

# MINOR IN MECHANICAL ENGINEERING

The purpose of the Minor in Mechanical Engineering is to give students from science and other branches of engineering the opportunity to learn the fundamentals of mechanical engineering, to broaden their understanding of science and engineering, and to prepare them for new technological developments such as material science and nanotechnology. Additional knowledge in control and robotics, mechanical design, or thermal-fluids may be acquired through electives. Students interested in the Minor in Mechanical Engineering must meet with the program coordinator and complete the Mechanical Engineering Minor Program Approval Form. Revision of the form requires the approval of the program coordinator.

## Admissions Requirements

The minor is intended for students who have satisfied the following prerequisite requirements:

Code	Title	Units
Select One:		3-5
CHEM 115	General Chemistry I	
CHEM 180	Chemistry for Energy and the Environment	
MATH 226	Calculus I	4
MATH 227	Calculus II	4
PHYS 220 & PHYS 222	General Physics with Calculus I and General Physics with Calculus I Laboratory	4
PHYS 240 & PHYS 242	General Physics with Calculus III and General Physics with Calculus III Laboratory	4

## Program Learning Outcomes

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 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.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

## Mechanical Engineering, Minor – 21 units

- Students must complete at least 12 of the required 21 core and elective units at SF State.
- All courses in the minor must be taken for a letter grade (CR/NC is not acceptable).
- A minimum of 6 upper-division units are required to complete the minor.
- All coursework used to satisfy the requirements of the minor must be completed with a minimum grade point average of 2.0.

## Core Requirements (15 units)

Code	Title	Units
ENGR 102	Statics	3
ENGR 200	Materials of Engineering	3

ENGR 201	Dynamics	3
ENGR 303	Engineering Thermodynamics	3
ENGR 309	Mechanics of Solids	3

## Electives (6 units)

Upper-division Mechanical Engineering courses, which must be selected and pre-approved through consultation with the Mechanical Engineering program head. Courses used for this elective requirement may not be double-counted and used to satisfy graduation requirements for another undergraduate major or minor program.