BIOSYSTEMS ENGINEERING (BE)

2013-2014 Curriculum

FRESHMAN YEAR (Gen. Engr.)			
___ ENGR 1020 Intro. to Engineering	2(1,3)	___ CH 1020 General Chemistry	4(3,3)
___ CH 1010 General Chemistry	4(3,3)	___ ENGR 1410 Programming and Problem Solving	3(1,3)
___ MTHS 1060 Calculus of One Variable I	4(4,0)	___ MTHS 1080 Calculus of One Variable II	4(4,0)
___ ENGL 1030 Composition I or AP Test	3(3,0)	___ PHYS 1220 Physics w/Calculus I	3(3,0)
___ Hum/SS Req.[1] _____	3	___ Hum/SS Req.[1] _____	3
	16		17
SOPHOMORE YEAR			
___ BE 2120 Fundamentals of BE	2(1,3)	___ BE 2100 Introduction to Biosystems Engr.	2(1,3)
___ CE 2010 Statics[2]	3(3,0)	___ CE 2080 Dynamics[2]	2(2,0)
___ MTHS 2060 Calculus of Several Variables	4(4,0)	___ ENGR 2100 Engineering Graphics	2(1,3)
___ PHYS 2210 Physics w/Calculus II	3(3,0)	___ ME 3100 Thermodynamics or CH E 220	3(3,0)
___ Biology Requirement[3] _____	4(3,3)	___ MICR 3050 General Microbiology	4(3,3)
		___ MTHS 2080 Intro. Ord. Diff. Equations	4(4,0)
	16		17
JUNIOR YEAR			
___ BE 3200 Geomeasurements	3(1,3)	___ BE 3220 Watershed Hydrology/Sedimentology	3(3,0)
___ BE 4100 Biol. Kinetics/Reactor Modeling	3(2,3)	___ BE 4120 Heat and Mass Transport BE	3(3,0)
___ CH 2230/2270 Organic Chemistry	4(3,3)	___ BE 4380 Bioprocess Engr Design	3(2,2)
___ ECE 2070 Basic Electrical Engineering	2(2,0)	___ CE 3410 Introduction to Fluid Mechanics	4(3,2)
___ ECE 2080 Electrical Engineering Lab I	1(0,2)	___ Hum/SS Req.[1] _____	3
___ Mech of Mats Reqt[4] _____	3 or 4		
	16		16

[2] Statics: CE 2010; Dynamics: CE 2080; alternatively ME 2010 for both

[3] BIOL 1030/1050 or BIOL 1100

[4] ME 3020 or CE 2060

SENIOR YEAR - Ecological Engineering Emphasis			
___ BE 4740 BE Capstone Design/Project Mgmt	2(1,3)	___ BE 4210 Engr. Syst. Soil Water Management	2
___ BE 4750 Biosystems Engr Capstone Design	2(0,6)	___ BE 4240 Ecological Engineering	3
___ BIOL 4410 General Ecology	3	___ Engineering Requirement1 _____	3
___ Engineering Req.[1] _____	2	___ Ecological Requirement[2] _____	4
___ Ecological Req.[2] _____	3	___ Hum/SS Req.[1] _____	3
___ Hum/SS Req.[1] _____	3		
	15		15

128 Total Semester Hours

[1] Choose from BE 4220, 4400, 4640; EES 4010, 4020, 4100, 4300, 4800, 4840, 4850, 4860; CE 3210, 3520, 4020, 4060, 4820; IE 3840, or other approved engineering.

[2] Ecological Requirement: BIOL 4100, 4130, 4280, 4430, 4460, ENTX 4370, FNR 4660, CSEN 2020,

SENIOR YEAR - Bioprocess Engineering Emphasis			
___ BE 4280 Biochem Engr	3(3,0)	___ Engineering Requirement1 _____	3
___ BE 4740 BE Capstone Design/Project Mgmt	2(1,3)	___ Engineering Requirement1 _____	3
___ BE 4750 Biosystems Engr Capstone Design	2(0,6)	___ Life Science Req[3] _____	3
___ BCHM 3050 Biochemistry	3	___ Hum/SS Req.[1] _____	3
___ BIOL 4340 Biol. Chem. Tech Lab	2	___ Hum/SS Req.[1] _____	3
___ BIOL 441 General Ecology	3		
	15		15

128 Total Semester Hours

[7] Life Science course 3000 or above: Phys, Biochem, Genetics, Industrial, Micro, etc.

Notes:

[A] Biosystems Engineering students are allowed to enroll in upper-level BE courses only

[B] Biosystems Engineering students are encouraged to complete a Minor, Coop Ed program, Internship (BE 3700) and/or a Study Abroad Program.

[C] Probable minors include Environmental Engineering, Environmental Science and Policy.

[D] Departmental Honors Thesis (BE H3000/H3010/H4000) is available for qualifying Junior/Senior students.

[E] Biosystems Engineering majors are encouraged to consider possibilities of graduate study early in the undergraduate program and plan accordingly, including the possibility of participating in Clemson's BS/MS program wherein six credits may count in both the BS and a MS degree. Probable graduate programs include Biosystems Engineering, Environmental Engineering, and other engineering and non-engineering programs. BS/MS agreements exist for BE.

General Education Requirements

Literature A&H: _____ **NonLiterature A&H:**_____ **Social Science I:** _____ **Social Science II:** _____ **Engineering & Sci 5th Reqt:** _____ **CCA:** _____ **STS:** _____