

# DEPARTMENT OF MECHANICAL ENGINEERING

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Mechanical Engineering is the profession in which a knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to use economically the materials and forces of nature for the benefit of mankind." Clearly, from this definition, engineers are to form the interface between sciences and society as they apply, in realistic terms, the findings of science.

The bachelor's program in mechanical engineering is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

## Mission

The mission of the Department of Mechanical Engineering is to provide students with high-quality, accessible undergraduate and graduate mechanical engineering education; to engage and empower students with skills and knowledge to thrive in professional careers; to serve society through the economic and technological development of Southeast Texas and beyond.

## Program Educational Objectives

Constituents: Current students, alumni, employers, and faculty

- a. Advance professionally with increasing leadership and responsibility beyond entry-level in an industry relevant to mechanical engineering.
- b. Contribute to organizational objectives and leadership exemplifying ethical and environmental standards and practices.
- c. Engage in life-long learning through professional activities and training, the pursuit of higher educational degrees, and individual professional development.

## Program Criteria

The Mechanical Engineering Program criterion as listed in the ABET "Criteria for Accrediting Engineering Programs" is as follows:

### Curriculum

The curriculum must require students to apply principles of engineering, basic science, and mathematics (including multivariate calculus and differential equations); to model, analyze, design, and realize physical systems, components or processes; and prepare students to work professionally in either thermal or mechanical systems while requiring topics in each area.

## Programs

- Mechanical Engineering (B.S.) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-bs/>)
- Mechanical Engineering (D.E.) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-de/>)
- Mechanical Engineering (M.E.) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-me/>)

- Mechanical Engineering (MES) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-mes/>)

## Student Outcomes

The student outcomes used by the mechanical engineering program are those published in the ABET "Criteria for Accrediting Engineering Programs" document. Those outcomes are as follows:

- a. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- b. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- c. an ability to communicate effectively with a range of audiences
- d. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- e. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- f. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- g. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies