

## PROGRAM OVERVIEW

Mechanical engineering offers interesting and challenging career opportunities in research, design development, manufacturing, testing and marketing for either private or government. As a mechanical engineer, you may work on products such as engines, transmissions, compressors, pumps, computer disk drives, CAD/CAE software, oil field drilling rigs, missiles, space satellites, earth moving equipment, container manufacturing machines and medical equipment.

Bachelor of Science (BS) in mechanical engineering curriculum begins with a strong emphasis on mathematics, physics and chemistry. It continues with a concentration in engineering sciences, including solid and fluid mechanics; thermodynamics, heat and mass transport; materials; and systems analysis and control. It concludes with laboratory and design courses which demonstrate the ways in which scientific knowledge is applied in the design and development of useful devices and manufacturing processes.

## ACADEMIC ADVISING

Academic advising is mandatory for all ME/BS and pre-engineering students. The College Advising hold is placed every semester on each undergraduate student's account despite the GPA. The ME department wants to make sure you are on a right track and needs to see you every semester to advice on classes and career path. The advising hold is released after the advising meeting. The academic advisor may change every semester depending on your year of study and academic standing. To schedule an appointment please call 303-315-7500 or email [mechanical@ucdenver.edu](mailto:mechanical@ucdenver.edu)

*Students admitted to the College of Engineering, Design and Computing (CEDC) who have declared a major are required to meet with an advisor in their specific department and should contact that department to schedule an appointment.*

**Mechanical Engineering**  
[mechanical@ucdenver.edu](mailto:mechanical@ucdenver.edu)  
Visit the department website [here](#)  
North Classroom 2024  
303-315-7500

*Students admitted to the College of Engineering, Design and Computing (CEDC) who have not declared a major are required to meet with the CEDC advisor.*

College of Engineering, Design and Computing  
University of Colorado Denver  
t 303 315 7170  
f 303 315 7173  
[engineering@ucdenver.edu](mailto:engineering@ucdenver.edu)

## GENERAL GRADUATION REQUIREMENTS & POLICIES

All CU Denver CEDC MECH students are required to complete the following minimum general graduation requirements:

1. Complete a minimum of 128 credit hours.
2. Achieve a minimum 2.0 CU cumulative grade point average (GPA) and 2.0 minimum GPA in engineering coursework.
3. Complete all college and major requirements.
4. Residency: complete a minimum of 30 CEDC hours as a declared CEDC student in good standing at CU Denver.
5. Terminal Residency: complete at least the final two semesters as an enrolled CEDC student.

## PROGRAM REQUIREMENTS & POLICIES

**Students are responsible for meeting with the faculty advisor in their department to confirm major requirements.** Students completing the Mechanical Engineering B.S. Degree are required to complete the following minimum program requirements:

1. Complete 24 semester hours of **CU Denver Core Curriculum** coursework.
2. Complete a minimum of 31 semester hours of **required mathematics and basic science courses with a grade of C- (2.0) or better in each course.**
3. Complete a minimum of 73 semester hours of **MECH core curriculum coursework, including 12 credit hours of elective coursework in an approved mechanical engineering track. All prerequisite courses must be completed with a grade of C- or better.**

Courses	Credits	Notes
<b>* Course prerequisites change regularly. Students are responsible for consulting advisors and the class schedule in the student portal for prerequisite information. *</b>		
<b>Required CU Denver Core Curriculum Coursework</b>	<b>24</b>	<a href="#">CU Denver Core Curriculum</a>
<b>Required Mathematics and Basic Sciences Courses</b>	<b>31</b>	
MATH1401 Calculus I	4	*Prerequisite: Placement; fulfills CORE Mathematics
MATH2411 Calculus II	4	*Prerequisite: C- or better in MATH 1401
MATH2421 Calculus III	4	*Prerequisite: C- or better in MATH 2411
MATH3195 Linear Algebra and Differential Equations	4	*Prerequisite: C- or better in MATH 2411
ENGR 1130 Engineering Chemistry with lab	5	*Prerequisite: High School chemistry or CHEM 1000 recommended
PHYS 2311 & 2321 General Physics I with lab	5	*Prerequisite: MATH 1401
PHYS 2331 & 2341 General Physics II with lab	5	*Prerequisite: PHYS 2311 and *Co-Requisite: MATH 2411
<b>Required Mechanical Engineering Courses</b>	<b>73</b>	
MECH 1025 Mechanical Engineering Graphics and CAD	3	*Prerequisite: High School Geometry and Algebra
MECH 1045 Manufacturing Processes Design	3	*Prerequisite: MECH 1025
MECH 1100 Fundamentals of Computational Innovation	3	*Prerequisite: High School Geometry and Algebra
MECH 1200 Fundamentals of Engineering Design Innovation	3	*Prerequisite: High School Geometry and Algebra



Required Mechanical Engineering Courses (Continued)		
MECH 2023 Statics	3	*Prerequisites: PHYS 2311 *Co-Requisite: MATH 2411
MECH 2024 Introduction to Materials Science	3	*Prerequisite: ENGR 1130
MECH 2033 Dynamics	3	*Prerequisite: MECH 2023
MECH 2034 Properties of Engineering Materials Lab	1	*Co-Requisite: MECH 2024
MECH 3010 Elementary Numerical Methods	3	*Prereq: MECH 1100*Co-Req: MATH 3195 or (MATH 3191 and MATH 3200)
MECH 3012 Thermodynamics	3	*Prerequisites: MATH 1401 and PHYS 2311
MECH 3021 Introduction to Fluid Mechanics	3	*Prerequisite: MECH 3012, MATH 2421 and MECH 2033
MECH 3027 Measurements	3	* Prerequisite: ELEC 3030 and MATH 3195 or (MATH 3191 and MATH 3200)
MECH 3028 Measurements Lab	1	* Co-Requisite: MECH 3027
ELEC 3030 Electric Circuits and Systems	3	* Prerequisite: PHYS 2331 and MATH 2421
MECH 3031 Fluids/Thermal Lab	1	*Co-Requisite: MECH 3021
MECH 3032 Electric Circuits and Systems Lab	1	*Co-Requisite: ELEC 3030
MECH 3035 Design of Mechanical Elements	3	*Prereq: MECH 1200, MECH 3043, and MECH 2024; Co-Req: MECH 1045
MECH 3042 Heat Transfer	3	*Prerequisite: MECH 3021
MECH 3043 Strengths of Materials	3	*Prerequisite: MECH 2023
MECH 4023 System Dynamics	3	* Pre-requisites: MECH 2033, MECH 3010, *Co-Requisite: MECH 3043
MECH 4035 Senior Design I	3	*Prerequisite: 43 hours of MECH courses, including MECH 3035
MECH 4045 Senior Design II	3	*Prerequisite: MECH 4035
MECH 4142 Thermal Systems Design	3	*Prerequisite: MECH 3010, MECH 3012, and MECH 3042
<b>Engineering Technical Electives:</b> choose four <b>approved</b> by your advisor 3000+ level engineering track electives taught within the Department of Mechanical Engineering.		12
<b>Total Program Hours:</b>		<b>128</b>

#### SAMPLE ACADEMIC PLAN OF STUDY

The following academic plan is a *sample* pathway to completing degree requirements for this major. Students should tailor this plan based on previously completed college coursework (e.g., AP, dual/concurrent enrollment, and transfer credit), course availability, and individual preferences related to course load, schedules, or add-on programs such as minors or double-majors. UCD core curriculum courses, as well as MATH and PHYS courses, can be completed during summer semesters to reduce Spring/Fall course load. **Students deviating from this plan must fulfill course prerequisites and must meet with the faculty advisor in their department to confirm degree requirements.**

Year One	Semester 1		Year Two	Semester 3		Year Three	Semester 5		Year Four	Semester 7	
	MATH 1401: Calculus I	4		MATH 2411: Calculus II	4		MECH 3010: Elem. Numerical Methods & Programming	3		MECH 4023: System Dynamics	3
	ENGR 1130:Engineering General Chemistry	5		PHYS 2311/PHYS 2321: General Physics I w/Lab	5		MECH 3021/ MECH 3031 Fluid Mechanics w/Lab	4		MECH 4035: Senior Design I	3
	MECH 1025: Engineering Graphics and CAD	3		MECH 1045: Manufacturing	3		MECH 3027/MECH 3028: Measurements w/Lab	4		MECH 4142: Thermal Systems Design	3
	ENGL 1020: Core Composition I	3		MECH 2033: Dynamics	3		MECH 3043 Strength of Materials	3		MECH Technical Elective	3
	MECH 1100 Fundamentals of Computational Innovation	3		MECH 2034: Properties of Materials Lab	1		UCD Core Curriculum Course	3		UCD Core Curriculum Course	3
	<b>Total c/h:</b>	<b>18</b>		<b>Total c/h:</b>	<b>18</b>		<b>Total c/h:</b>	<b>17</b>		<b>Total c/h:</b>	<b>15</b>
Year One	Semester 2		Year Two	Semester 4		Year Three	Semester 6		Year Four	Semester 8	
	MATH 2411: Calculus II	4		MECH 2033: Dynamics	3		MECH Technical Elective	3		MECH 4045: Senior Design II	3
	PHYS 2311/PHYS 2321: General Physics I w/Lab	5		MECH 2034: Properties of Materials Lab	1		MECH Technical Elective	3		MECH Technical Elective	3
	MECH 1045: Manufacturing	3		MECH 3012: Thermodynamics	3		MECH 3035: Design Of Mechanical Elements	3		UCD Core Curriculum Course	3
	ENGL 2030: Core Composition II	3		ELEC 3030/MECH 3032: Electric Circuits & Systems w/Lab	4		MECH 3042: Heat Transfer	3		UCD Core Curriculum Course	3
	MECH 1200 Fundamentals of Engineering Design Innovation	3		MATH 3195: Linear Algebra & Differential Equitation	4		UCD Core Curriculum Course	3			
	<b>Total c/h:</b>	<b>18</b>		<b>Total c/h:</b>	<b>15</b>		<b>Total c/h:</b>	<b>15</b>		<b>Total c/h:</b>	<b>12</b>