

**BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM**  
**FOOD ENGINEERING OPTION**

A total of 128 credits required for graduation  
(2020-2021 Catalog)

**I. Communications (10 credits)**

3 cr.	ENGL 150 (FSSS)	Critical Thinking and Communication
3 cr.	ENGL 250 (FSSS)	Written, Oral, Visual, and Electronic Composition
3 cr.	Comm. Elective	Select one of the courses below:
	<i>ENGL 309 (FS)</i>	<i>Report and Proposal Writing</i>
	<i>ENGL 314 (FSSS)</i>	<i>Technical Communication</i>
	<i>MKT 450 (FS)</i>	<i>Advanced Professional Selling</i>
	<i>SP CM 212 (FSSS)</i>	<i>Fundamentals of Public Speaking</i>
	<i>AG EDS 311 (FS)</i>	<i>Presentation and Sales Strategies for Ag Audiences</i>
1 cr.	LIB 160 (FSSS)	Information Literacy

**II. Mathematical Sciences (15 credits)**

4 cr.	MATH 165 (FSSS)	Calculus I
4 cr.	MATH 166 (FSSS)	Calculus II
4 cr.	MATH 267 (FSSS)	Elementary Differential Equations and Laplace Transforms
3 cr.	STAT 305 (FSSS)	Engineering Statistics

**III. Biological, Chemical and Physical Science Common Core (25 credits)**

3 cr.	BIOL 212 (FSSS)	Principles of Biology II
4 cr.	CHEM 167 (FS)	General Chemistry for Engineering Students
	or CHEM 177 <u>and</u> 178 (FS)	General Chemistry I and II
1 cr.	CHEM 167L (FS)	Laboratory in General Chemistry for Engineers
	or CHEM 177L (FS)	Laboratory in General Chemistry I
8 cr.	Recommendations for Chemistry Sequence I and II with labs	
	<b>Food Engineering Option</b>	
	Chem. Seq I w/Lab (4 cr.)	
	<i>CHEM 231 (3 cr.) +</i>	<i>Elementary Organic Chemistry +</i>
	<i>231L (1 cr.) (FSSS)</i>	<i>Elementary Organic Chemistry Lab</i>
	Chem Seq. II w/ Lab (4 cr.)	
	<i>FS HN 311 (3 cr.)+</i>	<i>Food Chemistry +</i>
	<i>311L (1cr.) (F)</i>	<i>Food Chemistry Lab (preferred for Food Engineering option)</i>
	<b>Bioenvironmental and Biorenewable Resources Engineering Option</b>	
	Chem Seq I w/Lab (4 cr.)	
	<i>CHEM 231 (2 cr.) +</i>	<i>Elementary Organic Chemistry +</i>
	<i>231L (2 cr.) (FSSS)</i>	<i>Elementary Organic Chemistry Lab</i>
	Chem Seq II w/ Lab (4 cr.)	
	<i>CHEM 211 (2 cr.) +</i>	<i>Quantitative &amp; Environmental Analysis +</i>
	<i>211L (2 cr.) (FS)</i>	<i>Quantitative &amp; Environmental Analysis Lab</i>
	<b>Open Option</b>	
	Chem Seq I w/Lab (4 cr.)	
	<i>CHEM 331 (3 cr.)+</i>	<i>Organic Chemistry I +</i>
	<i>331L (1 cr.) (FSSS)</i>	<i>Organic Chemistry I Lab</i>
	Chem Seq II w/ Lab (4 cr.)	
	<i>CHEM 332 (3 cr.) +</i>	<i>Organic Chemistry II +</i>
	<i>332L (1 cr.) (FSSS)</i>	<i>Organic Chemistry II Lab</i>
3 cr.	MICRO 302 (FS)	Biology of Microorganisms
1 cr.	MICRO 302L (FS)	Microbiology Laboratory

5 cr.            PHYS 221 (FSSS)            Introduction to Classical Physics I

**IV. Social Sciences and Humanities (12 credits)**

3 cr.            U. S. Diversity Course  
3 cr.            International Perspective Course  
6 cr.            Social Science and Humanities Electives (Select from departmental-approved list).

**V. Engineering Core (27 credits)**

R cr.            ENGR 101 (FS)            Engineering Orientation  
1 cr.            A B E 110 (S)            Experiencing Biological Systems Engineering  
3 cr.            A B E 160 (FS)            Engineering Problems with Computer Applications Laboratory  
3 cr.            A B E 170 (FS)            Engineering Graphics and Introductory Design  
3 cr.            C E 274 (FSSS)            Statics of Engineering  
3 cr.            E M 324 (FSSS)            Mechanics of Materials  
1 cr.            E M 327 (FSSS)            Mechanics of Materials Laboratory  
3 cr.            E M 378 (FSSS)            Mechanics of Fluids  
3 cr.            I E 305 (FSSS)            Engineering Economic Analysis  
3 cr.            M E 231 (FSSS)            Engineering Thermodynamics I  
4 cr.            M E 436 (FSSS)            Heat Transfer

**VI. Biological Systems Engineering Core (30 credits)**

1 cr.            A B E 201 (FS)            Preparing for Workplace Seminar  
3 cr.            A B E 216 (F)            Fundamentals of Agricultural and Biosystems Engineering  
2 cr.            A B E 218 (S)            Project Management & Design in Agricultural and Biosystems Engr  
1 cr.            A B E 273 (FS)            CAD for Process Facilities and Land Use Planning  
3 cr.            A B E 316 (FS)            Applied Numerical Methods for Agricultural and Biosystems Engr  
4 cr.            A B E 363 (FS)            Agri-Industrial Applications of Electric Power and Electronics  
3 cr.            A B E 380 (S)            Principles of Biological Systems Engineering  
3 cr.            A B E 404 (F)            Instrumentation for Agricultural and Biosystems Engineering  
2 cr.            A B E 415 (FS)            Agricultural and Biosystems Engineering Design I  
2 cr.            A B E 416 (FS)            Agricultural and Biosystems Engineering Design II  
3 cr.            A B E 451 (S)            Food and Bioprocess Engineering  
3 cr.            A B E 480 (F)            Engineering Analysis of Biological Systems

**VII. Food Engineering Option (9 credits)**

3 cr.            A B E 469 (S)            Grain Processing and Handling  
3 cr.            FS HN 420 (F)            Food Microbiology  
3 cr.            Food Elective            Select one of the courses below  
                  *FS HN 471 (F)*            *Food Processing I*  
                  *SCM 301*                *Supply Chain Management*

*\*Please check the current catalog and Schedule of Classes for most recent offerings*