

# BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM

## FOOD AND BIOPROCESS ENGINEERING 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 and 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             |
| 1 cr. | 231L (1 cr.) (FSSS)      | Elementary Organic Chemistry Lab              |
| 3 cr. | FS HN 311 (3 cr.)        | Food Chemistry                                |
| 1 cr. | FS HN 311L (F)           | Food Chemistry 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>preferred</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 (27 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 480 (F)	Engineering Analysis of Biological Systems

**VII. Food and Bioprocess Engineering Option (12 credits)**

3 cr.	A B E 450X (F)	Emerging Technologies in Biomanufacturing
3 cr.	A B E 451 (S)	Food and Bioprocess Engineering
3 cr.	A B E 469 (S)	Engineering for Grain Storage, Preservation, Handling, & Processing Systems
3 cr.	Option Electives	
	<i>FS HN 420 (F)</i>	<i>Food Microbiology</i>
	<i>A B E 325 (F)</i>	<i>Biorenewable Systems</i>
	<i>SCM 301 (FS)</i>	<i>Supply Chain Management</i>
	<i>FS HN 471 (F)</i>	<i>Food Processing</i>
	<i>M E 373</i>	<i>Science and Practice of Brewing</i>

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