

MECHANICAL ENGINEERING (MS)

Offered at: San Luis Obispo Campus

<https://me.calpoly.edu/graduate-programs/>

The Master of Science in Mechanical Engineering offers a dynamic and flexible graduate education that prepares students for careers in advanced mechanical engineering practice, research, or further academic study. The program allows students to deepen their knowledge in core areas such as thermal and fluid sciences, mechanical design, dynamics, controls, and materials. With both thesis and non-thesis options available, students can tailor their experience toward focused research or broader technical exploration. Emphasizing Cal Poly's learn-by-doing philosophy, the program integrates demanding coursework with opportunities for hands-on experimentation, simulation, and analysis. Graduates are well equipped to lead in industries such as energy, aerospace, robotics, and manufacturing, or to pursue doctoral studies.

Requirements for Admission

Students apply via Cal State Apply (<https://www.calstate.edu/apply/>) and must submit a transcript, a personal statement, and three letters of recommendation. No GRE scores required.

International Students must meet all the standard eligibility criteria and demonstrate proficiency in English (English Proficiency Exam Requirements (<https://www.calpoly.edu/admissions/international-student/selection-criteria/english-exam-requirements/>))

Prerequisites: B.S. in Mechanical Engineering or a very closely related major.

Minimum GPA: 3.0.

Application due date: Applications are accepted for Fall enrollment only. Please see Graduate Student Dates and Deadlines (<https://www.calpoly.edu/admissions/graduate-student/dates-and-deadlines/>) for application deadlines.

Advancement to Candidacy

Completion of at least 6 units of graduate coursework with cumulative and higher ed GPA of 3.0 or higher.

Culminating Experience

Complete one of the following:

- **Comprehensive Exam Option:** The comprehensive exam will allow a student to demonstrate technical mastery of the discipline, including the ability to address open-ended engineering problems and synthesize knowledge. The exam will be composed of 5 written exam questions from graduate level classes that will be written and graded by the corresponding instructors.
- **Thesis Option:** The thesis option will allow a student to work on a specific research topic, prepare a written thesis, and present the results to the public as a 50-minute defense. Thesis work will be guided by a three-person committee that will approve the final thesis and defense.

A blended program provides a potentially accelerated route to a graduate degree, with simultaneous conferring of both Bachelor's and Master's degrees. Students in the blended program are provided with a seamless process whereby they can progress from undergraduate to graduate status. Students are required to complete all requirements for both degrees.

Blended Options

BS Mechanical Engineering + MS Mechanical Engineering

BS Aerospace Engineering + MS Mechanical Engineering

Units Double Counted

6 units of technical elective courses can be double counted towards BS and MS degree requirements.

Requirements for Admission for the Blended Program

Students apply directly to the program and not through Cal State Apply; please contact the department graduate coordinator.

- Prerequisites: Must be a current BS student in Mechanical or Aerospace Engineering. Students must have completed all lower division classes and the GWR prior to transitioning to graduate status.
- Minimum GPA: 3.0
- Timeline for admission: The BMS program has admission due dates near the beginning of the fall and spring semesters. Students need to apply to the program the semester before their planned undergraduate graduation (for example, students scheduled to complete their undergraduate program in Spring would apply during the preceding Fall semester). Please see the ME Graduate Programs (<https://me.calpoly.edu/graduate-programs/>) website for more details.

- Application materials: Application form, statement of purpose, and contact information for three references who will provide letters of recommendation.

Program Learning Objectives

1. Devise a plan to research issues relevant to the problem at hand and to conduct experiments or develop a computer model.
2. Formulate solutions to advanced engineering problems.
3. Analyze the collected or generated data and draw conclusions from the results.
4. Analyze and synthesize advanced engineering solutions.

Code	Title	Units
REQUIRED COURSES		
ME 5599	Thesis	6
Or 6 units of 5000 level ME courses and ME 5597		
Analysis and Modeling		
Select two courses from Mechanics/Design or Thermal/Fluids:		6
Mechanics/Design		
ME 5501	Continuum Mechanics and Elasticity	
ME 5503	Inelastic Stress Analysis	
ME 5504	Finite Element Analysis of Continua	
ME 5305	Mechatronics III	
ME 5506	System Dynamics	
Thermal/Fluids		
ME 5540	Viscous Flow	
ME 5541	Advanced Thermodynamics	
ME 5552	Conduction and Radiation Heat Transfer	
ME 5553	Convective Heat Transfer	
ME 5554	Computational Heat Transfer	
Mathematics Core		
Select any 5000 level CSC, MATH, or STAT course		3
Mechanical Engineering Electives		
Select any 5000 level AERO or ME courses		6
Approved Technical Electives		
Select any 4000-5000 level AERO, BMED, CE, CPE, CSC, EE, ENVE, IME, MATE, or ME courses		9
Total Units		30