

PRE-BIOLOGICAL SYSTEMS ENGINEERING

Biological Systems Engineering (BSEN) brings engineering to life by working with living systems and applying engineering, biology, and mathematics to improve lives and our world. Biological systems engineers are trained to solve problems in biomedical engineering, environmental and water resources engineering, and food and bioprocess engineering. Students who choose pre-biological systems engineering on the Scott Campus in Omaha, should be aware that there are three courses in the first two years (BSEN 100, BSEN 112, BSEN 225; nine total credit hours) for which there are no equivalents on the Scott Campus. However, substitutions for BSEN 100 may be available on a case by case basis.

Requirements

Course	Title	Credits
First Year		
First Semester		
MATH 1950	CALCULUS I	5
CHEM 1180	GENERAL CHEMISTRY I	3
CHEM 1184	GENERAL CHEMISTRY I LABORATORY	1
ENGR 100	INTERPERSONAL SKILLS FOR ENGINEERING LEADERS	3
ENGR 10	FRESHMAN ENGINEERING SEMINAR	0
CSCI 2240	INTRODUCTION TO C PROGRAMMING	3
Credits		15
Second Semester		
MATH 1960	CALCULUS II	4
CHEM 1190	GENERAL CHEMISTRY II	3
CHEM 1194	GENERAL CHEMISTRY II LABORATORY	1
PHYS 2110	GENERAL PHYSICS I - CALCULUS LEVEL	4
ACE Elective ¹		3
Credits		15
Second Year		
First Semester		
MATH 1970	CALCULUS III	4
BIOL 1450	BIOLOGY I ²	5
CHEM 2210	FUNDAMENTALS OF ORGANIC CHEMISTRY ³	4
CHEM 2214	FUNDAMENTALS OF ORGANIC CHEMISTRY LABORATORY	1
MECH 223	ENGINEERING STATICS	3
ENGR 20	SOPHOMORE ENGINEERING SEMINAR	0
Credits		17
Second Semester		
MATH 2350	DIFFERENTIAL EQUATIONS	3
MECH 373	ENGINEERING DYNAMICS	3
PHYS 2120	GENERAL PHYSICS-CALCULUS LEVEL	4
MECH 200	ENGINEERING THERMODYNAMICS	3
CONE 206	ENGINEERING ECONOMICS	3
Credits		16
Total Credits		63

Other courses that can be used to meet BSEN requirements:

Code	Title	Credits
CIVE 310	FLUID MECHANICS	3
MECH 200	ENGINEERING THERMODYNAMICS	3
STAT 3800	APPLIED ENGINEERING PROBABILITY AND STATISTICS	3
CHEM 3650	FUNDAMENTALS OF BIOCHEMISTRY	3
CHEM 3654	FUNDAMENTALS OF BIOCHEMISTRY LABORATORY	1

¹ ACE electives: Selected from ACE elective (SLO 5 through 9) list.

² BIOL 1450: Four of the five hours can be used in BSEN.

³ CHEM 2210: Three of the four hours can be used in BSEN.