

BACHELOR OF SCIENCE WITH A MAJOR IN MECHANICAL ENGINEERING, MEDICAL PREPARATION OPTION

Mechanical engineering encompasses a vast range of industrial activities. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of complex systems. Applications include aerospace, energy conversion, computer-aided design and manufacturing, power and propulsion systems, robotics, and control systems. The bachelor of science with a major in mechanical engineering, medical preparation option degree program prepares students for application to medical school. Students are prepared to work in research and development or to pursue graduate study in the fields of biomechanics and biotechnology. The mechanical engineering (ME) program is accredited by the Engineering Accreditation Commission of ABET (<https://www.abet.org/>).

Double major

SEAS and non-SEAS students interested in pursuing the BS in mechanical engineering as a double major should see Double Major under SEAS Regulations (<https://bulletin.gwu.edu/engineering-applied-science/#seasregulationstext>) in this Bulletin.

Visit the program website (<http://www.mae.seas.gwu.edu/programs-degrees/>) for additional information.

REQUIREMENTS

The following requirements must be fulfilled: 137 credits in required and elective courses.

Code	Title	Credits
Recommended program of study		
First semester		
BISC 1111	Introductory Biology: Cells and Molecules	
CHEM 1111	General Chemistry I ¹	
MAE 1001	Introduction to Mechanical and Aerospace Engineering	
MATH 1231	Single-Variable Calculus I ¹	
SEAS 1001	Engineering Orientation	
UW 1020	University Writing ¹	
Second semester		
CHEM 1112	General Chemistry II ¹	
MAE 1117	Introduction to Engineering Computations	

MATH 1232	Single-Variable Calculus II ¹
MATH 2184	Linear Algebra I
PHYS 1021	University Physics I ¹
Third semester	
APSC 2057	Analytical Mechanics I
APSC 2113	Engineering Analysis I
BISC 1112	Introductory Biology: The Biology of Organisms
MAE 2117	Engineering Computations
MATH 2233	Multivariable Calculus ¹
Fourth semester	
APSC 2058	Analytical Mechanics II
APSC 3115	Engineering Analysis III
CE 2220	Introduction to the Mechanics of Solids
MAE 1004	Engineering Drawing and Computer Graphics
MAE 2131	Thermodynamics
PHYS 1022	University Physics II
Fifth semester	
CHEM 2151	Organic Chemistry I ¹
CHEM 2153	Organic Chemistry Laboratory I ¹
MAE 3119	Electronics and Devices for Mechanical Engineers
MAE 3126	Fluid Mechanics I
MAE 3127	Fluid Mechanics Lab
MAE 3191	Mechanical Design of Machine Elements
PSYC 1001	General Psychology ((counts as one humanities or social sciences elective))
Sixth semester	
CHEM 2152	Organic Chemistry II ¹
CHEM 2154	Organic Chemistry Laboratory II ¹
MAE 3120	Methods of Engineering Experimentation
MAE 3134	Linear System Dynamics
MAE 3187	Heat Transfer

MAE 3193	Mechanical Systems Design
----------	---------------------------

Seventh semester

MAE 3166W	Materials Science and Engineering
-----------	-----------------------------------

MAE 3192	Manufacturing Processes and Systems
----------	-------------------------------------

MAE 4149	Thermal Systems Design
----------	------------------------

MAE 4151	Capstone Design Project I
----------	---------------------------

MAE 4182	Electromechanical Control System Design
----------	---

One humanities or social sciences elective ²

Eighth semester

MAE 3167W	Mechanics of Materials Lab
-----------	----------------------------

MAE 4152W	Capstone Design Project II
-----------	----------------------------

Four humanities or social sciences electives for a total of at least 12 credits

¹ Course satisfies the University General Education Requirement in quantitative reasoning, scientific reasoning, and written communication.

² To satisfy the SEAS humanities, social science, and non-technical elective requirement, all mechanical engineering students must take one humanities course and two social science courses from the University General Education Requirement (<https://bulletin.gwu.edu/university-regulations/general-education/>); PHIL 2135, and two additional humanities, social science, or non-technical courses from the SEAS list of preapproved electives. (<https://www.seas.gwu.edu/humanities-and-social-science-requirement/>) Each course selected to satisfy this requirement must be taken for at least 3 credits.