



















## 2011 - 2012 Major Map

### Civil Engineering (Sustainable Engineering), BSE

School/College: Ira A. Fulton Schools of Engineering  
ESCEESUBSE

Term 1 0 - 16 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CHM 114: General Chemistry for Engineers (SQ) OR CHM 116: General Chemistry II (SQ)	4		<ul style="list-style-type: none"> <li>• An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses</li> <li>• ASU Math Placement Exam score determines placement in Mathematics course</li> <li>• ASU 101 or College specific equivalent First Year Seminar required of all freshman students and should be completed the first semester.</li> <li>• CHM 113 is a prerequisite to CHM 116 and does not apply towards degree credit.</li> <li>• If ENG 105 is taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.</li> </ul>
 FSE 100: Introduction to Engineering	2	C	
 MAT 265: Calculus for Engineers I (MA)	3	C	
ASU 101-CEE: The ASU Experience	1		
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: English for Foreign Students	3	C	
Humanities, Arts and Design (HU) AND Global Awareness (G) OR Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Social-Behavioral Sciences (SB) AND Global Awareness (G) OR Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)	3		
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	16		
Term 2 16 - 31 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MAT 242: Elementary Linear Algebra	2	C	
 MAT 266: Calculus for Engineers II (MA)	3	C	
 PHY 121: University Physics I: Mechanics (SQ)	3	C	
 PHY 122: University Physics Laboratory I (SQ)	1	C	
CEE 181: Introduction to Sustainable Engineering: Technological, Social, & Sustainable System	3		
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: English for Foreign Students	3	C	
 Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:	15		
Term 3 31 - 44 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CEE 210: Engineering Mechanics I: Statics	3	C	<ul style="list-style-type: none"> <li>• CRITICAL REQUIREMENT: Complete 12 critical courses by end of term 3</li> </ul>
 MAT 267: Calculus for Engineers III (MA)	3	C	
 MAT 275: Modern Differential Equations (MA)	3	C	
 PHY 131: University Physics II: Electricity and Magnetism (SQ)	3	C	
 PHY 132: University Physics Laboratory II (SQ)	1	C	
 Complete First-Year Composition requirement.			

⚠ Minimum 2.00 GPA ASU Cumulative.

Term hours subtotal: 13

Term 4 44 - 60 Credit Hours Critical course signified by ⚠	Hours	Minimum Grade	Notes
--	-------	---------------	-------

⚠ CEE 212: Engineering Mechanics II: Dynamics	3	C	
---	---	---	--

⚠ CEE 213: Introduction to Deformable Solids	3	C	
--	---	---	--

ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB) OR ECN 201: Economic Issues and Analysis (SB)	3		
--	---	--	--

BIO 181: General Biology I (SQ) OR BIO 182: General Biology II (SG) OR BME 111: Engineering Perspectives on Biological Systems OR CHM 231: Elementary Organic Chemistry (SQ) OR GLG 101: Introduction to Geology I (Physical) (SQ & G)	3		
--	---	--	--

MAE 240: Thermofluids I	4		
-------------------------	---	--	--

Term hours subtotal: 16

Term 5 60 - 77 Credit Hours	Hours	Minimum Grade	Notes
-----------------------------	-------	---------------	-------

CEE 341: Fluid Mechanics for Civil Engineers	4	C	
--	---	---	--

CEE 353: Civil Engineering Materials	3	C	
--------------------------------------	---	---	--

CEE 361: Introduction to Environmental Engineering	4	C	
--	---	---	--

CEE 384: Numerical Methods for Engineers (CS)	3	C	
---	---	---	--

IEE 380: Probability and Statistics for Engineering Problem Solving (CS)	3		
--	---	--	--

Term hours subtotal: 17

Term 6 77 - 92 Credit Hours	Hours	Minimum Grade	Notes
-----------------------------	-------	---------------	-------

CEE 300: Engineering Business Practice (L)	3	C	
--	---	---	--

CEE 321: Structural Analysis and Design	4	C	
---	---	---	--

CEE 351: Geotechnical Engineering	4	C	
-----------------------------------	---	---	--

CEE 372: Transportation Engineering	4	C	
-------------------------------------	---	---	--

Term hours subtotal: 15

Term 7 92 - 107 Credit Hours	Hours	Minimum Grade	Notes
------------------------------	-------	---------------	-------

CEE 400: Earth Systems Engineering and Management ((L or HU) & H)	3	C	
---	---	---	--

SOS 300: Advanced Concepts and Integrated Approaches in Sustainability	3	C	
--	---	---	--

Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
--	---	--	--

Complete 2 courses: Upper Division Design Elective	6	C	
---	---	---	--

Term hours subtotal: 15

Term 8 107 - 120 Credit Hours	Hours	Minimum Grade	Notes
-------------------------------	-------	---------------	-------

CON 448: Sustainable Construction OR Approved Technical Elective	3	C	
--	---	---	--

CEE 486: Integrated Civil Engineering Design (L)	4	C	
--	---	---	--

CEE 485: Sustainable Civil and Environmental Systems Engineering	3	C	
--	---	---	--

CEE 494: Sustainable Energy and Material Use	3	C	
--	---	---	--

• Design Elective requirements: See Advisor for guidance in selection.

• Technical Elective requirements: See Advisor for guidance in selection.

Term hours subtotal: 13

Hide Course List(s)/Track Group(s)

Design Electives	Approved Technical Elective
CEE 412: Pavement Analysis and Design	CEE 281: Surveying
CEE 420: Steel Structures	CEE 412: Pavement Analysis and Design
CEE 421: Concrete Structures	CEE 420: Steel Structures
CEE 441: Water Resources Engineering	CEE 421: Concrete Structures
CEE 452: Foundations	CEE 462: Unit Operations in Environmental Engineering
CEE 462: Unit Operations in Environmental Engineering	CEE 452: Foundations
CEE 466: Urban Water System Design	CEE 474: Transportation Systems Planning
CEE 475: Highway Geometric Design	CEE 475: Highway Geometric Design
	CEE 481: Civil Engineering Project Management
	CEE 483: Highway Materials, Construction, and Quality
	BIO 320: Fundamentals of Ecology
	CHM 302: Environmental Chemistry
	CHM 341: Elementary Physical Chemistry
	PUP 442: Environmental Planning
	PUP 475: Environmental Impact Assessment
	CEE 499: Individualized Instruction

**Notes:**

2.00 GPA required in all upper division CEE and other approved technical elective courses combined. A maximum of 2 "D" grades allowed in this calculation.

**Total Hours:** 120

**Upper Division Hours:** 45 minimum

**Major GPA:** 2.00 minimum

**Cumulative GPA:** 2.50 minimum

**Total hrs at ASU:** 30 minimum

**Hrs Resident Credit for**

**Academic Recognition:** 56 minimum

**Total Community College Hrs:** 64 maximum

**General University Requirements Legend**

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed next to courses on the major map were valid for the 2011 - 2012 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.