

BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM

OPEN OPTION

A total of 128 credits required for graduation
(2023-2024 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>Proposal and Report 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>SP CM 312 (FS)</i>	<i>Business and Professional Speaking</i>
	<i>AG EDS 311 (FS)</i>	<i>Presentation and Sales Strategies for Ag Audiences</i>
1 cr.	LIB 160 (FSSS)	Introduction to College Level Research

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 Core (25 credits)

3 cr.	BIOL 212 (FS)	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
3 cr.	CHEM 331 (FSSS)	Organic Chemistry I
1 cr.	CHEM 331L (FSSS)	Organic Chemistry I Lab
3 cr.	CHEM 332 (FSSS)	Organic Chemistry II
1 cr.	CHEM 332L (FSSS)	Organic Chemistry II Lab
3 cr.	MICRO 302 (FSSS)	Biology of Microorganisms
1 cr.	MICRO 302L (FS)	Microbiology Laboratory
4 cr.	PHYS 231 (FSSS)	Introduction to Classical Physics I
1 cr.	PHYS 231L (FS)	Introduction to Classical Physics I Lab

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 Agricultural and Biosystems Engineering
3 cr.	A B E 160 (S)	Engineering Problems with Computer Programming
3 cr.	A B E 170 (FS)	Engineering Graphics and Introductory Design
3 cr.	A B E 378 (FS)	Mechanics of Fluids
3 cr.	C E 274 (FSSS)	Statics of Engineering
3 cr.	E M 324 (FSSS)	Mechanics of Materials
3 cr.	I E 305 (FSSS)	Engineering Economic Analysis
1 cr.	Lab Elective	Select one of the courses below:
	<i>ABE 378L (FS)</i>	<i>Mechanics of Fluids Laboratory</i>
	<i>E M 327 (FS)</i>	<i>Mechanics of Materials Laboratory</i>
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. Open Option (9 credits)

The open option is appropriate for students not wishing to specialize in one of the two core options associated with the BSE major. This option is also appropriate for students who are considering professions outside of engineering such as law, medicine, management, or other agricultural- or biological-related disciplines. Students can take any 9 credits in 200 or above level courses. Please see a BSE adviser for potential course sequence options.

Sequence I, II & III. Select 9 credits of 200 level or above (a few examples are listed below). See your advisor to develop a specific course sequence for your program

9 cr.	Agron 281, 317 & 338	Agronomy & Seed Sequence
9 cr.	BBMB 404, 405, & 411	Biochemistry Sequence
9 cr.	COM S 207, BCBIO 401 & 402	Bioinformatics Sequence
8-11 cr.	ABE 511, HSHN 276 & 509, ME 373	Fermentation Sequence
9 cr.	Gen 313 + 313L, 320 & 322	Genetics Sequence
9 cr.	A B E 388, AGRON 342, ME 484	Globalization Sequence
9 cr.	MGMT 310, 313, 414 or 419	Management Sequence
8 cr.	ANS 270, 360 & 460	Meat Science & Processing Sequence
9 cr.	ANS 324, TSM 455 & 457	Petfood & Feed Processing Sequence
9 cr.	POL S 215, 319, & 320	Political Science Sequence
9 cr.	JL MC 201, 202 & 347	Science Writing Sequence

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