

Mechanical Engineering, BSME

Program Description

Mechanical engineering is one of the largest disciplines of engineering because it is one of the broadest. It focuses on the application of the principles of mechanics and materials to design machines and devices. In this energy conscious world, a thorough understanding of energy and its uses is essential to the success of a mechanical engineer.

Mechanical engineers help to design energy efficient devices such as wind-turbines as well as artificial knee joints that help society.

Graduates have the qualifications to enter graduate school, become a licensed professional engineer in any state after sufficient work experience, or directly enter careers in areas such as, but not limited to, manufacturing, aerospace industry, power generation and distribution, automotive design, machine design, alternative energy, robotics, and automation. Typical job titles for graduates may include design engineer, project engineer, process engineer, test engineer, development engineer, program manager, consulting engineer, and field engineer.

Mechanical Engineering requires rigorous training in basic science and engineering principles along with the development of skills in the areas of computer-aided design, instrumentation, and planning and management of design projects. Graduates in the area of Mechanical Engineering will be required to master technical elements and to demonstrate particular competence in the areas of communication, fiscal management, and project control. The broad-based background is tailored to develop professionals who will be able to move between the technical and managerial aspects of mechanical engineering projects and to serve in key leadership positions within the engineering profession. As with all engineering degrees, a mechanical engineer becomes very good at solving difficult problems which makes it a good degree for non-engineering careers as well.

Engineering Standing Requirements



This program is a part of the Southern Polytechnic College of Engineering and Engineering Technology.

Accreditation

The Bachelor of Science in Mechanical Engineering program was approved by the Board of Regents in August 2009. The Bachelor of Science in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

Admission, Enrollment, and Graduation Policies

Admissions Requirements

This program does not have specific admission requirements and only admission to Kennesaw State University is required. For more information, please visit the Admissions section of the Catalog.

Graduation Requirements

Each student is expected to meet the requirements outlined in Academic Policies 5.0 PROGRAM REQUIREMENTS & GRADUATION.

Program Course Requirements

Core IMPACTS Curriculum (42 Credit Hours)

General Education Core IMPACTS Curriculum

Core IMPACTS Curriculum Requirements Specific to This Major

Engineering Majors: Must take MATH 1190 in Mathematics & Quantitative Skills, MATH 2202 in Applied Math, and PHYS 2211/2211L and PHYS 2212/2212L in Natural Sciences.

Note: Students cannot take both PHYS 1111/L and PHYS 2211/L nor PHYS 1112/L and PHYS 2212/L.

Core Field of Study (18 Credit Hours)

Students must earn a grade of "C" or better in these courses.

- ENGR 1000: Introduction to Engineering
- ME 1001L: Introduction to Mechanical Engineering Lab
- ME 1311: MATLAB for Engineers with Applications
- CHEM 1211: Principles of Chemistry I
- CHEM 1211L: Principles of Chemistry Laboratory I
- STAT 2332: Probability and Data Analysis
- EDG 1211: Engineering Graphics I

One (1) credit hour carried over from Mathematics & Quantitative Skills.

Two (2) credit hours carried over from Technology, Mathematics, and Sciences.

Major Requirements (56 Credit Hours)

Students must earn a grade of "C" or better in these courses.

- MATH 2203: Calculus III

- MATH 2306: Ordinary Differential Equations
- EE 2305: Electronic Circuits and Machines
- ENGR 2214: Engineering Mechanics – Statics
- ENGR 3122: Engineering Mechanics – Dynamics
- ENGR 3125: Machine Dynamics and Vibrations
- ENGR 3131: Strength of Materials
- ENGR 3132: Strength of Materials Lab
- ENGR 3343: Fluid Mechanics
- ENGR 3345: Fluid Mechanics Laboratory
- ENGR 4402: Engineering Ethics
- ME 3101: Materials Science and Engineering
- ME 3410: Thermodynamics
- ME 3440: Heat Transfer
- ME 3501: Dynamic Systems & Control Theory
- ME 3701: Manufacturing Engineering
- ME 4141: Machine Design I
- ME 4201: Senior Design I
- ME 4202: Senior Design II
- ME 4250: Computer Aided Engineering
- ME 4403: Heat Transfer and Thermodynamics Lab
- ME 4501: Vibrations & Controls Lab

Major Electives (9 Credit Hours)

Students must earn a grade of "C" or better in these courses.

Math or Science Elective (3 Credit Hours)

Select 3 credit hours from the following list of courses:

- BIOL 1107: Principles of Biology I
- BIOL 2251: Anatomy & Physiology I
- CHEM 1212: Principles of Chemistry II
- MATH 2335: Numerical Methods for Engineers
- MATH 3260: Linear Algebra I
- MATH 3261: Numerical Methods

Some MATH or PHYS classes may be approved for math or science electives by the department chair.

Technical Electives (6 Credit Hours)

Select 6 credit hours from the following list of courses:

- ME 3133: Composite Mechanics
- ME 3398: Internship
- ME 3705: Internal Combustion Engines
- ME 4304: Applied Fracture Mechanics
- ME 4520: Acoustics & Noise Control
- ME 4400: Directed Study
- ME 4490: Special Topics in Mechanical Engineering
- ENGR 3325: Engineering Economic Analysis
- ENGR 3501: Fundamentals of Nuclear Engineering
- ENGR 3502: Radiation Detection & Measurement
- ENGR 3801: Aerodynamics
- ENGR 3802: Aircraft Design & Performance
- ENGR 3803: Fundamentals of Avionics
- ENGR 4501: Nuclear Power Generation
- ENGR 4502: Radiation Protection & Health Physics
- ENGR 4503: Nuclear Fuel Cycle
- ENGR 4504: Nuclear Reactor Simulation
- ENGR 4801: Aircraft Propulsion
- ENGR 4802: Helicopter Theory
- ENGR 4803: Aeronautics Senior Design Project

Some ENGR, EE, MTRE, or ISYE courses may be approved for technical electives by the department chair.

Program Total (125 Credit Hours)