

BACHELOR OF SCIENCE WITH A MAJOR IN MECHANICAL ENGINEERING, PATENT LAW 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, patent law option degree program provides a strong foundation in fundamental principles of patent law and the influences of the U.S. patent system on modern engineering design. Students in this option obtain skills and knowledge that can lead to work as a technical specialist in a patent law firm or in the patent department of an industrial employer. The option provides excellent preparation for pursuit of a law degree that may focus on intellectual property law. 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.

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 ¹	
or CHEM 1113	General Chemistry for Engineers	
MAE 1001	Introduction to Mechanical and Aerospace Engineering	
MATH 1231	Single-Variable Calculus I ¹	
SEAS 1001	Engineering Orientation	
UW 1020	University Writing ¹	
One humanities or social sciences elective ²		
Second semester		
MAE 1004	Engineering Drawing and Computer Graphics	

MAE 1117 Introduction to Engineering Computations

MATH 1232 Single-Variable Calculus II¹

MATH 2184 Linear Algebra I

PHYS 1021 University Physics I¹

Third semester

APSC 2057 Analytical Mechanics I

APSC 2113 Engineering Analysis I

MAE 2117 Engineering Computations

MAE 3192 Manufacturing Processes and Systems

MATH 2233 Multivariable Calculus¹

Fourth semester

APSC 2058 Analytical Mechanics II

APSC 3115 Engineering Analysis III

CE 2220 Introduction to the Mechanics of Solids

MAE 2131 Thermodynamics

PHYS 1022 University Physics II

MAE 2170 History and Impact of the U.S. Patent System (counts as one humanities or social sciences elective)²

Fifth semester

MAE 3126 Fluid Mechanics I

MAE 3127 Fluid Mechanics Lab

MAE 3166W Materials Science and Engineering

MAE 3191 Mechanical Design of Machine Elements

One humanities or social sciences elective²

MAE 3119 Electronics and Devices for Mechanical Engineers

Sixth Semester

MAE 3120 Methods of Engineering Experimentation

MAE 3134 Linear System Dynamics

MAE 3167W Mechanics of Materials Lab

MAE 3171 Patent Law for Engineers

MAE 3187 Heat Transfer

MAE 3193 Mechanical Systems Design

Seventh semester

MAE 4149 Thermal Systems Design

MAE 4151 Capstone Design Project I

One humanities or social sciences elective ²

One technical elective ³

MAE 4182 Electromechanical Control System Design

Eighth semester

MAE 4152W Capstone Design Project II

MAE 4172 Engineering Design and the Patent System

Two humanities or social sciences electives (total 6 credits) ²

One technical elective 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 SEAS humanities and social sciences requirement, all mechanical engineering students must take one (1) humanities course and two social sciences courses from the University General Education Requirement (<https://bulletin.gwu.edu/university-regulations/general-education/>); PHIL 2135; and two additional humanities or social sciences or non-technical courses from the Department of Aerospace and Mechanical Engineering's list of preapproved. Each course selected to satisfy this requirement must be taken for at least 3 credits. Students in the patent law concentration must take MAE 2170 in lieu of one of the additional humanities or social sciences or non-technical courses.

³ All technical electives must be approved by the undergraduate advisor. On a case-by-case basis, technical electives may be chosen from other departments if approved by both the undergraduate advisor and the department chair. Technical electives are chosen from MAE courses in the 3000, 4000, and 6000 series, excluding: MAE 3171, MAE 4172, MAE 6298, MAE 6998, and MAE 6999. Visit the program website (<http://www.mae.seas.gwu.edu/programs-degrees/>) for additional information.