

2014 - 2015 Major Map
Mechanical Engineering (Energy & Environment), BSE

Ira A. Fulton Schools of Engineering
Tempe campus
ESMAEBSSE

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	C	<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. ASU 101-MAE and FSE 100 required for freshmen and should be completed first semester. Non-freshmen see Advisor for petitioning replacement electives. If ENG 105 taken, a 3 hr applicable elective must also be taken prior to graduation. See Advisor.
		🚩	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	
		🚩	MAT 265: Calculus for Engineers I (MA)	3	C	
			ASU 101-MEE: The ASU Experience OR ASU 101-MAE: The ASU Experience	1		
			FSE 100: Introduction to Engineering	2	C	
			Humanities, Fine Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Fine Arts and Design (HU) AND Historical Awareness (H)	3		
		🚩	Minimum 2.00 GPA ASU Cumulative.			
Term hours subtotal:			16			

Mesa Community College	
Course	Hours
CHM 152 and CHM 152LL	4
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
MAT 221 or MAT 220	4 5
ECE 102 and ECE 103	2 2
General Studies (HU-C OR HU-H)	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
		🚩	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
		🚩	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
			Social and Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social and Behavioral Sciences (SB) AND Historical Awareness (H)	3	
		🚩	Minimum 2.00 GPA ASU Cumulative.		
			Complete ENG 101 OR ENG 105 OR ENG 107 course(s).		
Term hours subtotal:			15		

Mesa Community College	
Course	Hours
ENG 101 or ENG 102 OR ENG 107 or ENG 108	3
MAT 225	3
MAT 231 or MAT 230	4 5
PHY 121	4
General Studies (SB-C OR SB-H)	3

Term 3	32 - 46 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes
		🚩	MAE 212: Engineering Mechanics	4	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
			MAE 215: Introduction to Programming in MATLAB	1	C
			MAT 267: Calculus for Engineers III (MA)	3	C
		🚩	Minimum 2.00 GPA ASU Cumulative.		
		🚩	Complete MAT 265 AND CHM 114 OR CHM 116 AND PHY 121 AND PHY 122 AND MAT 266 AND MAE 212 AND PHY 131 AND PHY 132 AND MAT 275 OR ENG 102 OR ENG 105 OR ENG 108 AND MAT 242 course(s).		
Term hours subtotal:			15		

Mesa Community College	
Course	Hours
ECE 214	4
MAT 277	3
PHY 131	4
ECE 105	1
MAT 241 or MAT 240	4 5

Term 4	47 - 61 Credit Hours	Critical course signified by	Hours	Minimum Grade	Notes
		MAE 213: Solid Mechanics	3	C	
		MAE 240: Thermofluids I	4	C	
		EEE 202: Circuits I	4	C	
		MAE 214: Computer-Aided Engineering I	1	C	
		MAE 384: Advanced Mathematical Methods for Engineers (CS)	3	C	
Term hours subtotal:			15		

Mesa Community College	
Course	Hours
ECE 215	3
EEE 202	5
ECE 216 and ECE 216LL	2 1

Term 5	62 - 77 Credit Hours	Necessary course signified by	Hours	Minimum Grade	Notes
		MAE 301: Applied Experimental Statistics	3	C	
		MEE 322: Structural Mechanics OR MAE 322: Structural Mechanics	4	C	
		MEE 340: Thermofluids II OR MAE 340: Thermofluids II	3	C	
		CHM 231: Elementary Organic Chemistry (SQ)	3	C	
		MSE 250: Structure and Properties of Materials	3	C	
Term hours subtotal:			16		

Mesa Community College	
Course	Hours
CHM 230	3

Term 6	78 - 93 Credit Hours	Necessary course signified by	Hours	Minimum Grade	Notes
		MAE 318: System Dynamics and Control	5	C	For a list of Upper Division Technical Elective course options, please go to: http://engineering.asu.edu/semte/mechanical_B.html .
		MEE 342: Principles of Mechanical Design OR MAE 342: Principles of Mechanical Design	3	C	
		MEE 323: Computer-Aided Engineering II OR MAE 323: Computer-Aided Engineering II	2	C	
		MAE 400: Engineering Profession (L)	3	C	
		Upper Division Technical Elective	3	C	
Term hours subtotal:			16		

Term 7	94 - 108 Credit Hours	Necessary course signified by	Hours	Minimum Grade	Notes
		MEE 482: Thermodynamics OR MAE 482: Thermodynamics	3	C	For a list of Upper Division Technical Elective course options, please go to: http://engineering.asu.edu/semte/mechanical_B.html .
		GPH 314: Global Change (HU & G)	3		
		MEE 491: Experimental Mechanical Engineering (L) OR MAE 491: Experimental Mechanical Engineering (L)	3	C	
		Upper Division Technical Elective	3	C	
		Humanities, Fine Arts and Design (HU) OR Social and Behavioral Sciences (SB)	3		
Term hours subtotal:			15		

Mesa Community College	
Course	Hours
General Studies (HU or SB)	3

Term 8	109 - 120 Credit Hours	Necessary course signified by	Hours	Minimum Grade	Notes
		MEE 446: Energy Systems Design OR MAE 446: Energy Systems Design	3	C	
		GCU 364: Energy in the Global Arena (SB & G) OR PUP 190: Sustainable Cities ((HU or SB) & G)	3		
		Complete 2 courses: Upper Division Energy and Environment Technical Elective	6	C	
Term hours subtotal:			12		

- For a list of Upper Division Technical Elective course options, please go to: http://engineering.asu.edu/semte/mechanical_B.html.

Upper Division Energy and Environment Technical Electives

ATE 521: Building Environmental Science

ATE 560: Building Energy Analysis

ATE 582: Environmental Control Systems

BIO 320: Fundamentals of Ecology

CEE 361: Introduction to Environmental Engineering

CHM 302: Environmental Chemistry

EEE 360: Energy Systems and Power Electronics

EEE 460: Nuclear Power Engineering

EEE 463: Electrical Power Plants

MAE 434: Internal Combustion Engines

MSE 460: Nanomaterials in Energy Production and Storage

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.