

ABET

The BS degree program in Mechanical Engineering is accredited by the Engineering Accreditation Committee of ABET, <https://www.abet.org>.

Program Educational Objectives

The CSUN undergraduate mechanical engineering program should prepare students to enter the engineering profession as a skilled practitioner who can make a solid contribution to the field, find job satisfaction, and have a lifelong career. To accomplish these overall goals, during the first few years following graduation a CSUN graduate is expected to:

1. Have an engineering job or a position that utilizes the application of their engineering education in the workplace
2. Demonstrate a record of professional development activities related to the successful practice of engineering
3. Accept additional responsibilities to meet evolving workplace needs and be regarded by colleagues and supervisors as an effective member of their organization

Student Outcomes

Student Outcomes

The program must have documented student outcomes that support the program educational objectives. Attainment of these outcomes prepares graduates to enter the professional practice of engineering. Student outcomes are outcomes (1) through (7), plus any additional outcomes that may be articulated by the program. The BS Mechanical Engineering Program does not have any additional outcomes.

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics (previously (a), (e); implied from (k))
 - applies specific engineering knowledge of course subject area
 - demonstrates specific engineering knowledge of subject area
 - demonstrates analysis and judgment
 - demonstrates effective communication in identifying, formulating and solving engineering problems
2. 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 (previously (c); implied from (k))
 - can specify the design problem and its constraints
 - explores alternative designs
 - uses appropriate tools for design process and final design
 - is able to optimize final design
 - is able to document final design

3. an ability to communicate effectively with a range of audiences (previously (g))
 - good overall communication strategy and structure
 - effective written communication
 - effective oral and visual communication

4. 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 (previously (f). (h). (j))
 - recognizes and makes appropriate decisions in situations in which personal or professional ethics are required.
 - makes engineering decisions and provides solutions which safeguard public safety and improve quality of life.
 - considers alternative solutions
 - optimizes design processes and systems to minimize use of resources and impact on the environment.
 - knows regulations and standards used in practice.
 - demonstrates knowledge of engineering and its impact on economic, ethical and environmental issues
 - demonstrates ability to evaluate existing and emerging engineering or technological alternatives to prevent or minimize adverse impacts
 - demonstrates ability to evaluate the effect of engineering solutions on local and global environment and the public's quality of life
 - students have knowledge of and interest in contemporary issues related to engineering and science
 - students have the ability to use the library and internet to search for relevant information

5. 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 (previously (d))
 - quality of overall team function
 - communication among team members
 - team organization and leadership
 - level of multidisciplinary effort

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions (previously (b), implied from (k))
 - demonstrates familiarity with use and operation of laboratory instruments, sensors, and equipment
 - demonstrates ability to formulate and communicate experimental results
 - demonstrates ability to use computer tools for experimental data collection, data reduction and result presentation

- can use statistical techniques to estimate experimental uncertainties and calculate propagation of error
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies (previously (i))
- students have strong analytical skills and knowledge of engineering fundamentals to provide a foundation for continual and independent learning
 - students have the ability to conduct literature survey, assess, and use information to make engineering decisions
 - students have an attitude that professional development and life long learning is necessary for successful profession
 - students participate in professional societies, meetings, and networking with professionals
 - students participate in local and national competitions and research