

**BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM**

**FOOD ENGINEERING OPTION**

A total of 128 credits required for graduation

(2016-2017 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:
   ENGL 309 (FS) Report and Proposal Writing
   ENGL 314 (FSSS) Technical Communication
   MKT 343 (FS) Personal Sales
   SP CM 212 (FSSS) Fundamentals of Public Speaking
   AGEDS 311 (FS) Presentation and Sales Strategies for Ag Audiences
   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 and Physical Science Common Core** (22 credits)
   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
   5 cr. PHYS 221 (FSSS) Introduction to Classical Physics I
   5 cr. PHYS 222 (FSSS) Introduction to Classical Physics II
   3 cr. BIOL 212 (FSSS) Principles of Biology II
   3 cr. MICRO 302 (FSSS) Biology of Microorganisms
   1 cr. MICRO 302L (FSSS) Microbiology Laboratory

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** (23 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. E M 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. M E 231 (FSSS) Engineering Thermodynamics I
   6 cr Heat/Mass Transport Seq. Select one of the sequences below:
   E M 378 & M E 436 Mechanics of Fluids & Heat Transfer
   C H E 356 & C H E 357 Transport Phenomena I & II
VI. **Biological Systems Engineering Core** (26 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 Engineering
3 cr. A B E 316 (FS) Applied Numerical Methods for Agricultural and Biosystems Engineering
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 Engineering Option** (20 credits)
3 cr. Chem 231 (FSSS) Elementary Organic Chemistry
1 cr. Chem 231L (FSSS) Elementary Organic Chemistry Laboratory
3 cr. FSHN 311 (F) Food Chemistry
1 cr. FSHN 311L (F) Food Chemistry Laboratory
3 cr. A B E 451 (F) Food and Bioprocess Engineering
3 cr. A B E 469 (S) Grain Processing and Handling
3 cr. FSHN 420 (F) Food Microbiology
3 cr. FSHN 471 (F) Food Processing I

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