FIRE PROTECTION ENGINEERING (MS)

Offered at: San Luis Obispo Campus

https://fpe.calpoly.edu/

The profession of Fire Protection Engineering is directed toward the identification, analysis and mitigation of fire hazards and risks across a broad spectrum of applications, including buildings, consumer products, industrial processes, transportation vehicles, infrastructure facilities and the wildland-urban interface. The Master of Science in Fire Protection Engineering prepares individuals to assess and reduce the potential for property and human loss from fire in these and other settings. Students learn to analyze how buildings are used, how fires start, how fires grow, and how fire and smoke affect people, buildings and property.

Requirements for Admission

Students apply via Cal State Apply (https://www.calstate.edu/apply) and must submit a transcript. In addition, applicants must submit a personal statement describing their interest in fire protection engineering. They also need to submit a resume and request 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: An applicant should hold a bachelor's degree in engineering or a closely related field from a regionally accredited institution, college, or university. Non-engineering applicants must have completed calculus through differential equations, a general chemistry course, and a general physics course.

Minimum GPA: An undergraduate grade point average of 3.0 is required. On occasion, where other credentials are exceptionally strong, a GPA in the 2.5-3.0 range may be accepted.

Application due date: Applicants are accepted for Fall and Spring semester enrollment. 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 and an approved culminating experience proposal.

Culminating Experience

Complete one of the following:

- **Culminating Project in Fire Protection Engineering**: The culminating project will give the student an opportunity to demonstrate mastery of the program learning objectives. The students will perform comprehensive fire and life safety evaluations of buildings and other structures. They will communicate the results and findings of such evaluations in a written report and by oral presentation to satisfy the culminating experience for a master's degree.
- **Thesis**: The student will work on a research project under faculty supervision as a requirement for the master's degree, culminating in a written product. The finished product evidences originality, critical and independent thinking, appropriate organization and format, and thorough documentation. An oral defense of the thesis is required.

Program Learning Objectives

1. Identify relevant fire safety codes, standards and regulations, comprehend the fire safety performance objectives and criteria associated with these documents, and apply these fire safety objectives and criteria to a broad range of applications.
2. Analyze the flammability characteristics of different materials, interpret the results of standard and non-standard fire test methods and evaluate the fire hazards associated with different materials in a range of anticipated settings.
3. Analyze the dynamics of fires in and around buildings and other structures through the application of fundamental principles and the use of state-of-the-art computer-based fire simulation models.
4. Understand how people interact with fire conditions in buildings and calculate evacuation times through the application of fundamental principles of people movement and the use of state-of-the-art computer-based evacuation models.
5. Design fire detection and alarm systems, fire suppression systems, smoke management systems, egress systems and structural fire protection to achieve specified performance objectives.
6. Perform comprehensive fire and life safety evaluations of buildings and other structures through application of the knowledge, skills and tools acquired in this program and effectively communicate the results and findings of such evaluations.

Code	Title	Units
REQUIRED COURSES		
FPE 5501	Fundamental Thermal Sciences	3
FPE 5502	Fire Dynamics and Flammability	4
FPE 5504	Fire Modeling and Applications	4
FPE 5521	Fire Detection, Alarm and Egress Systems	4
FPE 5523	Fire Suppression Systems	4
FPE 5524	Structural Fire Protection	3
FPE 5598	Project [1]	4
Technical Electives		
Select from the following: [1]		4
FPE 5551	Fire Risk Analysis	
FPE 5552	Advanced Modeling in Fire Protection Engineering	
FPE 5554	Forensic Fire Analysis	
FPE 5555	Fire Protection Management in the Wildland-Urban Interface (WUI)	
Total Units		**30**

[1] FPE 5599 can substitute for FPE 5598 and one technical elective for a total of 6 units.