BIOLOGICAL SYSTEMS ENGINEERING CURRICULUM
BIOENVIRONMENTAL ENGINEERING OPTION

A total of 128 credits required for graduation
(2014-2015 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
6 cr.	*Mass Transport Seq.*	*Select one sequences below:*
	CH E 356/357 (FS)	Transport Phenomena I and II
	E M 378/C E 372	Mechanics of Fluids/Eng. Hydrology and 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 (F)	Computer Applications and Systems Modeling
4 cr.	A B E 363 (F)	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 (FSSS)	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. *Select 3 credits from the following:*

3 cr.	A B E 436 (Alt. S)	Design and Evaluation of Soil and Water Monitoring Systems
3 cr.	C E 521 (F)	Environmental Biotechnology
3 cr.	C E 428 (S)	Water and Wastewater Treatment Plant Design
4 cr.	ENSCI 381 (F)	Environmental Systems I: Introduction to Environmental Systems

Bioenvironmental Elective II. *Select 3 credits from the following:*

4 cr.	BIOL 312 (FSS)	Ecology
3 cr.	TSM 310 (S)	Total Quality Improvement
3 cr.	A B E 388 (F)	Sustainable Engineering and International Development
3 cr.	CH E 406 (F)	Environmental Chemodynamics
3 cr.	AGRON 405 (Alt. S)	Environmental Biophysics
3 cr	A E 432	Nonpoint Source Pollution and Control
3 cr	A E 537 (odd FL)	Total Maximum Daily Load (TMDL) Dev. & Implementation
1cr/ module	A E 424	Air Pollution (5 modules)
1 cr	A B E 273	CAD for Process Facilities and Land Use Planning

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