BACHELOR OF SCIENCE WITH A MAJOR IN MECHANICAL ENGINEERING, BIOMECHANICAL 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, biomechanical option degree program prepares students to work in the biomedical industry or to pursue graduate study in biomedical engineering. It provides a strong foundation in human anatomy and physiology, biomechanics, biomaterials, and design of biomedical devices. 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 (http://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

Code	Title	Credits
Recommended program of study		
First semester		
CHEM 1111	General Chemistry I	4
or CHEM 1113	General Chemistry for Engineers	
MAE 1001	Introduction to Mechanical and Aerospace Engineering	1
MATH 1231	Single-Variable Calculus I *	3
SEAS 1001	Engineering Orientation	1
UW 1020	University Writing *	4
One humanities and social sciences elective **		3
Second semester		
MAE 1004	Engineering Drawing and Computer Graphics	3
MAE 1117	Introduction to Engineering Computations	3
MATH 1232	Single-Variable Calculus II *	3
MATH 2184	Linear Algebra I	3
PHYS 1021	University Physics I *	4
One 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 *	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 3126	Fluid Mechanics I	3
MAE 3127	Fluid Mechanics Lab	1
MAE 3166W	Materials Science and Engineering	3
MAE 3191	Mechanical Design of Machine Elements	3
MAE 3119	Electronics and Devices for Mechanical Engineers	3,1
BME 4820	Anatomy and Physiology for Engineers	3
Sixth semester		
MAE 3120	Methods of Engineering Experimentation	3
MAE 3128	Biomechanics I	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
Seventh semester		
MAE 4151	Capstone Design Project I	3

MAE 4149	Thermal Systems Design	3
MAE 4182	Electromechanical Control System Design	3
MAE 6238	Biomaterials	3
One humanities or social sciences elective [2]		3
Eighth semester		
MAE 4152W	Capstone Design Project II	3
MAE 3171	Patent Law for Engineers	3
Three humanities or social sciences electives (total 9 credits) [2]		9

[*] Course satisfies the University General Education Requirement (http://bulletin.gwu.edu/university-regulations/general-education/) in math, science, and writing.

[**] To satisfy the SEAS Humanities and Social Science requirement, all mechanical engineering students must take one humanities course and two social sciences courses from the University General Education Requirement (http://bulletin.gwu.edu/university-regulations/general-education/) list; PHIL 2135, and two additional humanities or social science or non-technical courses from the Department of Mechanical and Aerospace Engineering's list of approved electives. All courses taken to satisfy this requirement must be offered for at least 3 credits.

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