BACHELOR OF SCIENCE WITH A MAJOR IN MECHANICAL ENGINEERING (STEM)

The mechanical engineering program at GW teaches students the fundamentals in statics, dynamics, design, materials, fluid mechanics, thermodynamics, and heat transfer—knowledge that lets engineers design and build creative solutions for global challenges. Students have opportunities to explore aspects of traditional mechanical and aerospace engineering as well as emerging research in biomedical engineering and nanotechnology. Mechanical engineering students are pioneers, working on new technologies that could ultimately lead to fewer greenhouse gas emissions, while others have participated in biomechanics research to help the U.S. Olympic Swimming Team bring home more medals. Program graduates have many career options and opportunities to make a difference, including careers in the automotive, aerospace, manufacturing, power generation and transformation, and biomedical industries. The mechanical engineering (ME) program is accredited by the 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.

This is a STEM designated program.

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

ADMISSIONS

Visit the Office of Undergraduate Admissions website (https://undergraduate.admissions.gwu.edu/) for information about the admission process. Applications can be submitted via the Common Application (https://go.gwu.edu/commonapp/).

Supporting documents not submitted online should be mailed to:
Office of Undergraduate Admissions
The George Washington University
800 21st Street NW, Suite 100
Washington DC 20052

Contact for questions:
gwadm@gwu.edu or 202-994-6040

REQUIREMENTS

This Bulletin covers the degree requirements for students matriculating in the current academic year. Students who matriculated before the current year can find their requirements in the relevant archived Bulletin (http://archives/).

Recommended program of study

Code	Title	Credits
First semester		
CHEM 1111	General Chemistry I [1]	4
or CHEM 1113	General Chemistry for Engineers	
MAE 1001	Introduction to Mechanical and Aerospace Engineering	1
MATH 1231	Single-Variable Calculus I [1]	3
SEAS 1001	Engineering Orientation	1
UW 1020	University Writing	4
Humanities or social sciences elective [2]		3
Second semester		
MAE 1004	Engineering Drawing and Computer Graphics	3
MAE 1117	Introduction to Engineering Computations	3
MAE 1125	Applied Linear Algebra for Engineering	3
MATH 1232	Single-Variable Calculus II [1]	3
PHYS 1021	University Physics I [1]	4
Humanities or social sciences elective [2]		3
Third semester		
APSC 2057	Analytical Mechanics I	3
APSC 2113	Engineering Analysis I	3
MAE 2117	Engineering Computations	3
MAE 3192	Manufacturing Processes and Systems	3
MATH 2233	Multivariable Calculus [1]	3
Fourth semester		
APSC 2058	Analytical Mechanics II	3
APSC 3115	Engineering Analysis III	3
CE 2220	Introduction to the Mechanics of Solids	3
MAE 2131	Thermodynamics	3
PHYS 1022	University Physics II	4
Fifth semester		
MAE 3119	Electronics and Devices for Mechanical Engineers	3
MAE 3126	Fluid Mechanics I	3

MAE 3127	Fluid Mechanics Lab	1
MAE 3166	Materials Science and Engineering	3
MAE 3191	Mechanical Design of Machine Elements	3
Humanities or social sciences elective [2]		3
Sixth semester		
MAE 3120	Methods of Engineering Experimentation	3
MAE 3134	Linear System Dynamics	3
MAE 3167W	Mechanics of Materials Lab	1
MAE 3187	Heat Transfer	3
MAE 3193	Mechanical Systems Design	3
Humanities or social sciences elective [2]		3
Seventh semester		
MAE 4149	Thermal Systems Design	3
MAE 4151W	Capstone Project I	3
MAE 4182	Electromechanical Control System Design	3
Technical elective [3]		3
Humanities or social sciences elective [2]		3
Eighth semester		
MAE 4152W	Capstone Design Project II	3
Technical elective [3]		3
Technical elective [3]		3
Technical elective [3]		3
Humanities or social sciences elective [2]		3

[1]Course satisfies the University General Education Requirement (https://bulletin.gwu.edu/university-regulations/general-education/) in quantitative reasoning, scientific reasoning, and written communication.

[2]To satisfy the non-technical elective requirement (https://www.seas.gwu.edu/humanities-and-social-science-requirement/), all mechanical engineering students must take one humanities course and two social sciences courses from the list of courses approved for the University General Education Requirement, PHIL 2135 (https://bulletin.gwu.edu/search/?P=PHIL%202135), and two non-technical courses from the pre-approved list of electives (https://engineering.gwu.edu/humanities-and-social-science-requirement/). All courses selected to satisfy this requirement must be at least 3 credits. Note that students in the patent law concentration must take MAE 2170 (https://bulletin.gwu.edu/search/?P=MAE%202170) in lieu of one of the two additional non-technical courses.

[3]All technical electives must be approved by the undergraduate advisor. On a case-by-case basis, technical electives can be taken in other departments with undergraduate advisor and department chair approval.

Code	Title	Credits
Technical electives are selected from MAE courses in the 3000, 4000, and 6000 ranges, excluding the following:		
MAE 3171	Patent Law for Engineers	
MAE 4172	Engineering Design and the Patent System	
MAE 6298	Research	
MAE 6998 & MAE 6999	MS Thesis Research and MS Thesis Research	

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

COMBINED PROGRAM

Combined program

- Dual Bachelor of Science with a major in mechanical engineering and Master of Science in the field mechanical engineering (https://bulletin.gwu.edu/engineering-applied-science/mechanical-aerospace-engineering/combined-bs-ms-mechanical-engineering/)