

Bachelors of Science-Mechanical Engineering

Program Description

Mechanical engineering is a creative, diverse discipline. Mechanical engineers design, build and control the devices, machines, processes, and systems that are the mainstay of modern industrialized society.

Students are prepared for a career in mechanical engineering through a curriculum that includes study of the principles governing energy transfer, mechanical design, sensors and control devices and the application of these principles to the creative solution of practical modern problems.

Career Opportunities

A major strength of a mechanical engineering education is the flexibility it provides in future employment opportunities for its graduates. Mechanical engineers are employed in virtually every kind of industry. They are involved in seeking new knowledge through research; in generating creative design and development; and in the production, control, management and sales of the devices and systems needed by society.

The objectives of the mechanical engineering program are for graduates to be employed in mechanical engineering or a related field or accepted to graduate school and:

1. Graduates will have the technical skills for career success, including the ability to think in a critical and evaluative manner and to consider a broad perspective, in order to solve technical and non-technical problems.
2. Graduates will have the professional skills for career success, including an awareness of ethical responsibility, the ability to communicate well and to work successfully within diverse groups

Chandler Gilbert Community College Contact

Bassam Matar

480-732-7139

B.Matar@cgcmail.maricopa.edu

Arizona State University Contact

[Mechanical and Aerospace Engineering Program](#) |

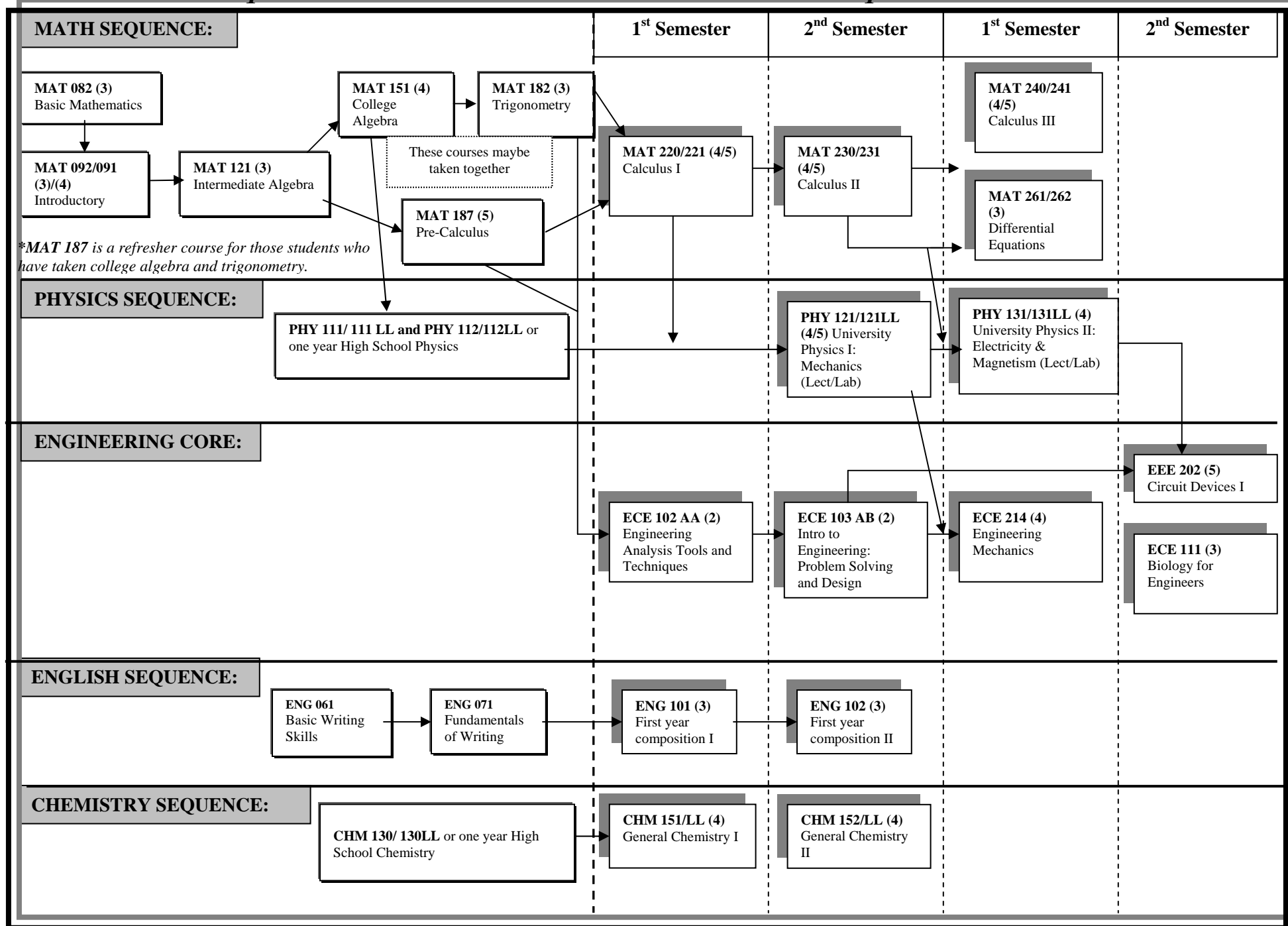
mae@asu.edu | 480/965-3291

ENGINEERING ASSESSMENTS AND COURSE SEQUENCE

MECHANICAL ENGINEERING

Prerequisite Courses

Required Courses



Mechanical Engineering Recommended Study Plan

Year 1		Year 2	
First Semester	Second Semester	Third Semester	Fourth Semester
ECE102 AA (2) Engineering Analysis 1	ECE 103 AB (2) Problem Solving & Design	MAT 261 (3) Differential Equation <u>MAT230</u> MAT275 (3)	ECE111 (3) Biology Requirement BME 111 (3)
ECE102 (2) AND ECE103 (2)= MAE 100 (2)			EEE 202 (5) Circuits 1 <u>pre-co: PHY131, MAT261</u> EEE 202 (4)
MAT 220 (4) Calc 1 <u>Mat 187 or MAT182</u> MAT 265 (3)	MAT 230 (4) Calc 2 <u>MAT 220</u> MAT 266 (3)	MAT 240 (4) Calc 3 <u>MAT 220</u> MAT267 (4)	
ENG 101 (3) First Year Composition 1 ENG 101 (3)	ENG102 (3) First Year Composition 2 ENG102 (3)	ECE 214 (4) Mechanics <u>PHY121, pre-co MAT240</u> ECE214 (4)	
CHM 151/LL (4) General Chemistry 1 <u>HS algebra and HS chemistry</u>	CHM 152/LL (4) General Chemistry 2 <u>CHM 151/LL</u>	PHY 131 (4) University Physics 2 <u>PHY 121, MAT 230</u> PHY131 (4)	
CHM151 (4)+CHM152(4)=CHM 114 or CHM 116 (4)		HU/SB (3)	HU/SB (3)
HU/SB (3) ECN 111 or 112 recommended	PHY 121 (4) University Physics 1 <u>MAT 220</u> PHY 121 (4)	HU/SB (3)	
16	17	18	18
<u>Underlined</u> = Pre-req <i>Italic</i>= ASU Equivalence			
<p>According to ASU Aerospace & Mechanical Engineering advisement sheet: Humanities & Social Sciences (HU/SB) (15 hrs minimum) (Required: 1 course upper division; 2 courses from the same dept; 2 depts. or more Represented; plus a minimum of two courses that satisfy three awareness areas: Cultural (C), Global (G), and Historical (H). Double counting is permissible between HU or SB and the awareness areas and also within the awareness areas.)</p>			

NOTE: For the General Elective please check with your ASU advisor on what is approved by the department. Possible courses are EEE120 and CHM230 (Elementary Organic Chemistry)

Course Subject and Title <i>(courses in bold/shading are critical)</i>	Hrs.	Upper Division	Completed ATP: <input type="checkbox"/> Yes <input type="checkbox"/> No		Completed AGEC: <input type="checkbox"/> Yes <input type="checkbox"/> No
			Transfer Course/Grade	Minimum Grade if Required	Additional Critical Requirement Notes
TERM ONE: 0-15 CREDIT HOURS					
+ASU 101-FSE: The ASU Experience	1	<input type="checkbox"/>			<ul style="list-style-type: none"> • Complete CHM 114 or 116 or 115; MAT 265 each with a minimum grade of "C" + ASU 101-FSE and MAE 100 required for freshmen and should be completed first semester. Non-freshmen see advisor for petitioning replacement electives. • An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses • ASU Math Placement Exam score determines placement in Mathematics course *CHM 113 is a prerequisite and does not apply towards degree credit **If ENG 105 a 3 hr applicable elective must also be taken prior to graduation. See Advisor.
CHM 114: General Chemistry for Engineers (SQ) OR CHM 115: General Chemistry with Qualitative Analysis (SQ) OR CHM 116: General Chemistry II* (SQ)	4	<input type="checkbox"/>		Grade of C	
+MAE 100: Intro to Mechanical and Aerospace Engineering (or Department Approved Elective)	2	<input type="checkbox"/>		Grade of C in MAE 100	
MAT 265: Calculus for Engineers I (MA)	3	<input type="checkbox"/>		Grade of C	
ENG 101 or 102: First-Year Composition OR ENG 105: Advanced First-Year Composition** OR ENG 107 or 108: English for Foreign Students	3	<input type="checkbox"/>		Grade of C	
Social & Behavioral Science (SB) AND Cultural Diversity in the US (C), Global Awareness (G), or Historical Awareness (H)	3	<input type="checkbox"/>			
TERM TWO: 16-30 CREDIT HOURS					
MAT 266: Calculus for Engineers II	3	<input type="checkbox"/>		Grade of C	<ul style="list-style-type: none"> • Complete MAT 266; PHY 121, 122 each with a minimum grade of "C"
PHY 121/122: University Physics I/ Laboratory I (SQ)	3/1	<input type="checkbox"/>		Grade of C	
ENG 101 or 102: First-Year Composition OR ENG 105: Advanced First-Year Composition** OR ENG 107 or 108: English for Foreign Students	3	<input type="checkbox"/>		Grade of C	
Humanities, Fine Arts & Design (HU) AND Cultural Diversity in the US (C), Global Awareness (G), or Historical Awareness (H)	3	<input type="checkbox"/>			
TERM THREE: 31-45 CREDIT HOURS					
MAE 212: Engineering Mechanics	4	<input type="checkbox"/>		Grade of C	<ul style="list-style-type: none"> • Complete ENG 102 or 108 or 105; MAE 212; MAT 275; PHY 131, 132 each with a minimum grade of "C" • Complete First Year Composition requirement: ENG 101 & 102 or ENG 107 & 108 or ENG 105
MAT 275: Modern Differential Equations	3	<input type="checkbox"/>		Grade of C	
PHY 131/132: University Physics II Electricity and Magnetism/ Laboratory II	3/1	<input type="checkbox"/>		Grade of C	
MAE 214: Computer-Aided Engineering I	1	<input type="checkbox"/>		Grade of C	
MAT 267: Calculus for Engineers III	3	<input type="checkbox"/>		Grade of C	
TERM FOUR: 46-60 CREDIT HOURS					
MAE 213: Solid Mechanics	3	<input type="checkbox"/>		Grade of C	<ul style="list-style-type: none"> • Complete MAE 213, 240 each with a minimum grade of "C".
MAE 240: Thermofluids I	4	<input type="checkbox"/>		Grade of C	
EEE 202: Circuits I	4	<input type="checkbox"/>		Grade of C	
MAT 343: Applied Linear Algebra	3	<input checked="" type="checkbox"/>		Grade of C	
MSE 250: Structure and Properties of Materials	3	<input type="checkbox"/>		Grade of C	
TERM FIVE: 61-75 CREDIT HOURS					
BME 111: Engineering Perspectives on Biological Systems (or dept approved BIO)	3	<input type="checkbox"/>			
MAE 322: Structural Mechanics	4	<input checked="" type="checkbox"/>		Grade of C	
MAE 340 Thermofluids II	3	<input checked="" type="checkbox"/>		Grade of C	
MAE 384: Numerical Methods for Engineers (CS)	3	<input checked="" type="checkbox"/>		Grade of C	
Humanities, Fine Arts & Design (HU) AND Cultural Diversity in the US (C), Global Awareness (G), or Historical Awareness (H)	3	<input checked="" type="checkbox"/>			
TERM SIX: 76-90 CREDIT HOURS					
MAE 323: Computer-Aided Engineering II	2	<input checked="" type="checkbox"/>		Grade of C	
MAE 318: Sensors and Controls	5	<input checked="" type="checkbox"/>		Grade of C	
MAE 342: Principles of Mechanical Design	3	<input checked="" type="checkbox"/>		Grade of C	
Technical Elective	3	<input checked="" type="checkbox"/>		Grade of C	
TERM SEVEN: 91-105 CREDIT HOURS					
MAE 488: Mechanical Engineering Design I	3	<input checked="" type="checkbox"/>		Grade of C	
MAE 491: Experimental Mechanical Engineering (L)	3	<input checked="" type="checkbox"/>		Grade of C	
Technical Elective	3	<input checked="" type="checkbox"/>		Grade of C	
Social & Behavioral Science (SB) AND Cultural Diversity in the US (C), Global Awareness (G), or Historical Awareness (H)	3	<input type="checkbox"/>			
UD Humanities, Fine Arts & Design (HU) OR Social & Behavioral Science (SB)	3	<input checked="" type="checkbox"/>			
TERM EIGHT: 106-120 CREDIT HOURS					
MAE 400: Engineering Profession (L)	3	<input checked="" type="checkbox"/>		Grade of C	See advisor for approved General Electives.
MAE 489: Mechanical Engineering Design II	3	<input checked="" type="checkbox"/>		Grade of C	
Technical Elective	3	<input checked="" type="checkbox"/>		Grade of C	
Technical Elective	3	<input checked="" type="checkbox"/>		Grade of C	
General Elective	3	<input type="checkbox"/>			

Graduation Requirements Summary:

Total Hours Regular Curriculum (120)	Total Hrs at ASU (30 min)	Hrs Resident Credit for Academic Recognition (56 min)	Major GPA (2.000 Min. CUM GPA)	Total UD Hrs (45 min)	Total Comm. College Hrs. (64 Max)

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 US (C)
 - Global Awareness (G)
 - Historical Awareness (H)
- First-Year Composition

Additional Notes: