FIRE, CONSTRUCTION AND EMERGENCY MANAGEMENT

The School of Fire, Construction and Emergency Management (FCEM) comprises multiple undergraduate and graduate degree programs with a wide range of focus areas. Three programs exist within FCEM: Fire Protection and Safety Engineering Technology, Construction Engineering Technology, and Fire and Emergency Management Administration. Two ABET-accredited baccalaureate degrees, three undergraduate minors, two master's degrees, and one doctor of philosophy degree are available academic options.

Undergraduate

The Fire Protection and Safety Engineering Technology (FPSET) program has a long and rich history as the first ABET-accredited undergraduate FPSET program and remains one of only a few in the nation. A variety of industries heavily recruit FPSET graduates, looking to reduce fire and safety losses. Students have a wide range of career choices and flexibility due to the diversity of education the program provides.

The Construction Engineering Technology (CET) program produces graduates with either a building or a heavy/highway focus. Students participate in two internships, providing them with the opportunity to connect classroom knowledge with real-world field experiences. The construction industry highly seeks CET graduates, and the job placement rate is 100%.

The FPSET and CET undergraduate programs are accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Undergraduate minor degree choices are available in four areas of study. These minors are open to students from all majors in the university – the Construction Minor, the Emergency Management Minor, and the Safety and Exposure Sciences Minor.

Transfer Students

The School of Fire, Construction and Emergency Management offers students from two-year degree institutions excellent opportunities to earn a bachelor's degree in approximately four semesters at OSU. Transfer maps are available for students attending community colleges and engineering schools.

Graduate

Graduate degree options are available, including a Ph.D. and an M.S. in Fire and Emergency Management Administration, as well as an M.S.E.T. with an option in Fire Safety and Explosion Protection.

The M.S. in Fire and Emergency Management Administration is a specialized degree designed to provide an educational foundation for those who are currently serving or aspire to serve as managers or administrators in the fire service, emergency management, emergency medical services, law enforcement, or homeland security in the public, private, or nonprofit sectors. The Ph.D. in Fire and Emergency Management Administration focuses on producing proficient and active research scholars. It emphasizes preparing talented individuals for faculty careers at major research-oriented institutions but also welcomes applicants whose career interests may lean toward non-academic settings or academic institutions that prioritize teaching.

Individuals pursuing a career in engineering or the science underlying fire protection and safety have the option to earn an M.S. in Engineering Technology with an emphasis on Fire Safety and Explosion Protection. The courses cater to the needs of both on-campus students and working professionals, with all classes offered in both in-person and online formats.

Fire Protection and Safety Engineering Technology

The Fire Protection and Safety Engineering Technology (FPSET) curriculum prepares students to assess and mitigate risks related to fire, industrial incidents, toxic materials, and hazardous materials management, including setting design criteria for life safety, fire resistance, and fire protection systems; redesigning machinery or procedures to prevent industrial incidents; monitoring air quality and noise to manage toxic exposure; and evaluating storage, transportation, and spill response for hazardous materials. A key focus is on reducing risk and ensuring compliance with safety regulations in commercial and industrial settings.

The FPSET program began at Oklahoma State University in 1937, making it the oldest fire-related program in North America. The demand from business and industry for loss control specialists has led to the program's evolution, with an emphasis on risk management for fire protection, safety, and occupational health. The FPSET program prepares graduates for careers in three primary areas of loss control: loss due to fire, loss resulting from physical accidents, and loss caused by environmental exposure.

The curriculum immediately introduces students to fire protection and safety studies, allowing them to measure their interests in a fire protection and safety career early in their academic career. The curriculum is rigorous in mathematics and the physical sciences, requiring two semesters of calculus, one semester of chemistry, and two semesters of physics. Computer usage is an essential component of most fire protection and safety courses. High school students interested in pursuing a degree in FPSET should design their high school programs to prepare them for college-level mathematics and science classes.

Program Educational Objectives

A few years after graduation, OSU Fire Protection and Safety Engineering Technology graduates will be:

1. Earning and pursuing personal, technical, and professional advancement through certifications, licensure, and employment.
2. Continuing the pursuit of lifelong learning through membership and participation in professional organizations.
3. Developing business expertise within their selected employment organization.
4. Successfully applying mathematical, analytical, and technical skills to solve complex problems in the selected field.
5. Meeting the highest standards of ethical practice in their profession.

Fire Protection and Safety Engineering Technology graduates possess these student outcomes upon graduation:

(1) an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;

(2) an ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline;

(3) an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

(4) an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes;

(5) an ability to function effectively as a member as well as a leader on technical teams; and

(6) an ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.

Consistently recruited by major businesses and industries in the United States, graduates enjoy excellent placement, high salary offers, and fast advancement into managerial positions due to the uniqueness and high technical quality of the OSU Fire Protection and Safety Engineering Technology program.

The Fire Protection and Safety Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET,http://www.abet.org.

Construction Engineering Technology

The construction industry is the largest industry in the world. Leadership in this field requires a broad knowledge of labor, materials, and equipment, as well as capital and construction procedures. The interdisciplinary approach of the Construction Engineering Technology program offers students specialized coursework in all phases of construction, designed to prepare them for responsible positions in industry.

The primary goal of the Construction Engineering#Technology (CET) program#is to enhance the quality of the instructional program through effective management of the curriculum, teaching assignments, and fiscal and physical resources. This goal includes providing instructional facilities, equipment, and support services for faculty and students, which maintain an excellent learning environment.

Program Educational Objectives

OSU Construction Engineering#Technology graduates a few years after graduation will:

1. Solve problems typically found in the construction industry in construction engineering design, estimating, planning, scheduling, and project management using mathematical, analytical, and scientific skills of engineering technology.
2. Successfully lead and work in teams and communicate effectively in written, oral, and graphical forms.
3. Continue lifelong career and professional growth by actively interacting with local industries and participating in appropriate professional societies.
4. Continue lifelong personal growth in sensitivity to ethical responsibilities, global environments, and associated social issues.

Construction Engineering#Technology graduates can expect to obtain these student outcomes upon graduation:

(1) an ability to apply knowledge, techniques, skills, and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;

(2) an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;

(3) an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;

(4) an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and

(5) an ability to function effectively as a member as well as a leader on technical teams.

Faculty with strong academic backgrounds and industry experience are recruited nationwide and supported through professional development and regular industry engagement. They are encouraged to participate in research, extension, and continuing education—especially within the regional construction community.

Program direction is shaped through collaboration with construction professionals and an active Advisory Board, ensuring alignment with industry needs and maintaining excellence.

The Construction Engineering#Technology program is accredited by the Engineering Technology Accreditation Commission of ABET,http://www.abet.org.

The modern constructor must possess a great deal of technical knowledge to stay up to date with rapidly changing equipment, materials, and methods of construction. Specialized courses in estimating, surveying, structures, construction planning and scheduling, construction law and insurance, field and office management, and construction procedures provide students with the background necessary for today's construction industry. These specialized courses, combined with a blend of the basic sciences, business, and general studies, produce a well-balanced curriculum for students in construction engineering technology. Special attention is given to computer applications in construction estimating, and the development of graphic, written, and oral communication skills are emphasized throughout the curriculum.

Students with an interest in building structures may select courses in the "building" option of the construction engineering#technology curriculum, which provides them with knowledge of working drawings, mechanical and electrical equipment of buildings, and other coursework for a career in building construction.

Students with an interest in civil engineering structures may select courses in the "heavy/highway" option of the construction engineering#technology curriculum, which provides them with knowledge

of highways, soils, foundations, and other coursework for a career in the heavy and industrial construction industry.

The program recruits high-potential students and supports their success through quality instruction, advisement, and continuous outcome assessment, as measured by graduates and employers.

Graduates consistently transition into key industry roles as executives, project managers, estimators, sales professionals, and construction managers.

Fire and Emergency Management Program

Oklahoma State University's graduate program in Fire and Emergency Management Administration Program is one of the oldest programs in the nation. Students receive superior academic experience in preparing leaders in the fire services, emergency management, emergency medical services, law enforcement, homeland security and related professions, as well as educators and researchers in these fields.

Students can complete degree requirements either online as distance students or as a resident on campus. Online Graduate courses typically meet in real time. Distance students join on-campus students in lecture, discussion, and group work, utilizing state of the art classrooms designed for distance education. FEMP students are encouraged to complete at least one course on campus in Stillwater, Oklahoma. This can be accomplished during one-week courses in the summer or select traditional semesters when available.

The program began in 1996 as a Master of Arts specialization in Fire and Emergency Management within political science, transitioning in 1999 to the Master of Science in Fire and Emergency Management Administration. The curriculum covers public policy, strategic administration, disaster human dimensions, leadership, and terrorism.

In 2009, the PhD in Fire and Emergency Management Administration was launched to prepare skilled research scholars, especially for faculty roles at research institutions—though those pursuing careers in teaching-focused or non-academic settings are also supported. All PhD students receive rigorous preparation to stay current in the field and provide relevant, evidence-based knowledge.

On July 1, 2018, the program joined the College of Engineering, Architecture and Technology, enhancing its collaboration with OSU's internationally recognized fire-related programs.

A major component of Oklahoma State University's land grant mission is service to the community, state, and nation by preparing professionals for jobs in critical service sectors. The mission of the Fire and Emergency Management Administration Program is to prepare professionals for management positions in the critical service professions of fire and rescue, emergency management, emergency medical services, law enforcement, homeland security and related fields in both the public and private sectors. These professions are concerned with the mitigation of, preparedness for, response to, and recovery from the adverse effects of acute exposures to natural, technological, and social hazards.
The program specializes in strategic policy, public management, and organizational behavior, human dimensions of disaster, leadership, and counterterrorism. It also facilitates professional networking among its students and with leaders in the field. The curriculum is designed to provide students with theoretical and substantive knowledge about management structures and functions, analytical skills that enable the practical application of theories, research skills that enable critical analysis of real-world problems, and written communication skills necessary for effective management.

The Learning Outcomes for the Fire and Emergency Management programs are that:

1. Graduates can demonstrate mastery of substantive theories in and knowledge of fire and emergency management administration and of its application to practical problems and issues in the field.

2. Graduates can conduct research and critically analyze problems in the fire and emergency management field.

3. Graduates can demonstrate effective written communication skills.