## 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, computeraided 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 (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 | 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 | cial 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 $^{\text {* }}$ | 3 |
| :--- | :--- | :--- |
| MATH 2184 | Linear Algebra I | 3 |
| PHYS 1021 | University Physics I $^{\text {* }}$ | 4 |
| One humanities or social sciences elective $^{2}$ | 3 |  |


| Third semester |  | 3 |
| :--- | :--- | :--- |
| 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 * |  |
| Fourth semester |  | 3 |
| 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 |  | 3 |
| :--- | :--- | :---: |
| MAE 3126 | Fluid Mechanics I | 1 |
| MAE 3127 | Fluid Mechanics Lab | 3 |
| MAE 3166W | Materials Science and Engineering | 3 |
| MAE 3191 | Mechanical Design of Machine Elements | 3 |
| MAE 3119 | Electronics and Devices for Mechanical <br> 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 (https://bulletin.gwu.edu/university-regulations/generaleducation/) in math, science, and writing. |  |  |
| ** To satisfy th all mechanica course and tw Education Req regulations/g humanities or Department o approved ele must be offer | Humanities and Social Science requir eering students must take one humanit al sciences courses from the University ent (https://bulletin.gwu.edu/univers education/) list; PHIL 2135, and two a science or non-technical courses from anical and Aerospace Engineering's li All courses taken to satisfy this require t least 3 credits. |  |
| Visit the program website (http://www.mae.seas.gwu.edu/ programs-degrees/) for additional information. |  |  |

