MECHANICAL ENGINEERING, WESTERN - UNIVERSITY OF COLORADO BOULDER PARTNERSHIP

The Mechanical Engineering program requires a minimum of 128 cumulative credits applied to the degree, which includes courses from Western Colorado University and the University of Colorado Boulder.

This program provides a seamless transfer of coursework from the Gunnison residential campus for a Bachelor of Science in Mechanical Engineering awarded by CU Boulder. A student must meet the requirements for the CU Boulder College of Engineering & Applied Science and may apply for admission when they have established a successful collegiate record as a Western student. This is demonstrated through academic requirements outlined at https://western.edu/program/mechanical-engineering-university-colorado-partnership/transition-to-cu-boulder/

Students are expected to follow the Academic Policies of#the respective#University/Universities#at which they are registered.

- Western: https://catalog.western.edu/undergraduate/policies/ (https://catalog.western.edu/undergraduate/policies/)
- CU Boulder College of Engineering & Applied Science: https://www.colorado.edu/engineering-advising/get-your-degree/academic-expectations-policies

Planned Western coursework is outlined below in red font and course numbers are all three digits, while CU Boulder coursework is outlined below in black font and course numbers are all four digits. Students must complete 45 credits of CU Boulder coursework.

Degree Requirements - Courses

Code	Title	Credits
College Writing Requirement (total of 3 credit hours)		
ENG 302	Technical Writing	3
Computer Science (total of 3 credit hours)		
CS 191	Computer Science II	3
Mathematics & Basic Sciences (total of 30 credit hours)		
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
MATH 252	Calculus III	4
MATH 358	Introduction to Differential Equations and Linear Algebra	4
CHEM 121	General Chemistry for Engineers	3-4
or CHEM 111 & CHEM 112	General Chemistry I (GT-SC2) and General Chemistry Laboratory I (GT-SC1)	
PHYS 190 & PHYS 185	General Physics I (GT-SC2) and Laboratory Physics I (GT-SC1)	4
PHYS 191 & PHYS 186	General Physics II (GT-SC2) and Laboratory Physics II (GT-SC1)	4
Math/Science Foundations (can be satisfied with any of the following courses)		3-4
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
BIOL 372	Human Anatomy and Physiology I (with laboratory)	
CHEM 113	General Chemistry II	
CHEM 331	Organic Chemistry I	
ECON 216	Statistics for Business and Economics	
GEOL 101	Physical Geology (GT-SC2)	
GEOL 201	Historical Geology (with laboratory)	
MATH 113	Statistical Thinking (GT-MA1)	
MATH 220	Introduction to Advanced Mathematics	
MATH 380	Introduction to Cryptography	
MATH 471	Abstract Algebra I	
PHYS 110	Introductory Astronomy (GT-SC2)	
PHYS 320	Modern Physics	
General Engineering (total of 15 credit hours)		
ENGR 131	Introduction to Engineering Design	3
ENGR 224	Materials Science	3
PHYS 250	Statics	3
ENGR 251	Dynamics	3
or PHYS 251	Dynamics	
ENGR 363	Mechanics of Solids	3
Mechanical Engineering (total of 43 credit hours)		
ENGR 161	COMPUTER-AIDED DESIGN	3
ENGR 162	Fabrication	1
ENGR 265	Engineering as a Profession	1
ENGR 335	Fluid Mechanics	3
or PHYS 335	Fluid Mechanics	
MCEN 3012: Thermodynamics		3
MCEN 3017: Circuits and Electronics for Mechanical Engineers		3
MCEN 3022: Heat Transfer		3
MCEN 3025: Component Design		3
MCEN 3030: Computational Methods		3
MCEN 3032: Thermodynamics 2		3
MCEN 3047: Data Analysis and Experimental Methods		4
MCEN 4026: Manufacturing Processes and Systems		3
MCEN 4043: System Dynamics		3
MCEN 4045: Mechanical Engineering Design Project 1		3
MCEN 4085: Mechanical Engineering Design Project 2		3
MCEN 4086: Writing for Design		1
Mechanical Technical Electives (total of 6 credit hours)		
MCEN coursework 3000-level or higher not already in degree.		
General Technical Electives (total of 6 credit hours)		
Engineering, science, math, computer science, or engineering management courses at 3000-level or higher not already in degree (subject to departmental approval).		
Humanities & Social Sciences		
Complete 15 credits of approved humanities and social science coursework, 6 credits of which must be upper-division.		
Free Electives		
Complete enough electives to bring the total credit hours toward the degree to 128. Normally this is 12 credit hours but could vary (for example due to transfer credits). Please consult with your academic advisor or Partnership Program Director with questions.		

The following plan lists all the specific course requirements for the Bachelor of Science Degree in Mechanical Engineering from the University of Colorado Boulder in partnership with Western Colorado University. 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.

Planned Western coursework is outlined below in red font and course numbers are all three digits, while CU Boulder coursework is outlined below in black font and course numbers are all four digits. Students must complete 45 credits at CU Boulder.

Course	Title	Credits
Year One		
Fall		
CS 190	Computer Science I	3
CHEM 121 or CHEM 111 ***and*** CHEM 112	General Chemistry for Engineers or General Chemistry I (GT-SC2) ***and*** General Chemistry Laboratory I (GT-SC1)	3-4
ENG 102	Writing and Rhetoric I (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 151	Calculus I (GT-MA1)	4
PHYS 185	Laboratory Physics I (GT-SC1)	1
PHYS 190	General Physics I (GT-SC2)	3
	Credits	**18-19**
Spring		
CS 191	Computer Science II	3
ENGR 131	Introduction to Engineering Design	3
H&SS lower-division		3
MATH 251	Calculus II	4
PHYS 186	Laboratory Physics II (GT-SC1)	1
PHYS 191	General Physics II (GT-SC2)	3
	Credits	**17**
Year Two		
Fall		
MATH 252	Calculus III	4
ENGR 161	COMPUTER-AIDED DESIGN	3
ENGR 162	Fabrication	1
ENGR 224	Materials Science	3
PHYS 250	Statics	3
PHYS 320	Modern Physics	3
	Credits	**17**
Spring		
ENG 302	Technical Writing	3
ENGR 251 or PHYS 251	Dynamics or Dynamics	3
ENGR 265	Engineering as a Profession	1
ENGR 335 or PHYS 335	Fluid Mechanics or Fluid Mechanics	3
ENGR 363	Mechanics of Solids	3
MATH 358	Introduction to Differential Equations and Linear Algebra	4
	Credits	**17**
Year Three		
Fall		
MCEN 3012 Thermodynamics		3
MCEN 3017 Circuits & Electronics for Mechanical Engineers		3
MCEN 3025 Component Design		3
MCEN 3030 Computational Methods		3
MCEN Technical Elective		3
	Credits	**15**
Spring		
MCEN 3032 Thermodynamics II		3
MCEN 3047 Data Analysis & Experimental Methods		4
MCEN 4026 Manufacturing Processes & Systems		3
MCEN Technical Elective		3
H&SS lower-division		3
	Credits	**16**
Year Four		
Fall		
MCEN 3022 Heat Transfer		3
MCEN 4043 System Dynamics		3
MCEN 4045 Mechanical Engineering Design Project I		3
MCEN 4086 Writing for Design		1
General Technical Elective		3
H&SS lower-division		3
	Credits	**16**
Spring		
MCEN 4085 Mechanical Engineering Design Project II		3
General Technical Elective		3
H&SS upper-division		6
	Credits	**12**
	Total Credits	**128-129**