University of Colorado Colorado Springs

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

Academic Advising Hours:

Location: Main Hall 208
Hours: Monday: 9am-5pm Walk-in Advising
Tuesday–Friday: 9am-4pm Appointments Only
Call: (719) 255-3260
Website: www.uccs.edu/advising

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).

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

Residency, Restrictions, and Limitations
Students must be admitted into the College of Engineering and Applied Science as well as complete at least the final 30 credit hours of coursework exclusively at UCCS. Only three hours of Independent Study may count toward the degree. Credit for work experience, Military Science, and ROTC – when granted – is generally not applicable to degree fulfillment.

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.*

UCCS Bachelor of Science, Mechanical Engineering Major Degree Requirements
> A minimum of 127 hours must be completed with a cumulative CU and major grade point averages of 2.0 or higher.
> 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.

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, 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
Gateway	GPS 1010
Explore[1] – Arts, Humanities and Cultures	See Degree Audit
Explore[1] – Society, Behavior and Health	See Degree Audit
Explore[1] – Physical and Natural World	PES 1110
Navigate[2]	ENGR 3040
Summit	MAE 4511
Writing Intensive Course (WIC)[3] *Two courses with at least one upper-division (3000+ level).*	MAE 3130 MAE 4310
Inclusiveness[3]	MAE 1503
Sustainability[3]	MAE 3302

[1] *Explore must be outside major and area requirements.*
[2] *Navigate must be outside major requirements.*
[3] *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

Degree Requirements	Courses		
Mechanical Engineering Core Courses (57 hours) *You must be admitted into the College of Engineering in order to take any MAE coursework.*	Complete all of the following courses:		
	MAE 1502	Principles of Engineering	3
	MAE 1503	Intro to Engineering Design	3
	MAE 2055	MechEtronics I *(pre-req MATH 1360, pre-req PES 1120)*	4
	MAE 2103	Engineering Mechanics I *(pre-req MAE 1502, PES 1110, co-req MATH 2350)*	3
	MAE 2104	Engineering Mechanics II *(pre-req MAE 2103, co-req MATH 3400)*	3
	MAE 2200	Materials Engineering *(pre-req MATH 1350, PES 1110, CHEM 1301)*	3
	MAE 2301	Engineering Thermodynamics I *(pre-req MATH 1350, PES 1110)*	3
	MAE 3005	Engineering Measurement Lab *(pre-req MATH 3400, MAE 2055, MATH 3810 or ECE 3610)*	3
	MAE 3130	Fluid Mechanics *(pre-req MAE 2104, MAE 2301, MAE 3005, ENGL 2090)*	4
	MAE 3201	Strength of Materials *(pre-req MAE 2103, MATH 1360, co-req MAE 2200)*	3
	MAE 3302	Engineering Thermodynamics II *(pre-req MAE 2301)*	3
	MAE 4310	Heat Transfer *(pre-req MAE 3130, MATH 3130, MATH 3400, MAE 3005)*	4
	MAE 3401	Modeling & Simulation of Dynamic Systems *(pre-req MAE 1503, MAE 2104, MATH 3400, MAE 1090, co-req MATH 3130)*	3
	MAE 3501	Machine Design I *(pre-req MAE 3201, MAE 2104)*	3
	MAE 4000	Mechanical and Aerospace Engineering Seminar	1
	MAE 4120	Machine Design II *(pre-req MAE 3501, MATH 3130)*	3
	MAE 4421	Control of Aerospace & Mechanical Systems *(pre-req MAE 3401, MATH 3130)*	3
	MAE 4510	Engineering Design I *(pre-req ENGL 2090, MAE 3005, Senior standing)*	2
	MAE 4511	Engineering Design II *(pre-req MAE 4510)*	3
Technical Electives (12 hours)	Complete 12 credit hours of technical electives. At least 6 hours must be MAE courses and at least 6 hours must be completed from courses numbered 4000 or higher. Any remaining Technical Electives should be chosen from the following disciplines: • Computer Science • Electrical Engineering • Mechanical Engineering ○ *MAE 3342 may be used if ENGR 3040 is taken as a Business Elective* • Math (with at least MATH 1350 as a prerequisite) • Physics (with at least PES 1110 as a prerequisite) • PES 2130 General Physics III		
Computing Requirement (3 hours)	Complete the following course:		
	MAE 1090	Introduction to Structured Programming	3
Composition Courses (6 hours)	Complete all of the following courses:		
	ENGL 1310	Rhetoric & Writing I	3
	ENGL 2090	Technical Writing & Presentation *(pre-req ENGL 1310)*	3
	PORT 3000	Writing Portfolio Assessment *(pre-req ENGL 2090)*	0

Mathematics (21 hours) *NOTE: Math courses require a grade of C or better in MATH 1350, 1360, and 2350.*	Complete all of the following courses:			
	MATH 1350	Calculus I *(pre-req MATH 1050)*		4
	MATH 1360	Calculus II *(pre-req MATH 1350)*		4
	MATH 2350	Calculus III *(pre-req MATH 1360)*		4
	MATH 3130	Intro to Linear Algebra *(pre-req MATH 2350)*		3
	MATH 3400	Intro to Differential Equations *(pre-req MATH 2350)*		3
	MATH 3810 or ECE 3610	Intro to Probability & Statistics *(pre-req MATH 2350)* Engineering Probability & Statistics *(pre-req MATH 2350)*		3
Basic Science (13 hours)	Complete all of the following courses:			
	PES 1110	PES 1120	CHEM 1401	CHEM 1402
Compass Curriculum/ Humanities/ Social Science Requirements (9 hours) *> Select one course from the Explore Arts, Humanities & Cultures list, and one from the Explore Society, Behavior & Health list.*	**COMPASS CURRICULUM –** In addition to the courses outlined above, a Gateway Seminar (**GPS 1010**) must be completed by all students to complete the Compass Curriculum. To see a list of all Compass Curriculum courses, please visit: www.uccs.edu/compasscurriculum. **GPS 1010** **HUMANITIES/SOCIAL SCIENCE –** Complete 6 hours of Humanities/Social Science Electives from the following departments: • Art History • Anthropology • Communication • Economics • English (except Composition courses) • Film • Gerontology • GES 1980 or GES 1990 only • History • ID 2000 or ID 4090 only • Foreign Languages • Music (except performance and practice courses) • Philosophy • Political Science • Psychology • Sociology • Visual Arts • Women's and Ethnic Studies			
Business Electives (6 hours)	*Complete one of the following courses.*			
	ENGR 3040	Engineering Ethics *(pre-req Jr or higher standing)*		3
	MAE 3342	Engineering Economy *(pre-req Jr or higher standing)*		3
	Complete one of the following courses.			
	BUAD 1000	Intro to Business		3
	ENTP 1000	Introduction to Entrepreneurship		3
	INOV 1010	The Innovation Process		3
	ACCT 2010	Intro to Financial Accounting *(pre-req MATH 1040 or higher)*		3
	BLAW 2000	Business Law *(pre-req soph or higher standing)*		3
	BLAW 2010	Bus. & Intellectual Property *(pre-req soph or higher standing)*		3
	MKTG 3000	Principles of Marketing *(pre-req ENGL 1310 and 2nd semester soph standing)*		3
	MGMT 3300	Intro to Management & Organization *(pre-req Jr or higher standing)*		3

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*
	MAE 1502 – Principles of Engineering	3		MAE 1503 – Intro. to Engineering Design	3
	MATH 1350 – Calculus I	4		MATH 1360 – Calculus II	4
	GPS 1010 – Gateway Program Seminar	3		PES 1110 – General Physics I	4
	ENGL 1310 – Rhetoric & Writing I	3		CHEM 1401 – General Chemistry I	4
	Compass Explore (Humanities/Social Science) Elective	3		CHEM 1402 – General Chemistry I Lab	1
	TOTAL	16		**TOTAL**	16

Suggested Second Year

	FALL			SPRING	
√	*Course*	*Hours*	√	*Course*	*Hours*
	MAE 2103 – Engineering Mechanics I	3		MAE 2104 – Engineering Mechanics II	3
	MAE 2200 – Materials Engineering	3		MAE 1090 – Intro to Structured Programming	3
	MAE 2301 – Thermodynamics I	3		MAE 2055 – Mech-Etronics I	4
	MATH 2350 – Calculus III	4		MATH 3400 – Intro to Differential Equations	3
	PES 1120 – General Physics II	4		MATH 3810 or ECE 3610 – Probability & Statistics	3
	TOTAL	17		**TOTAL**	16

Suggested Third Year

	FALL			SPRING	
√	*Course*	*Hours*	√	*Course*	*Hours*
	MAE 3005 – Engineering Measurement Lab	3		MAE 3130 – Fluid Mechanics	4
	MAE 3302 – Thermodynamics II	3		MAE 3201 – Strength of Materials	3
	MAE 3401 – Modeling & Simulation of Systems	3		MAE 4421 – Control of Aerospace/Mechanical Systems	3
	MAE 4000 – MAE Seminar	1		Technical Elective	3
	MATH 3130 – Intro to Linear Algebra	3		Business Elective	3
	ENGL 2090 – Technical Writing	3			
	TOTAL	16		**TOTAL**	16

Suggested Fourth Year

	FALL			SPRING	
√	*Course*	*Hours*	√	*Course*	*Hours*
	MAE 4510 (Fall only) – Engineering Design I	2		MAE 4511 (Spring only) – Engineering Design II	3
	MAE 3501 – Machine Design I	4		MAE 4120 – Machine Design II	3
	MAE 4310 – Heat Transfer	3		Technical Elective	3
	Technical Elective	3		Technical Elective	3
	Business Elective	3		Compass Explore (Humanities/Social Science) Elective	3
	PORT 3000 – Writing Portfolio Assessment	0			
	TOTAL	15		**TOTAL**	15