

## College of Engineering & Applied Science – B.S. Mechanical Engineering

### Contact Information:

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### Student Success Center Advising Hours:

Monday: 9am-5pm Walk-in Advising

Tuesday–Friday: 9am-4pm Appointments Only

To schedule an appointment, call 719-255-3260. The Student Success Center is located in Main Hall 208.

## General Academic Information

### Academic Policies

It is the responsibility of each student to know and follow all Academic policies established by the University and the College of Engineering & Applied Science (EAS) that are set forth in the Catalog ([catalog.uccs.edu](http://catalog.uccs.edu)).

### Course Prerequisites

Students are responsible for knowing and completing all course prerequisites. Course prerequisites are strictly enforced for all classes at UCCS.

### Restrictions and Limitations

Students must be admitted into the degree major in the College of Engineering and Applied Science at least 30 credit hours prior to graduation. Only three hours of Independent Study may count toward the degree. Work Experience/Military Science/ROTC credit will not apply toward fulfillment of the requirements for a degree from the College of Engineering.

### Probation/Suspension

Students whose full-time semester's or cumulative GPA falls below 2.0 will be placed on probation for the next semester in which they are enrolled in the College of Engineering & Applied Science and will be notified by email and mail. If, after that semester, the semester or cumulative GPA is still below 2.0, the student will be suspended from the college. PLEASE NOTE: *While on probation, registration for the subsequent semester will be blocked until final grades are posted for the current semester. This is to verify that the minimum semester GPA for each student has been fulfilled.*

### Compass Curriculum

Compass Curriculum is the campus-wide general education program at UCCS. The Compass Curriculum has multiple components many of which will coincide with the degree requirements listed in this guide. Please visit the Compass Curriculum website at [www.uccs.edu/compasscurriculum](http://www.uccs.edu/compasscurriculum), review your degree audit, or check out the Compass Curriculum advising guide for specific course details. The required components are listed below and referenced in the guide.

#### REQUIRED COMPASS CURRICULUM COMPONENTS:

Component	Course
<b>Gateway</b>	GPS 1010
<b>Explore<sup>1</sup></b> – Arts, Humanities and Cultures	See List
<b>Explore<sup>1</sup></b> – Society, Behavior and Health	See List
<b>Explore<sup>1</sup></b> – Physical and Natural World	PES 1110
<b>Navigate<sup>2</sup></b>	See List
<b>Summit</b>	MAE 4511
<b>Writing Intensive Course (WIC)<sup>3</sup></b> <i>Two courses with at least one upper-division (3000+ level).</i>	MAE 3130 MAE 3310
<b>Inclusiveness<sup>3</sup></b>	MAE 1503
<b>Sustainability<sup>3</sup></b>	MAE 3302

<sup>1</sup> Explore must be outside major and area requirements.

<sup>2</sup> Navigate must be outside major requirements.

<sup>3</sup> Can count towards other requirements within the Compass Curriculum or within a student's degree program.



## DEPARTMENT OF MECHANICAL ENGINEERING

Department website: [www.uccs.edu/mae](http://www.uccs.edu/mae)

Degree Requirements	Courses		
<b>Mechanical Engineering Core Courses</b> (59 hours)	MAE 1502	Principles of Engineering	3
	MAE 1503	Intro to Engineering Design	3
	MAE 2055	MechEtronics I ( <i>pre-req MATH 1360, co-req PES 1120</i> )	3
	MAE 2103	Engineering Mechanics I ( <i>pre-req MAE 1502, PES 1110, co-req MATH 2350</i> )	3
	MAE 2104	Engineering Mechanics II ( <i>pre-req MAE 2103, co-req MATH 3400</i> )	3
	MAE 2200	Materials Engineering ( <i>pre-req MATH 1350, PES 1110, CHEM 1301</i> )	3
	MAE 2301	Engineering Thermodynamics I ( <i>pre-req MATH 1350, PES 1110</i> )	3
	MAE 3005	Engineering Measurement Lab ( <i>pre-req MATH 3400, MAE 3055, MATH 3810 or ECE 3610</i> )	3
	MAE 3055	MechEtronics II ( <i>pre-req MATH 2350, MAE 2055</i> )	3
	MAE 3130	Fluid Mechanics ( <i>pre-req MAE 2104, MAE 2301, MAE 3005, ENGL 2090</i> )	4
	MAE 3201	Strength of Materials ( <i>pre-req MAE 2103, MATH 1360, co-req MAE 2200</i> )	3
	MAE 3302	Engineering Thermodynamics II ( <i>pre-req MAE 2301</i> )	3
	MAE 3310	Heat & Mass Transfer ( <i>pre-req MAE 3130, MATH 3130, MATH 3400, MAE 3005</i> )	4
	MAE 3401	Modeling & Simulation of Dynamic Systems ( <i>pre-req MAE 1503, MAE 2104, MATH 3400, MATH 3810 or ECE 3610, CS 1090</i> )	3
	MAE 3501	Machine Design I ( <i>pre-req MAE 3201, MAE 2104</i> )	3
	MAE 4000	Mechanical and Aerospace Engineering Seminar	1
	MAE 4120	Machine Design II ( <i>pre-req MAE 3501, MATH 3130</i> )	3
	MAE 4421	Control of Aerospace & Mechanical Systems ( <i>pre-req MAE 3401, MATH 3130</i> )	3
	MAE 4510	Engineering Design I ( <i>pre-req ENGL 2090, Senior standing</i> )	2
	MAE 4511	Engineering Design II ( <i>pre-req MAE 4510</i> )	3
<b>Technical Electives</b> (12 hours)	Complete 12 credit hours of technical electives. All courses need to be numbered 3000 or higher and at least 6 hours must be completed from courses numbered 4000 or higher. At least 6 hours of the Technical Electives must be taken from MAE courses. The remaining Technical Electives should be chosen from CS, EE, MAE, MATH (with at least MATH 1350 as a prerequisite) and PES (with at least MATH 1350 or PES 1110 as a prerequisite). PES 2130 General Physics III may be taken as a technical elective. MAE 3342 Engineering Economy can count either as a business or a technical elective.		
<b>Computing Requirement</b> (3 hours)	Complete CS 1090		
	CS 1090	Intro to MATLAB	3
<b>Composition Courses</b> (6 hours)	Complete ENGL 1310, 2090, and the Writing Portfolio.		
	ENGL 1310	Rhetoric & Writing I	3
	ENGL 2090	Technical Writing & Presentation ( <i>pre-req ENGL 1310</i> )	3
	PORT 3000	Writing Portfolio Assessment ( <i>pre-req ENGL 2090</i> )	0

<b>Mathematics</b> (21 hours)  <i>NOTE: Math courses require a grade of C or better to progress through the Math sequence.</i>	<i>Complete all of the following courses.</i>		
	MATH 1350	Calculus I ( <i>pre-req MATH 1050</i> )	4
	MATH 1360	Calculus II ( <i>pre-req MATH 1350</i> )	4
	MATH 2350	Calculus III ( <i>pre-req MATH 1360</i> )	4
	MATH 3130	Intro to Linear Algebra ( <i>pre-req MATH 2350</i> )	3
	MATH 3400	Intro to Differential Equations ( <i>pre-req MATH 2350</i> )	3
	MATH 3810 or ECE 3610	Intro to Probability & Statistics ( <i>pre-req MATH 2350</i> )  Engineering Probability & Statistics	3
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<b>Basic Science</b> (13 hours)	<i>Complete PES 1110, PES 1120, and CHEM 1301.</i>		
	PES 1110	PES 1120	CHEM 1301
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<b>Humanities/Social Science Requirements</b> (6 hours) <i>&gt; Select one course from the Explore Arts, Humanities &amp; Cultures list, and one from the Explore Society, Behavior &amp; Health list.</i>	<b>HUMANITIES/SOCIAL SCIENCE</b> – Complete 6 hours of Humanities/Social Science Electives from the following departments: AH, ANTH, COMM, ECON, ENGL (except ENGL 99, 1310, 1350 & 1410), FILM, GRNT, GES 1980 or GES 1990 only, HIST, ID 2000 or 4090, Languages, MUS (except choir or lessons) PHIL, PSC, PSY, SOC, VA and WEST. At least 3 hours must be taken at the 2000+ level.		
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<b>Business Electives</b> (6 hours)	<i>Complete one of the following courses.</i>		
	MAE 3040	Engineering Ethics ( <i>pre-req Jr or higher standing</i> )	3
	MAE 3342	Engineering Economy ( <i>pre-req Jr or higher standing</i> )	3
	<i>Complete one of the following courses.</i>		
	BUAD 1000	Intro to Business	3
	ENTP 1000	Introduction to Entrepreneurship	3
	INOV 1010	The Innovation Process	3
	ACCT 2010	Intro to Financial Accounting ( <i>pre-req MATH 1040 or higher</i> )	3
	BLAW 2000	Business Law ( <i>pre-req soph or higher standing</i> )	3
	BLAW 2010	Bus. & Intellectual Property ( <i>pre-req soph or higher standing</i> )	3
	MKTG 3000	Principles of Marketing ( <i>pre-req ENGL 1310 and 2<sup>nd</sup> semester soph standing</i> )	3
	MGMT 3300	Intro to Management & Organization ( <i>pre-req Jr or higher standing</i> )	3
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<b>Compass Curriculum</b> (3 hours not included above)	Complete all Compass Curriculum requirements not already completed as part of the above program. The Gateway Seminar ( <b>GPS 1010</b> ) must be completed by all students. Explore courses must be completed outside of the major and Area Requirements. All other Compass Curriculum requirements can be completed within the degree requirements above. To see a list of all Compass Curriculum courses, please visit: <a href="http://www.uccs.edu/compasscurriculum">www.uccs.edu/compasscurriculum</a> .		
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### UCCS Bachelor of Science, Mechanical Engineering Major Degree Requirements

- > A minimum of 129 hours must be completed with a cumulative CU grade point average of 2.0; at least 45 of these hours must be at the upper-division level (courses numbered 3000+).
- > The last 30 hours of the degree must be completed while registered in the College of Engineering and Applied Science at UCCS.
- > Courses numbered below 1000 do not count towards degree completion.
- > This guide is provided for student use only. It does not represent an official documentation of a student's progress towards completion of their degree program. The ME program requires a minimum of 129 credit hours to complete. Students must have a minimum 2.0 GPA in all MAE course work taken, and a minimum 2.0 GPA in all cumulative course work. Students must also complete an Exit Interview with the MAE Department to graduate.



## Four-Year Degree Plan – Mechanical Engineering

The following four-year plan lists all the specific course requirements for the Bachelor of Science in Mechanical Engineering degree at UCCS. The order in which these courses are taken may vary with course availability. **Students are responsible for completing all course prerequisites.** Please note that this is a *suggested* degree program; your program may vary.

### Suggested First Year

FALL			SPRING		
√	Course	Hours	√	Course	Hours
	ENGL 1310	3		CHEM 1301	5
	MAE 1502	3		MAE 1503	3
	GPS 1010	3		MATH 1360	4
	MATH 1350	4		PES 1120	4
	PES 1110	4			
	<b>TOTAL</b>	<b>17</b>		<b>TOTAL</b>	<b>16</b>

### Suggested Second Year

FALL			SPRING		
√	Course	Hours	√	Course	Hours
	MATH 2350	4		MAE 2104	3
	MAE 2103	3		MAE 2301	3
	MAE 2200	3		MAE 3055	3
	MAE 2055	3		MATH 3400	3
	CS 1090	3		MATH 3810 or ECE 3610	3
	<b>TOTAL</b>	<b>16</b>		<b>TOTAL</b>	<b>15</b>

### Suggested Third Year

FALL			SPRING		
√	Course	Hours	√	Course	Hours
	ENGL 2090	3		MAE 3130	4
	MAE 3005	3		MAE 3501	3
	MAE 3201	3		MAE 4421	3
	MAE 3302	3		Technical Elective	3
	MAE 3401	3		Explore – Society, Behavior & Health Course	3
	MATH 3130	3			
	<b>TOTAL</b>	<b>18</b>		<b>TOTAL</b>	<b>16</b>

### Suggested Fourth Year

FALL			SPRING		
√	Course	Hours	√	Course	Hours
	MAE 3310	4		MAE 4511	3
	MAE 4000	1		Explore – Arts, Humanities & Cultures Course	3
	MAE 4120	3		Business Elective	3
	MAE 4510	2		Technical Elective	3
	Business Elective	3		Technical Elective	3
	Technical Elective	3			
	<b>TOTAL</b>	<b>16</b>		<b>TOTAL</b>	<b>15</b>