



**2010-11 Course Requirements for BSE Degree – Courses Common to All Option Areas**

All courses in this table must be included in calculations used to check the 2.35 GPA program entrance requirement

Crds	Sem/Yr Taken	Grade	Requirement	Course Taken to Meet Requirement
			MATH 221 (5) Calculus and Analytic Geometry	
			MATH 222 (5) Calculus and Analytic Geometry	
			MATH 234 (3) Calculus - Functions of Several Variables	
			Intro Statistics for Engineers (STAT 224 (3) or 324 (3))	
			Chemistry (CHEM 109 (5) or CHEM 103 (4) and CHEM 104 (5))	
			COMP SCI 310 (3) Problem Solving (preferred) or CBE 255 (3) or CIV ENGR 291 (3)	
			Agr. and Life Science Course (min. of 3 crds from required list). Food and Bioprocess Engrs must take FOOD SCI 432 (3)	
			Biological Sciences (min. 3 crds from required list)	
			E M A 201 (3 crds) Statics	
			PHYSICS 202 (5) General Physics	
			M E 231 (2) Introductory Engineering Graphics or M E 170 (2) Civil Engineering Graphics	
			M E 361 (3) Thermodynamics or CBE 310 (3) Chemical Process Thermodynamics	
			Engineering Economics Course (I SY E 313 (3) or M E 314(3) or ACCT I S 300 (3) or FINANCE 300 (3))	
			BSE 249 (3) Engr. Principles for Biological Systems or CBE 250 (3)	
			BSE 364 (3) Engr. Properties of Food and Biological Materials	
			BSE 365 (3) Measurements and Instrumentation for Biol Systems	
			BSE 375 (3) Biological Concepts for Engineers	
			BSE 409 (1) Career Management for Engineers	
			BSE 509 (3) BSE Senior Design	

**2010-11 Course Requirements for BSE Degree – Structural Systems Engineering Specialization**

All courses in this table must be included in calculations used to check the 2.35 GPA program entrance requirement

Crds	Sem/Yr Taken	Grade	Requirement	Course Taken to Meet Requirement
			BSE 351 (3) Structural Design for Agricultural Facilities	
			BSE 356 (3) Sustainable Residential Construction	
			CIV ENGR 310 (3) Fluid Mechanics or M E 363 (3) Fluid Dynamics	
			BSE 201 (1) Field Surveying Fundamentals	
			CIV ENGR 340 (4) Structural Analysis I	
			E M A 202 (3) Dynamics	
			E M A 303 (3) Mechanics of Materials	
			BSE Breadth Course. One course from the following: 367 (3), 372 (2), 441 (3), 460 (3), 472 (3), 473 (2), 475 (3), 476 (3), 542 (3), 571 (3) or 642 (2)	
			Technical Elective	
			Technical Elective	
			Technical Elective	
			Technical Elective	
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			Technical Elective	
			Technical Elective	
			Technical Elective	
			<b>TOTAL– Minimum 41 Credits Required</b>	

## 2010-11 Course Requirements for BSE Degree – Structural Systems Technical Electives

The following courses can be used to meet technical elective requirements for the Structural Systems Engineering specialization

Area	Course	Area	Course
Structural Engineering	CIV ENGR 320 (3) Environmental Engineering	General	INTEREGR 160 (3) Intro to Engr. Design (for Freshman only)
	CIV ENGR 330 (4) Soil Mechanics		Up to 3 credits of BSE 001 Cooperative Education Program, BSE 299 Independent Study, BSE 399 Coordinated Internship, and/or BSE 699 Special Topics. No more than 2 credits of BSE 399 taken in a given semester can be used to meet technical elective requirements.
	CIV ENGR 440 (3) Structural Analysis II		Up to 6 credits of math, science, statistics or computer science courses that are designated "advanced", or engineering courses with a 300 or greater course number
	CIV ENGR 442 (3) Wood Structures I	Biological Systems Engineering	BSE 367 (3) Renewable Energy Systems
	CIV ENGR 445 (3) Steel Structures I		BSE 372 (2) On-Site Waste Water Treatment
	CIV ENGR 447 (3) Concrete Structures I		BSE 441 (3) Rheology of Foods & Biomaterials
	CIV ENGR 530 (3) Seepage and Slopes.		BSE 460 (3) Biorefining: Energy & Prod. from Renewable Res.
	CIV ENGR 531 (3) Retaining Structures		BSE 472 (3) Sediment & Bio-Nutrient Engr. & Mgmt.
	CIV ENGR 532 (3) Foundations		BSE 473 (2) Irrigation and Drainage System Design
	EMA 405 (3) Practicum in Finite Elements		BSE 475 (3) Engr Principles-of Ag Machinery
	EMA 506 (3) Advanced Mechanics of Materials I		BSE 476 (3) Engr Principles of Off-Road Vehicles
Construction Management	CIV ENGR 492 (3) Integrated Project Estimating and Scheduling		BSE 542 (3) Food Engineering Operations
	CIV ENGR 496 (3) Electrical Systems for Construction		BSE 571 (3) Small Watershed Engineering
	CIV ENGR 497 (3) Mechanical Systems for Construction	BSE 642 (2) Food and Pharmaceutical Separations	
	CIV ENGR 498 (3) Construction Project Management		
	No more than one course from the School of Business		
Facilities Management	I S Y E 315 (3) Production Planning and Control		
	I S Y E 323 (3) Operations Research-Deterministic Modeling		
	I S Y E 510 (3) Facilities Planning		
Building Environment	M E 364 (3) Elementary Heat Transfer		

# Four Year Road Map: Structural Systems Specialization

This Road Map is a tool to assist you and your advisor in planning your academic career. Use it along with the Curriculum Sheet for your major, your DARS report, the appropriate checklist in the back of this document, and the Timetable. Your specific program of study could, and probably will, look different. You need to customize the Road Map to fit your situation, and consult with your advisor about the best path for you.

Year 1 – Fall Semester Course	Credits
MATH 221 (Calculus and Analytic Geometry)	5
Social Science (See I.E.4)	3
CHEM 109 (Advanced General Chemistry*)	5
E P D 155 (Basic Communication) or other Comm A course (see I.C.)	2
	15

Year 2 – Fall Semester Courses	Credits
MATH 234 (Calculus - - Functions of Several Variables)	3
COMP SCI 310 (Problem Solving Using Computers)	3
BSE 249 (Engineering Principles for Biological Systems)	3
STAT 224 (Introductory Statistics for Engineers)	3
E M A 202 (Dynamics)	3
BSE 201 (Land Surveying Fundamentals)	1
	16

Year 3– Fall Semester Courses	Credits
BSE 364 (Engineering Properties of Food and Biological Materials)	3
CIV ENGR 340 (Structural Analysis I)	3
CIV ENGR 310 (Fluid Mechanics)	3
I SY E 313 (Engineering Economic Analysis)	3
BSE 351 (Structural Design for Agricultural Facilities)	3
BSE 409 (Career Management for Engineers)	1
	16

Year 4– Fall Semester Courses	Credits
BSE 509 (Biological Systems Engineering Senior Design)	3
Technical Elective (See VI.D.)	3
Breadth Requirement (See VI.D.)	3
Ethnic Studies/International. (See I.E.2 & I.H.)	3
Technical Elective (See VI.D.)	3
	15

Year 1 – Spring Semester Courses	Credits
MATH 222 (Calculus and Analytic Geometry)	5
Biological Science (See I.F.)	3
E M A 201 (Statics)	3
M E 170 (Civil Engineering Graphics)	2
Economic Course (See I.E.1)	4
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Year 2 – Spring Semester Courses	Credits
BSE 375(Biological Concepts for Engineers)	3
BSE 356 (Sustainable Residential Construction)	3
E M A 303 (Mechanics of Materials)	3
PHYSICS 202 (General Physics)	5
Ag& Life Sciences (See VI.D.)	3
	17

Year 3 – Spring Semester Courses	Credits
E P D 397 (Technical Comm.) or other Comm B course (See I.C.)	3
BSE 365 (Measurements and Inst. for Biological Systems)	3
M E 361 (Thermodynamics)	3
Technical Elective (See VI.D.)	3
Technical Elective (See VI.D.)	3
Technical Elective (See VI.D.)	3
	18

Year 4 – Spring Semester Courses	Credits
Technical Elective (See VI.D.)	3
Humanities (See I.E.3)	3
Technical Elective (See VI.D.)	3
Technical Elective (See VI.D.)	2
Humanities (See I.E.3.)	3
	14

**Notes:** Need 128 credits to complete degree. If Chemistry 103 & 104 is taken in place of Chemistry 109, it is suggested to take Chemistry 103 in Fall semester and Chemistry 104 in Spring semester of year 1.