



**CHANDLER-GILBERT
COMMUNITY
COLLEGE**

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ENGINEERING PROGRAM
DIVISION OF SCIENCE

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MECHANICAL ENGINEERING PROGRAM

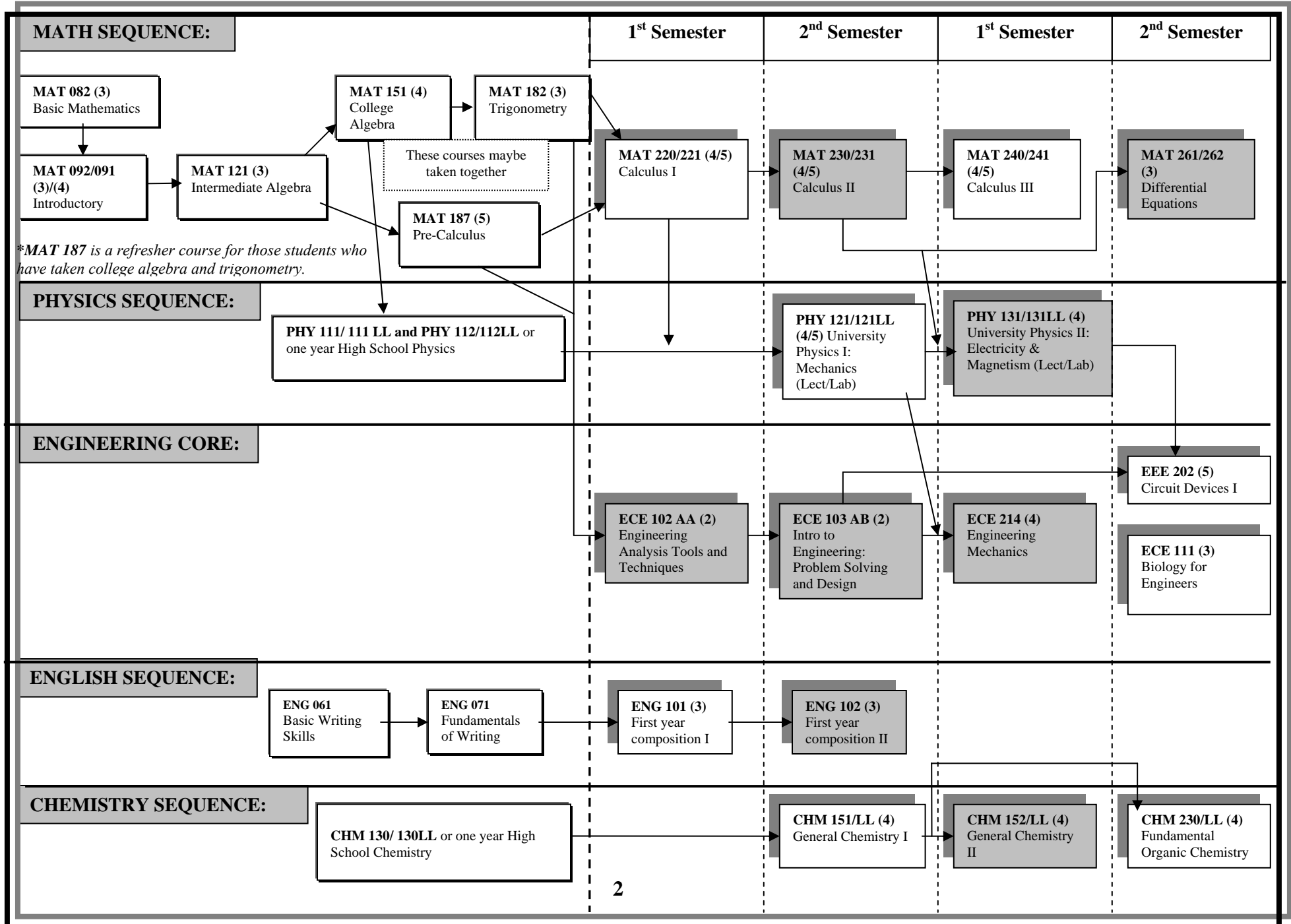
Advisement Packet

The content of this document might change.
Please check with an advisor.

ENGINEERING ASSESSMENTS AND COURSE SEQUENCE MECHANICAL ENGINEERING

Prerequisite Courses

Required Courses





SUGGESTED SEQUENCING OF COURSES

Mechanical Engineering

Required Courses

(Equivalent units at ASU are indicated between parentheses)

FRESHMAN YEAR				SOPHOMORE YEAR			
First Semester		Second Semester		First Semester		Second Semester	
Course	Cr	Course	Cr	Course	Cr	Course	Cr
ECE 102 AA	2	ECE 103 AB	2 (3)	ECE 214	4 (4)	EEE 202	5 (4)
MAT 220/221	4/5 (3)	MAT 230/231	4/5 (3)	MAT 240/241	4/5 (3)	ECE 111	3 (3)
ECN 111 or 112	3 (3)	PHY 121 & 121LL	4 (4)	PHY 131 & 131LL	4 (4)	MAT 261 or 262	3/4 (3)
ENG 101	3 (3)	ENG 102	3 (3)	CHM 152 & 152LL	4 (4)	CHM 230 & 230LL	4 (4)
		CHM 151 & 151LL	4 (0)			HU/SB	3 (3)
Total C.G.C.C. Credits:	12/13	Total C.G.C.C. Credits:	17/18	Total C.G.C.C. Credits:	16/17	Total C.G.C.C. Credits:	18/19
Total ASU Units:	(9)	Total ASU Units:	(16)	Total ASU Units:	(11)	Total ASU Units:	(17)
Total number of credit hours at CHANDLER-GILBERT COMMUNITY COLLEGE:							63/67
Total equivalent units at ARIZONA STATE UNIVERSITY:							(53)

Note:

**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.)

See attached sheet for available courses at CGCC.

The following courses meet the general studies requirements:

(Only lower division courses can be taken at Chandler-Gilbert Community College)

Awareness areas are coded:

(H) = **Historical** (G) = **Global** (C) = **Cultural**

HUMANITIES & FINE ARTS (HU):

AJS Administration of Justice	123
ARH Art Humanities	100/101(H)/102(H) 115/118(G)/145(C)/201(G, H)
ASB Anthropology	211(G)/221(G)/222(G, H)/223(G, H)
COM Communication	241
DAH Dance Humanities	100(G)/201(G)
EDU Education	291/292(C)/294(C)
ENH English Humanities	110(C)/112(C)/113/114(C)/201(H)/202(G,H)/204/205(C)/206/214/221(H)222(H) 230/241/242/250/251(G)/254/255(C)/256/259(C)/260(C)/270/275/284(C)/285(C)289/291/ 294/295(C)
HUM Humanities	101/105AA-AE(C)*/107/108/120(C)/125/190AA-AI*/201(G)/202(G)/203/205/ 206/207/208(C)/ 209(C,H)/210/211AA-AC(G)/213(G)/214(C)/250(H)/251(H) 260(C)/261(G,H)/292(C)
MHL Music: History/Literature	140(H)/142(H)/143(G)/145(C)/146/147/153(H)
PHI Philosophy	101/102/103/104(G)/105/106/109/201/213/218/224/225(C)/233AA/233AB 234AA/243(G,H)/244/245/246
REL Religious Studies	101/201(H)/202(G)/203(C)/205/213/225(C)/243(G,H)/244/246/270/271
THE Theatre	111/205(H)/206/210/220/260

LITERACY & CRITICAL INQUIRY (L):

COM Communication	207/222/225/230/241
CRE Critical Reading	101
ENG English	111/200/213/215/216/217/218
ENH English Humanities	254/255(C)
GPH Physical Geography	211
HUM Humanities	250(H)/251(H)
JRN Journalism	201/212
MCO Mass Communications	220(C)
PHI Philosophy	103/106
POS Political Science	115
PSY Psychology	290AB-AC
REL Religion	203(C)/205
THE Theatre	220
THP Theatre Performance/Prod.	241

SOCIAL & BEHAVIORAL SCIENCES (SB):

AJS Administration of Justice	101/200/225/258(C)/270(C)
ASB Anthropology	102(G)/211(G)/214(G)/222(G,H)/223(G,H)/230/235(C,H)/238(H)/245(C,H)
CFS Child/Family Studies	157/159/176/205/259
COM Communication	100/110/230/250/263(C,G)
ECN Economics	111/112/160(H)/212(G)/250(G)
EDU Education	221/222(C)
GBS General Business	280
HES Health Science	100
HIS History	100(H)/101(H)/102(G,H)/103(H)/104(H)/105(H)/105AA-AC(H)/106(C,H) 109(C,H)/135(H)/145(G,H)/170(C,H)173(H)/201(C,H)/203(C,H)/209(C,H)/ 241(H)/242(G,H)/ 251(H)/252(H)/272(G,H)/273(G,H)/277(G,H)
POS Political Science	100/ 110/115/120(G)/125(G)/130/140(G)/210/223(C)/285
PSY Psychology	101/132(C,G)/157(C,G)/215/218/235©/240/245/250/258/260/266/270/277/280/281/292
SOC Sociology	101/110/130/140(C)/141(C,H)/143(C)/157/210/212(C)/215/240(C)/245/251/ 253/265/270

EQUIVALENCY INFORMATION for MECHANICAL ENGINEERING

For transfer from CGCC to ASU

<i>CHANDLER-GILBERT COMMUNITY COLLEGE</i>			<i>Arizona State University</i>	
<i>Course</i>	<i>Cr</i>	<i>Title</i>	<i>Course</i>	<i>Cr</i>
ECE 111	3	Biology for Engineers	BME 111	3
CHM 151	3	General Chemistry I	CHM 113	3
CHM 151LL	1	General Chemistry I Lab	CHM 113	1
CHM 152	3	General Chemistry II	CHM 114 or 116	3
CHM 152LL	1	General Chemistry II Lab	CHM 114 or 116	1
CHM 230	3	Fundamental Organic Chemistry	CHM 231	3
CHM 230LL	1	Fundamental Organic Chemistry Lab	CHM 235	1
ECE102 & 103	2,2=4	Intro to Engineering	MAE 100	3
ECE 214	4	Engineering Mechanics	MAE 212	4
EEE 202	5	Circuit Devices I	EEE 202	4
MAT 220/221	4/5	Calculus I	MAT 265	3
MAT 230/231	4/5	Calculus II	MAT 266	3
MAT 240/241	4/5	Calculus III	MAT 267	3
MAT 261/262	3/4	Differential Equations	MAT 275	3
PHY 121 & 121LL	4	Physics I & Lab	PHY 121 & 122	4
PHY 131 & 131LL	4	Physics II & Lab	PHY 131 & 132	4
ENG 101	3	First Year Comp. (ENGLISH)	ENG101	3
ENG 102	3	First Year Comp. (ENGLISH)	ENG102	3



**AEROSPACE & MECHANICAL
ENGINEERING PROGRAM**

PERSONAL ENGINEERING SCHEDULE

FRESHMAN YEAR				SOPHOMORE YEAR			
First Semester		Second Semester		First Semester		Second Semester	
Course	Cr	Course	Cr	Course	Cr	Course	Cr
Total C.G.C.C. Credits:		Total C.G.C.C. Credits:		Total C.G.C.C. Credits:		Total C.G.C.C. Credits:	
Total ASU Units:	()	Total ASU Units:	()	Total ASU Units:	()	Total ASU Units:	()
Total number of credit hours at CHANDLER-GILBERT COMMUNITY COLLEGE:							
Total equivalent units at ARIZONA STATE UNIVERSITY:							()

Mechanical Engineering Skill Set

Course	Credits	Course Name	Course Description
CHM 152+152LL	4	General Chemistry II (L+L)	A study of the chemical properties of the major groups of elements, equilibrium theory, thermodynamics, electrochemistry, and other selected topics. Completion of CHM152LL required to meet the Natural Science requirement. Prerequisites: CHM151 and CHM151LL.
ENG 102	3	First-Year Composition (LEC)	Emphasis on rhetoric and composition with a focus on persuasive, research-based writing and understanding writing as a process. Developing advanced college-level writing strategies through three or more writing projects comprising at least 4,000 words in total. Prerequisites: ENG101 with a grade of "C" or better.
MAT 230/231	4/5	Calculus with Analytic Geometry II (LEC)	Methods of integration, applications of calculus, elements of analytic geometry, improper integrals, sequences and series. May receive credit for only one of the following: MAT230 or MAT231. Prerequisites: Grade of "C" or better in MAT220, or MAT221, or equivalent.
MAT 261/262	3/4	Differential Equations (LEC)	Ordinary differential equations with applications including Laplace transforms with numerical methods. Prerequisites: Grade of "C" or better in MAT230, or MAT231, or equivalent.
ECE 102AA	2	Engineering Analysis Tools and Techniques	Learning culture of engineering, engineering use of computer tools, and computer modeling as applied to engineering analysis and design. Prerequisites: Two years of high school algebra or MAT122 or departmental approval. Corequisites: MAT151 or MAT182 or MAT187.
ECE 103AB	2	Engineering Problem Solving and Design	Fundamentals of the design process: engineering modeling, communication and problem-solving skills in a team environment. Emphasis on process-based improvements to the design process. Introduction to engineering as a profession. Prerequisites: ECE102 and (high school physics or PHY111).
ECE 214	4	Engineering Mechanics - Statics & Dynamics (L+L)	Mathematical treatment of the basic physical principles of statics. Methods of vector algebra and vector calculus. Kinematics and kinetics of particles, translating and rotating coordinate systems, rigid body kinematics, dynamics of systems of particles and rigid bodies, and energy and momentum principles. Prerequisites: MAT241, ECE103, (PHY115 or PHY121).
PHY 131+131LL	4	University Physics II: Electricity and Magnetism (L+L)	Electric charge and current, electric and magnetic fields in vacuum and in materials, and induction. AC circuits, displacement current, and electromagnetic waves. Prerequisites: MAT230, or MAT231, or department consent, and PHY121. Corequisites: MAT241 or department consent.
<i>TOTAL CREDITS</i>	<i>25/27</i>		

Minimum GPA may vary from semester to semester. See ASU's Mechanical and Aerospace Engineering department/website for more details (<http://www.fulton.asu.edu/mae/undergrad/program-description.php>).

Name _____
 ASU ID _____
 Anticipated Grad. Date _____

Major: Mechanical Engineering
 AGEC-A, AGEC-B, AGEC-S;

Degree BSE
 Completed: Yes No

ASU Requirement for all incoming Freshmen			
ASU 101 The ASU Experience	1 credit		

I. English Proficiency (6 hrs) <i>(University requirement – “C” min required)</i>	Hrs Cr ASU Tr	Trans From	Gr
+ENG 101 / 107 First-Year Comp (3) ENG 101 and			
+ENG 102 / 108 First-Year Comp (3) ENG 102			
Or , if eligible (see Catalog for eligibility), +ENG 105 Adv First-Year Comp (3) and An Applicable Elective (3) – see Department			
Sub Total (I)			

II. General Requirements (15 hrs) *(See Catalog for approved courses)*
A. Humanities & Social Sciences (15 hrs min)
(Required: 1 course upper division; 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.)
Humanities, Fine Arts, and Design (6 hrs min)(HU)

Social/Behavioral Sciences (6 hrs min)(SB)

Awareness Areas			
<i>Cultural</i>			
<i>Global</i>			
<i>Historical</i>			

B. Literacy/Critical Inquiry (6 hrs)
 #L: MAE 491 Thermofluids Lab *Satisfied by Courses in Major*
 #L: MAE 400 Engineering Profession

C. Natural Sciences/Basic Sciences (8 hrs)
 +SQ: PHY 121/122 Physics I & Lab I *Satisfied by Courses in Major*
 +SQ: PHY 131/132 Physics II & Lab II

D. Mathematical Studies (6 hrs) – mark after taken
 #CS: MAE 100 Intro to ME & AE *Satisfied by Courses in Major*
 +MA: MAT 275 Modern Diff Eqs

Sub Total (II)			
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III. Required Lower Division Courses (52 hrs)

A. Natural Sciences/Basic Sciences (18 hrs)			
BME 111 Engr Persp on Bio Sys ECE 111 OR BCH 361 Princ of Biochemistry	3		
+CHM 114, 115 ^{1,2} , or 116 ² Chemistry (SQ) CHM 151+151LL and CHM 152+152LL	4		
+CHM 231 Intro to Organic Chem OR +CHM 240 Intro. Physical Chem CHM 230+LL	3		
+ PHY 121 Physics I (SQ) ³ PHY 115	3		
+ PHY 122 Physics Lab I (SQ) ³ PHY 115LL	1		
+ PHY 131 Physics II (SQ) ³ PHY 116	3		
+ PHY 132 Physics Lab II (SQ) ³ PHY 116LL	1		

B. Mathematical Studies (12 hrs)		Hrs Cr ASU Tr	Trans From	Gr
+MAT 265 Calc for Engrs I MAT 220		3		
+MAT 266 Calc for Engrs II MAT 230		3		
+MAT 267 Calc for Engrs III MAT 240		3		
+MAT 275 Mod Diff EQ (MA) MAT 261		3		
# C. Lower Division Engr (22 hrs)				
+MAE 100 Intro to ME & AE (CS) ECE 102+103		3		
+MAE 212 Engineering Mechanics ECE 214 = ECE 211+ECE212		4		
MAE 213 Mechanics of Solids ECE 215		3		
MAE 214 CAE I		1		
MAE 240 Thermofluids I		4		
MSE 250 Struc & Prop of Materials		3		
EEE 202 Circuits I EEE 202		4		
Sub Total (III)				

IV. Required Upper Division Courses (47 hrs)

#MAE 318 Sensors and Controls	5		
#MAE 322 Structural Mechanics	4		
#MAE 323 CAE II	2		
#MAE 340 Thermofluids II	3		
#MAE 342 Principles of Design	3		
#MAE 384 Numerical Methods (CS)	3		
#MAE 400 Engineering Profession (L)	3		
#MAE 488 ME Design I	3		
#MAE 489 ME Design II	3		
#MAE 491 Experimental Mech Engr (L)	3		
+MAT 343 Applied Linear Algebra	3		

Technical Electives (12 hrs)

Sub Total (IV)			

Total Upper Division _____ *(minimum 45 required)*

+ A minimum grade of “C” (2.0) required
 # Designates Major Course: A minimum cumulative GPA of 2.00 required

Designates a skill-set course

¹ Only 4 hours of CHM 115 will apply toward degree credit

² CHM 113 is prerequisite and does not apply toward degree credit

³ Must complete lecture and lab to receive SQ credit

Graduation Requirements: Regular Curriculum – 120 Hours

Semester Hour Summary	Hrs/ASU	Tr Hrs	Total
I. English Proficiency			
II. General Requirements			
III. Required Lower Division			
IV. Required Upper Division			
Total Program Hours			