

DEPARTMENT OF MECHANICAL ENGINEERING

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Mechanical engineering is the broadest of the engineering disciplines, and traces its origins to antiquity. The discipline of mechanical engineering involves anything that moves or uses energy. There are two major stems in mechanical engineering: mechanical systems and thermal fluid systems. Mechanical engineers design, build, and analyze complex devices, systems, and processes that involve the conversion of energy from one form to another, the production of work, and the transport of energy and mass from one location to another.

Today, the scope of the mechanical engineering discipline is ever-expanding. Mechanical engineers work in industries that include, but are not limited to, the aerospace, bio-pharmaceutical, civil, computer and cyber, biomedical, industrial, materials and manufacturing industries. They provide innovative solutions for contemporary problems and address problems yet identified. For example, 3-D printed components are readily being used in manufactured components, as part of medical implants and devices and even in structural applications. The mechanical performance of the components will likely vary dramatically from the ideal laboratory environment in which they were produced. Mechanical engineers are needed to characterize these aggressive environments in which they may be used, design test matrices to study their performance, and determine environmentally-based mechanical properties needed for design.

The Mechanical Engineering, BS (<http://catalog.gmu.edu/archives/2020-2021/colleges-schools/engineering/mechanical/mechanical-engineering-bs/>) is designed to support the goal of educating leaders for the future – men and women capable of meeting the needs of society. The curriculum is designed to provide its graduates with the technical skills and competencies to analyze and design both mechanical and thermal systems, and to give them an in-depth experience in one of these two areas. With a solid foundation in these discipline-specific areas, graduates of the program will be well-prepared to enter any of the industries identified above. All students will take core courses in both content areas through their junior year. During their senior year, they will have the opportunity to focus their program of study with a design elective and three technical electives. These electives can be arranged to focus on areas such as advanced manufacturing, aerospace, bioengineering, robotics, or sustainable energy.

Faculty

Department Faculty

Professors

Barton (chair), Cebral (joint appointment with Bioengineering), Handler

Associate Professors

Mccue-Weil, Reagle

Assistant Professors

Amiri, Bagheri, Beheshti, Dong, Dubey, Kang, Kathir, Knudsen, Lattanzi, Moran

Research Professors

Hazelrigg

Affiliated Professors

Manzo

Adjunct Instructors

Berg, Eshete, Fortner, Gallo, Nowinski, Siragusa, Wohnsigl

Programs

- Mechanical Engineering Minor
- Mechanical Engineering, BS
- Mechanical Engineering, PhD