













2014 - 2015 Major Map
Civil Engineering (Sustainable Engineering), BSE

Ira A. Fulton Schools of Engineering
Tempe campus
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"> An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses ASU Math Placement Exam score determines placement in Mathematics course ASU 101 or College specific equivalent First Year Seminar required of all freshman students and should be completed the first semester. If ENG 105 is taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.
	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: First-Year Composition		3	C	
	Humanities, Fine Arts and Design (HU) AND Global Awareness (G) OR Humanities, Fine Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Social and Behavioral Sciences (SB) AND Global Awareness (G) OR Social and Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)		3		
	Minimum 2.00 GPA ASU Cumulative.				
	Term hours subtotal:		16		

Mesa Community College	
Course	Hours
CHM 152 and CHM 152LL	4
ECE 102 and ECE 103	2 2
MAT 221 or MAT 220	4 5
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
General Studies (HU or SB)	3

*** ECE 102 and ECE 103 satisfy both ASU 101 and FSE 100

Term 2	17 - 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, and Sustainable Systems (HU)		3		
	ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition		3	C	
	Complete ENG 101 OR ENG 105 OR ENG 107 course(s).				
	Minimum 2.00 GPA ASU Cumulative.				
	Term hours subtotal:		15		

Mesa Community College	
Course	Hours
MAT 225	3
MAT 231 or MAT 230	4 5
PHY 121	4
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3

Term 3	32 - 44 Credit Hours	Critical course signified by 	Hours	Minimum Grade	Notes
	CEE 210: Engineering Mechanics I: Statics		3	C	
	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 CEE 210 AND CHM 114 OR CHM 116 AND FSE 100 AND MAT 242 AND MAT 265 AND MAT 266 AND MAT 267 AND MAT 275 AND PHY 121 AND PHY 122 AND PHY 131 AND PHY 132 course(s).				
	Minimum 2.00 GPA ASU Cumulative.				
	Complete Mathematics (MA) requirement.				
	Term hours subtotal:		13		

Mesa Community College	
Course	Hours
ECE 201 and ECE 202 and ECE 203	6
MAT 241 or MAT 240	4 5
MAT 277	3
PHY 131	4

*** ECE 201 and ECE 202 and ECE 203 satisfy both CEE 210 and CEE 212

Term 4	45 - 60 Credit Hours	Critical course signified by 	Hours	Minimum Grade	Notes
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◆ CEE 212: Engineering Mechanics II: Dynamics	3	C
◆ CEE 213: Introduction to Deformable Solids	3	C
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	
ECN 211: Macroeconomic Principles (SB) OR ECN 212: Microeconomic Principles (SB)	3	
MAE 240: Thermofluids I	4	
Term hours subtotal:	16	

★ Term 5 61 - 77 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
★ CEE 361: Introduction to Environmental Engineering	4	C	
CEE 341: Fluid Mechanics for Civil Engineers	4	C	
CEE 353: Civil Engineering Materials	3	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 78 - 92 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
★ CEE 321: Structural Analysis and Design	4	C	
CEE 300: Engineering Business Practice (L)	3	C	
CEE 351: Geotechnical Engineering	4	C	
CEE 372: Transportation Engineering	4	C	
Term hours subtotal:	15		

★ Term 7 93 - 107 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
★ CEE 400: Earth Systems Engineering and Management ((L or HU) & H)	3	C	<ul style="list-style-type: none"> Design Elective requirements: See Advisor for guidance in selection.
SOS 300: Advanced Concepts and Integrated Approaches in Sustainability	3	C	
Complete 2 courses: Upper Division Design Elective	6	C	
Social and Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social and Behavioral Sciences (SB) AND Global Awareness (G)	3		
Term hours subtotal:	15		

★ Term 8 108 - 120 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
★ CEE 486: Integrated Civil Engineering Design (L)	4	C	<ul style="list-style-type: none"> Technical Elective requirements: See Advisor for guidance in selection.
CEE 485: Sustainable Civil and Environmental Systems Engineering	3	C	
Upper Division Technical Elective	3	C	
CEE 494: Sustainable Energy and Material Use	3		
Term hours subtotal:	13		

Design Electives	Approved Technical Elective
CEE 412: Pavement Analysis and Design	BIO 320: Fundamentals of Ecology
CEE 420: Steel Structures	CEE 281: Surveying
CEE 421: Concrete Structures	CEE 412: Pavement Analysis and Design
CEE 441: Water Resources Engineering	CEE 420: Steel Structures
CEE 452: Foundations	CEE 421: Concrete Structures
CEE 462: Unit Operations in Environmental Engineering	CEE 452: Foundations
	CEE 462: Unit Operations in

Mesa Community College	
Course	Hours
ECE 201 and ECE 202 and ECE 203	6
ECE 215	3
BIO 181 OR BIO 182 OR CHM 230 OR GLG 101	3
ECN 211 OR ECN 212	3

*** ECE 201 and ECE 202 and ECE 203 satisfy both CEE 210 and CEE 212

Mesa Community College	
Course	Hours
General Studies (SB-C or SB-G)	3

CEE 466: Urban Water System Design	Environmental Engineering
CEE 475: Highway Geometric Design	CEE 474: Transportation Systems Planning
	CEE 475: Highway Geometric Design
	CEE 481: Civil Engineering Project Management
	CEE 483: Highway Materials, Construction, and Quality
	CEE 494: Sustainable Energy and Material Use
	CEE 499: Individualized Instruction
	CHM 302: Environmental Chemistry
	CHM 341: Elementary Physical Chemistry
	PUP 442: Environmental Planning
	CON 453: Construction Project Management I

Total Hours: 120
Upper Division Hours: 45 minimum
Major GPA: 2.00 minimum
Cumulative GPA: 2.00 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, Fine Arts and Design (HU)
 - Social and 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 on the major map are current for the 2014 - 2015 academic year.