATH 254 Intro to Ordinary Differential Equations	3	MATH 129 with C or higher
Technical Elective (Lower Div.) - See major advisor for course approval	3	
Tier I General Education	3	

COURSE NUMBER AND TITLE	UNITS
<b>CURRENT PREREQUISITES FOR UPPER DIVISION COURSES CAN BE FOUND IN THE UA GENERAL CATALOG</b>	
<b>ADVANCED STANDING IS REQUIRED FOR 3XX AND 4XX COURSES (SEE ADVISOR FOR REQUIREMENTS)</b>	
<b>5<sup>TH</sup> SEMESTER</b>	
SIE 305 Introduction to Engineering Probability and Statistics	3
SIE 340 Deterministic Operations Research	3
ECE 207 Elements of Electrical Engineering <b>OR</b> ECE 220 Basic Circuits <b>OR</b> AME 230 Thermodynamics <b>OR</b> CE 214 Statics <b>OR</b> CHEE 201 Elements of Chemical Engineering I	3
Technical Elective – See major advisor for course approval	3
Technical Elective - See major advisor for course approval	3
<b>6<sup>TH</sup> SEMESTER</b>	
SIE 321 Probabilistic Models in Operations Research	3
SIE 330R Engineering Experiment Design	3
SIE 370 Embedded Computer Systems	4
Technical Elective - See major advisor for course approval	3
Tier I General Education	3
<b>7<sup>TH</sup> SEMESTER</b>	
ENGR 498A Cross-disciplinary Design	3
SIE 410A Human Factors & Ergonomics in Design	3
SIE 431 Simulation Modeling and Analysis	3
SIE 454A The Systems Engineering Process	3
ENGL 308 Technical Writing	3
<b>8<sup>TH</sup> SEMESTER</b>	
ENGR 498B Cross-disciplinary Design	3
Technical Elective-See major advisor for course approval	3
Technical Elective-See major advisor for course approval	3
Tier II General Education	3
Tier II General Education	3
Free Elective-See major advisor for course approval	1

\*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.