BIOSYSTEMS ENGINEERING (BE)

2011-2012, 2012-2013 Curriculum

FRESHMAN YEAR (Gen. Engr.)			
___ ENGR 1020 Intro. to Engineering (Portfolio)	2(1,3)	___ ENGR 1300 Engineering Fundamentals	2(1,3)
___ CH 1010 General Chemistry	4(3,3)	___ CH 1020 General Chemistry	4(3,3)
___ 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		16
SOPHOMORE YEAR			
___ BE 2120 Fundamentals of BE	2(1,3)	___ BE 2100 Introduction to Biosystems Engr.	2(1,3)
___ 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/Heat Transfer	3(3,0)
___ Biology Requirement[2] _____	4(3,3)	___ MICR 3050 General Microbiology	4(3,3)
___ Statics Requirement[3] _____	3(3,0)	___ MTHS 2080 Intro. Ord. Diff. Equations	4(4,0)
		___ Dynamics Requirement[3] _____	2(2,0)
	16		17
JUNIOR YEAR			
___ BE 4100 Biol. Kinetics/Reactor Modeling	3(2,3)	___ BE 3220 Watershed Hydrology/Sedimentology	3(3,0)
___ Mechanics of Materials Requirement[4]	3(3,0)	___ BE 4120 Heat and Mass Transport BE	3(3,0)
___ ECE 3070 Basic Electrical Engineering	2(2,0)	___ BE 4150 Instrumentation/Control BE	4(3,3)
___ CH 2230/2270 Organic Chemistry	4(3,3)	___ CE 3410 Introduction to Fluid Mechanics	4(3,2)
___ BE 2220 Geomeasurements	2(1,3)	___ BE 4380 Bioprocess Engr Design	3(2,2)
___ Hum/SS Req.[1] _____	3		
	17		17

[2] BIOL 103/105 or BIOL 110

[3] Statics: CE 201; Dynamics: CE 208; alternatively ME 201 for both

[4] ME 302 or CE 206

SENIOR YEAR - Ecological Engineering Emphasis			
___ BE 4740 BE Capstone Design/Project Mgmt	2(1,3)	___ BE 4210 Engr. Syst. Soil Water Management	2
___ BIOL 4410 General Ecology	3	___ BE 4750 BE Capstone Design	2(0,6)
___ Engineering Req.[5] _____	3	___ BE 4240 Ecological Engineering	3
___ Ecological Req.[6] _____	3	___ Engineering Requirement[5] _____	3
___ Hum/SS Req.[1] _____	3	___ Ecological Requirement[6] _____	3
		___ Hum/SS Req.[1] _____	3
	14		16
129 Total Semester Hours			

[5] Choose from BE 314, 408, 414, 417, 422, 440, 464, 473, 484; EE&S 401, 402, 410, 430, 480, 484, 485, 486; CE 321, 352, 402, 406, 482; IE 384, or other approved engineering course (Minimum 600 level for BS/MS program)

[6] Ecological Requirement: BIOSC 410,413, 428, 443, 446, ENTOX 437), FNR 466, CSENV 202, GEOL 408. BE 464

SENIOR YEAR - Bioprocess Engineering Emphasis			
___ BE 4740 BE Capstone Design/Project Mgmt	2(1,3)	___ BE 4750 BE Capstone Design	2(0,6)
___ BIOL 4410 General Ecology	3	___ Engineering Requirement[5] _____	6
___ BE 4280 Biochem Engr	3(3,0)	_____	
___ BCHM 3050	3	___ Life Science option[7]	3
___ BIOL 4340 Biol. Chem. Tech Lab	2	___ Hum/SS Req.[1] _____	3
___ Hum/SS Req.[1] _____	3		
	16		14
129 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 when the

[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:** _____