Mechanical Engineering, B.S.

Mechanical Engineering Chair: Dr. Sridhar Santhanam
Office: 131 Tolentine Hall
Telephone: 610-519-4980

About

• Bachelor of Science in Mechanical Engineering
• Bachelor of Science in Mechanical Engineering, Honors

Mechanical Engineers apply the principles of solid mechanics, thermal fluid sciences, dynamics and control, material science and manufacturing science to the analysis and design of systems of all types. In applying this technical knowledge to fields such as energy systems, nanomanufacturing and robotics, the mechanical engineer must consider economic constraints and the social and ecological implications of solutions imposed. The mechanical engineering curriculum offers the student an opportunity to pursue educational objectives within the framework of this broad theme.

Mission Statement

We are committed to providing a rigorous educational experience in the discipline of mechanical engineering, graduating well-rounded leaders and life-long learners, who aspire to achieving professional excellence. We are equally committed to the discovery, dissemination, advancement and application of cutting-edge research. Inspired by the Augustinian tradition, we value an inclusive and diverse community in which we prepare our students to demonstrate the highest ethical conduct and contribute to the well-being of humankind.

Program Educational Objectives

Our graduates will:

• Be valued members of their organizations because of their skills and abilities as mechanical engineers;
• Solve complex technical problems and/or design systems that are useful to society by applying the fundamental scientific principles that underpin the mechanical engineering profession; Advance in their chosen career paths by utilizing technical, leadership, communication, and interpersonal skills, with the highest ethical standards;
• Apply their knowledge and skills to successfully practice professions of their choice; Demonstrate professional and personal growth by pursuing or successfully completing an advanced degree, professional development courses, and/or engineering certification;
• Be actively engaged in service to their professions and communities, consistent with the tradition of St. Augustine.

The first year of the mechanical engineering program is devoted to laying a foundation of mathematics, physical science, and the general engineering sciences. The final three years are devoted primarily to mechanical engineering topics. The required courses span the field of mechanical engineering, and electives provide the opportunity to pursue specific areas of mechanical engineering in greater depth through technical concentrations which include Mechanics and Materials, Thermal/Fluid Systems, and Dynamic Systems. A student opting for a technical concentration will first take an elective in the junior year which corresponds to their selected technical concentration. Each student will then customize the program of study by choosing four courses (12 credit hours) of technical electives in the senior year. To
complete the technical concentration, two of these mechanical engineering technical electives must be selected from the designated set of concentration classes. In addition, the student must take the senior laboratory course from their technical concentration. A student who completes a technical concentration will have the concentration indicated on the final transcript. Students who do not opt for a concentration will still take a junior year restricted elective and a senior lab; the four senior year mechanical engineering electives can be chosen freely from all offerings.

The engineering design process is emphasized throughout the program and culminates with a senior year project that requires a synthesis of basic principles learned in previous courses.

Throughout the curriculum the technical courses are balanced by a careful selection of humanities courses to ensure that the effects of technology on society are given due consideration in design.

A faculty advisor is assigned to each student at the beginning of their first-year to provide academic and career guidance for the remainder of the student’s years in the program until graduation. The advisor should be consulted regarding such topics as electives, minors or concentrations, graduate studies, undergraduate research, and completion of degree requirements for graduation.

**Program:** Engineering  
**Type:** Bachelor of Science

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**Category Descriptions**

**Elective**  
Credits: 3

Select one course from each of the elective groups below.

**Elective - Restricted ME**  
Credits: 3

If a concentration is chosen, students must take the appropriate courses in their concentration, including the below:

- Restricted ME Elective  
- Restricted ME Lab  
- 6 credits from the approved list of courses for the concentration

**Elective - ME/Concentration**  
Credits: 3

- If obtaining a concentration, both courses must come from that concentration. View all concentration electives below.  
- Any ME 5000 through 8999 course for others.

Note: Graduate courses are subject to additional requirements.
Elective - Career/ME

Credits: 3

One course from:

- ME 5000 through 8999
- Approved elective from other Engineering Department: CHE 5000-8999, CEE 4000-8999, ECE 5000-8999, EGR 7000-8999
- Approved elective from hard sciences: AST 4000-8999, BIO 4000-8999, CHM 4000-8999, CSC 4000-8999, ENV 4000-8999, GEV 4000-8999, MAT 4000-8999, PHY 4000-8999
- Courses from student’s completed minor or second major.

Note: Graduate courses are subject to additional requirements.

Elective - Restricted ME Lab

Credits: 1

If a concentration is chosen, students must take the appropriate courses in their concentration, including the below:

- Restricted ME Elective
- Restricted ME Lab
- 6 credits from the approved list of courses for the concentration