BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
BIOENVIRONMENTAL 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. Elect.  Select one of the courses below:
       ENGL 309 (FS)  Report and Proposal Writing
       ENGL 314 (FS)  Technical Communication
       MKT 343 (FS)  Personal Sales
       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 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 (FS)  Principles of Biology II
   3 cr. MICRO 302 (FS)  Biology of Microorganisms
   1 cr. MICRO 302L (FS)  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 (FS)  Engineering Thermodynamics I
   3 cr. E M 378 (FSSS)  Mechanics of Fluids
   3 cr. C E 372 (FS)  Engineering Hydrology & Hydraulics
VI. Biological Systems Engineering Core (26 credits)
1 cr. A B E 201 (FS) Entrepreneurship Seminar
3 cr. A B E 216 (F) Fundamentals of Agricultural and Biological Engineering
2 cr. A B E 218 (S) Project Management and Design in Agriculture and Biosystems Engr.
3 cr. A B E 316 (FS) Computer Applications and Systems Modeling
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 Biological Engineering
2 cr. A B E 415 (FS) Biological Systems Engineering Design I
2 cr. A B E 416 (FS) Biological Systems Engineering Design II
3 cr. A B E 480 (F) Engineering Analysis of Biological Systems

VII. Bioenvironmental Engineering Option (20 credits)
3 cr. CHEM 231 (FSSS) Elementary Organic Chemistry
1 cr. CHEM 231L (FS) Laboratory in Elementary Organic Chemistry
2 cr. CHEM 211 (FS) Quantitative and Environmental Analysis
2 cr. CHEM 211 L (FS) Quantitative and Environmental Analysis Laboratory
3 cr. C E 326 (FS) Principles of Environmental Engineering
3 cr. A B E 431 (F) Design and Evaluation of Soil and Water Conservation Systems

Bioenvironmental Elective I.: Tools of Modern Practice
Select 3 credits from the following:
1 cr. A B E 273 CAD for Process Facilities and Land Use Planning
3 cr. A B E 537 (odd F) Total Maximum Daily Load (TMDL) Development and Implementation
3 cr. C R P 451 (FSSS) Introduction to Geographic Information Systems
1-6 cr. ENSCI 370X (F) GIS for Ecology and Environmental Science
4 cr. ENSCI 461I (SS) Introduction to GIS
3 cr. GEOL 452 (F) GIS for Geoscientists
3 cr. NREM 345 (F) Natural Resource Photogrammetry and Geographic Information Systems
3 cr. NREM 446 (S) Integrating GPA and GIS for Natural Resource Management
3 cr. NREM 489X Survey of Remote Sensing Technologies

Bioenvironmental Elective II.: Nonpoint Source Pollution and Water Quality
Select 3 credits from the following:
3 cr. A B E 432 Nonpoint Source Pollution and Control
3 cr. A B E 436 (Even S) Design and Evaluation of Soil and Water Monitoring Systems
3 cr. NREM 466 (Alt. S) Ecosystem Service Management
3 cr. A ECL 418 (Alt. F) Stream Ecology

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