BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
FOOD ENGINEERING OPTION
A total of 128 credits required for graduation
(2021-2022 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 450 (FS) Advanced Professional Selling
    SP CM 212 (FSSS) Fundamentals of Public Speaking
    AG EDS 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, 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 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
8 cr. Recommendations for Chemistry Sequence I and II with labs
    Food Engineering Option
    Chem. Seq I w/Lab (4 cr.)
      CHEM 231 (3 cr.) + Elementary Organic Chemistry +
      231L (1 cr.) (FSSS) Elementary Organic Chemistry Lab
    Chem Seq. II w/ Lab (4 cr.)
      FS HN 311 (3 cr.) + Food Chemistry +
      311L (1 cr.) (F) Food Chemistry Lab (preferred for Food Engineering option)
    Bioenvironmental and Biorenewable Resources Engineering Option
    Chem Seq I w/Lab (4 cr.)
      CHEM 231 (2 cr.) + Elementary Organic Chemistry +
      231L (2 cr.) (FSSS) Elementary Organic Chemistry Lab
    Chem Seq II w/ Lab (4 cr.)
      CHEM 211 (2 cr.) + Quantitative & Environmental Analysis +
      211L (2 cr.) (FS) Quantitative & Environmental Analysis Lab
    Open Option
    Chem Seq I w/Lab (4 cr.)
      CHEM 331 (3 cr.) + Organic Chemistry I +
      331L (1 cr.) (FSSS) Organic Chemistry I Lab
    Chem Seq II w/ Lab (4 cr.)
      CHEM 332 (3 cr.) + Organic Chemistry II +
      332L (1 cr.) (FSSS) Organic Chemistry II Lab
3 cr. MICRO 302 (FS) Biology of Microorganisms
1 cr. MICRO 302L (FS) Microbiology Laboratory
4 cr. PHYS 231 (FSSS) Introduction to Classical Physics I
1 cr. PHYS 231L (FSSS) 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 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. 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
- 1 cr. E M 327 (FSSS) Mechanics of Materials Laboratory
- 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 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*