

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.

Courses

CET 1213 Introduction to Construction

Description: Overview of the entire construction industry with emphasis on construction materials, methods and systems. Both building and heavy highway construction drawings and their interpretation. Previously offered as CMT 1213 and CMT 1214.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 2003 Construction and Culture

Description: Analyzes the cultural context of construction internationally, emphasizing its centrality in the evolution and expansion of built environments as expressions of ethical and historical value systems.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 2203 Construction Drawings (for Non-Majors)

Description: Principles of graphic communication are applied to reading and drawing construction plans, with emphasis to fire protection systems. Does not meet CMT degree requirements. (Online course for non-CMT majors). Previously offered as CMT 2203.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 2253 Printreading & BIM

Prerequisites: Grade of "C" or better in MATH 1513 or ALEKS score greater or equal to 60 or permission of instructor.

Description: Principles of 2D and 3D graphic communication are applied to reading and drawing construction plans. Techniques for measuring items of construction work from plans and specifications are also covered. Previously offered as CMT 2253.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 2263 Estimating I

Prerequisites: Grade of "C" or better in CET 1213 and CET 2253, and ALEKS>56 or MATH 1513 with a grade of "C" or higher, or MATH 1613 with a "C" or higher, or MATH 1813 with a "C" or higher or MATH 2144 with a "C" or higher or permission of instructor.

Description: Quantity take-off with emphasis on excavation, formwork and concrete, masonry, rough carpentry and miscellaneous specialty items. Previously offered as CMT 2263.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 2333 Construction Practices and Procedures

Prerequisites: "C" or better in CET 1213.

Description: Light frame and commercial construction. Foundation layout, framing and finish work, site investigations, excavation, precast concrete, tilt up, structural steel and metal building construction and project management.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 2343 Concrete Technology

Prerequisites: Grade of "C" or better in (CET 1213 and CMT 1213) and (CMT 2353 or CET 2253) or permission of department.

Description: Fundamentals and practical application of concrete and concrete making materials including admixtures. Proportioning concrete mixtures. Batching, mixing, conveying, placing, finishing, and curing concrete. Hot and cold weather concreting, jointing, volume change and crack control. Previously offered as CMT 2343 and CMT 2351 and CMT 2352.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 2 Contact: 4

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

CET 3163 Field Engineering Applications

Prerequisites: Grade of "C" or better in CET 2263 and ENSC 2113, or permission of department.

Description: Construction sequencing and methods and basic timber structural design.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3213 Soft Skills for Effective Interpersonal Communication (S)

Description: A study of personal one-on-one communication skills to improve effective intrapersonal communication. The course also relates intrapersonal skills to successful teamwork and teambuilding and becoming and presenting the best version of yourself.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

General Education and other Course Attributes: Society & Human Behavior

CET 3273 Scheduling Construction Projects

Prerequisites: Grade of "C" or better in CMT 2263, or CET 2263 or permission of department.

Description: Scheduling basics, including bar charts and critical-path methods; manual and computer techniques using current software; emphasis on using schedules for construction project management. Previously offered as CMT 3273.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3322 Construction Practicum I

Prerequisites: Grade of "C" or better in (CMT 1213 and CET 1213) and (CMT 2253 or CET 2253), or permission of department.

Description: Supervised field experience in construction; 400 hours minimum documented time required. Previously offered as CMT 3331 and CMT 3322.

Credit hours: 2

Contact hours: Lecture: 2 Contact: 2

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3323 Theory of Built Structures

Prerequisites: A grade of "C" or better in (MATH 2123 or MATH 2144) and (GENT 3232 or ENSC 2113) or permission of the department.

Description: The study of equilibrium of structural systems and stresses and strains that occur in structural members of the built environment. Previously offered as CMT 3323.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3332 Construction Practicum II

Prerequisites: Grade of "C" or better in (CMT 2263 or CET 2263), (CMT 3322 or CET 3322) and CIVE 3614 or permission of department.

Description: Supervised temporary, full-time employment in construction, emphasizing field and office engineering and a variety of project management functions; 400 hours minimum documented time required. Previously offered as CMT 3332 and CMT 3333.

Credit hours: 2

Contact hours: Lecture: 2 Contact: 2

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3364 Structures I

Prerequisites: Grade of "C" or better in (CMT 2343, CET 2343, or CMT 2351) and (CMT 3323, CET 3323 or GENT 3323 or ENSC 2143) and (MATH 2133 or MATH 2153) and (PHYS 1214 or PHYS 2114) and (CMT 3322 or CET 3322) and (CMT 3273 or CET 3273).

Description: Methods of structural analysis applicable to construction; design of timber structures and forms for concrete structures. Previously offered as CMT 3363 and CMT 3364.

Credit hours: 4

Contact hours: Lecture: 3 Lab: 2 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

CET 3432 Principles of Site Development

Prerequisites: Grade of "C" or better in CET 2343 or ENSC 2113 or permission of department.

Description: Site layout, vertical and horizontal control, surveying instrument adjustments, site investigations, excavations, site drainage and geotechnical considerations. Previously offered as CET 3433, CMT 3433 and CMT 2333.

Credit hours: 2

Contact hours: Lecture: 2 Contact: 2

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3443 Environmental Building Systems (Non-Majors)

Prerequisites: Grade of "C" or better in ENGR 1322 or CMT 2253 or ARCH 3263 and grade of "C" or better in (PHYS 1114 or PHYS 2014), or permission of department.

Description: An introductory level knowledge of plumbing, heating, air-conditioning, electrical and lighting systems as applied to construction and construction-related projects. May not be used for degree credit with CET 3463.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 3463 Environmental Building Systems

Prerequisites: Grade of "C" or better in CET 2253 or CMT 2253 and (PHYS 1214 or PHYS 2114) or permission of department.

Description: Plumbing, heating, air-conditioning, electrical and lighting systems as applied to residences and commercial buildings. Previously offered as CMT 3463.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 2 Contact: 4

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

CET 3554 Structures II

Prerequisites: Grade of "C" or better in (CET 3364 or CMT 3364).

Description: Analysis and design of elements in steel and reinforced concrete structures; review of shop drawings for both types of construction. Previously offered as CMT 3553 and CMT 3554.

Credit hours: 4

Contact hours: Lecture: 3 Lab: 2 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

CET 4050 Advanced Construction Management Problems

Description: Special problems in construction management. Previously offered as as CMT 4050. Offered for variable credit, 1-6 credit hours, maximum of 6 credit hours.

Credit hours: 1-6

Contact hours: Contact: 1-6 Other: 1-6

Levels: Undergraduate

Schedule types: Independent Study

Department/School: Engineering Technology

CET 4103 Integrated Project Delivery Methods

Description: An introduction to contract delivery methods for construction projects from the perspective of Designers, Owners, and Builders. Best value selection is used as a tool to illustrate all perspectives for project management. Professional, ethical, and social responsibilities are presented through the perspectives of sustainability and lean bespoke manufacturing methods.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4133 CAD and BIM for Construction Managers

Prerequisites: Grade of "C" or better in (CMT 1213 or CET 1213) and (CMT 2253 or CET 2253).

Description: Interpretation and production of construction drawings using computer aided drafting. Theory and use of Building Information Modeling software builds upon computer aided drafting skills. Previously offered as CMT 3633.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4263 Estimating II

Prerequisites: Grade of "C" or better in EET 1003, (CMT 2263 or CET 2263) and concurrent enrollment or grade of "C" or better in GENT 2323 or ENSC 2113; or permission of department.

Description: Extensive use of actual contract documents for quantity take-off, pricing and assembling the bid for several projects. Use of computers in estimating. Previously offered as CMT 4263.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4273 Technology in Construction

Prerequisites: Grade of "C" or better in (CMT 3273 or CET 3273) and (CMT 4263 or CET 4263).

Description: Applications of various technologies including software for construction. Previously offered as CMT 4273.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4283 Business Practices for Construction

Prerequisites: Grade of "C" or better in ACCT 2003, ACCT 2103, (CMT 3273 or CET 3273) and (CMT 4563 or CET 4563) or permission of department.

Description: Principles of management applied to construction contracting; organizing office and field staff; bonding, liens, financial management practices; introduction to the construction manager concept; schedule of values; construction billings. Previously offered as CMT 4283.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4293 Construction Manager Concepts

Prerequisites: Grade of "C" or better in CET 3163 and CET 4283 or permission of department.

Description: Capstone course utilizing skills and knowledge of estimating, scheduling, bidding, construction management, CAD, TQM, partnering and safety; includes topics in leadership, motivation and the use of current project management software. Previously offered as CMT 4293.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4333 Equipment Management for Constructors

Prerequisites: Grade of "C" or higher in (CMT 2263 or CET 2263), (CMT 2343 or CET 2343) and (ACCT 2003 or ACCT 2103) or permission of department.

Description: Selection and use of equipment, estimating equipment costs, estimating equipment production rates for all types of equipment used in building construction and heavy/highway construction. Previously offered as CMT 4333.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4443 Construction Safety and Loss Control

Prerequisites: Grade of "C" or better in (CMT 2253 or CET 2253) and (CMT 4263 or CET 4263) or permission of department.

Description: A detailed study of OSHA Part 1926 - Construction Safety and Health Compliance and related safety topics including topics related to the OSHA 30-hour training program; concepts and methods of loss control. Previously offered as CMT 4443.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4533 Heavy Civil Construction and Estimating

Prerequisites: Grade of "C" or better in (CMT 2263 or CET 2263) and (CMT 2343 or CET 2343 or CMT 2351) or permission of department.

Description: Theory and application of contractor estimating and bidding procedures used in heavy and highway construction projects. Previously offered as CMT 4533.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4553 Structural Steel Design & Connections

Prerequisites: Grade of "C" or better in CET 3163 and ENSC 2143 or permission of department.

Description: Analysis and design of steel beams and columns, bolted and welded connections, and rigging applications. May not be used for degree credit with CET 3554.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 2 Contact: 4

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

CET 4563 Construction Law and Insurance

Prerequisites: A grade of "C" or better in (CMT 2263 or CET 2263) and SPCH 2713 and acceptance to the CMT Upper Division or permission of the department.

Description: Legal and insurance problems as they pertain to the construction industry. Previously offered as CMT 4563.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

CET 4663 Concrete Design & Formwork

Prerequisites: Grade of "C" or better in CET 3163 and ENSC 2143 or permission of department.

Description: Analysis and design of cast in place concrete with concrete formwork applications. May not be used for degree credit with CET 3364 and CET 3554.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 2 Contact: 4

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 1103 Applied Techniques in Fire Suppression

Description: Provides requisite knowledge to achieve basic certifications in fire suppression and emergency operations for municipal and industrial fire protection.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 1203 Applied Techniques in Emergency Operations

Description: Provides requisite knowledge to achieve advanced certifications in fire suppression and emergency operations for municipal and industrial fire protection.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 1213 Fire Safety Hazards Recognition

Description: "The Fire Problem" Physical, chemical and electrical hazards and their relationship to loss of property and/or life. Safe storage, transportation and handling practices to eliminate or control the risk of fire in the home, business and industry.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

FPST 1373 Fire Suppression and Detection Systems

Description: The design, installation, maintenance and utilization of portable fire-extinguishing appliances and pre-engineered systems. Operational capabilities and utilization requirements of fire detection and signaling systems. Fire detection and suppression applied in practical laboratory problems.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 2023 Industrial and Occupational Safety

Prerequisites: A grade of "C" or better in FPST 1213 and a grade of "C" or better in either MATH 1613 or MATH 1715 or MATH 1813 or MATH 2123 or MATH 2144 or an ALEKS score of 65.

Description: Occupational facilities, equipment and operations and their inherent hazards. Directed toward worker, machine and environmental control.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 2050 Studies in Loss Control

Prerequisites: Consent of instructor and adviser.

Description: Problems in applied fire protection technology, occupational safety, industrial hygiene or hazardous materials management of particular interest to the loss control specialist. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.

Credit hours: 1-4

Contact hours: Contact: 1-4 Other: 1-4

Levels: Undergraduate

Schedule types: Independent Study

Department/School: Engineering Technology

FPST 2153 Fire Protection Management

Description: Applied human relations, technical knowledge and skills for achieving optimum effectiveness from a fire protection organization.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

FPST 2243 Design and Analysis of Sprinkler Systems

Prerequisites: Grade of "C" or better in (FPST 2483 and (ENGR 1322 or CET 2253)) or (MAE 3333 and (ENGR 1332 or ENGR 1322)).

Description: Detailed current standards for selection, design, installation, operation and maintenance of automatic fire suppression systems. Laboratory problems on applicable technological principles.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 2343 Elements of Industrial Hygiene

Prerequisites: Grade of "C" or better in STAT 2013, CHEM 1515 or CHEM 1225 or CHEM 1414.

Description: Toxic or irritating substances, physical, biological, ergonomic and other occupational stress factors causing employee illness or discomfort. Environmental pollution sources and controls. Previously offered as FPST 2344.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 2483 Fluid Mechanics for Fire Protection

Prerequisites: Prior (grade of "C" or better) or concurrent enrollment in FPST 1373. A grade of "C" or better in MATH 1613 or MATH 1715 or MATH 1813 or MATH 2123 or MATH 2144 or an ALEKS score of 65.

Description: Fluid flow through hoses, pipes, pumps and fire protection appliances. Water supply and distribution analysis using hydraulic calculations. Testing techniques to detect anomalies in design or performance capabilities.

Credit hours: 3

Contact hours: Lecture: 2 Lab: 3 Contact: 5

Levels: Undergraduate

Schedule types: Lab, Lecture, Combined lecture and lab

Department/School: Engineering Technology

FPST 2650 Technical Problems and Projects

Description: Special problems or projects assigned by advisers with the approval of the department head. A comprehensive written report or equivalent creative effort. Offered for variable credit, 1-4 credit hours, maximum of 4 credit hours.

Credit hours: 1-4

Contact hours: Contact: 1-4 Other: 1-4

Levels: Undergraduate

Schedule types: Independent Study

Department/School: Engineering Technology

FPST 3013 Safety Management (S)

Prerequisites: A grade of "D" or better in ENGL 1113 or ENGL 1123 or ENGL 1313. Must be enrolled in one of the following classes: Sophomore (SO), Junior (JR), or Senior (SR).

Description: Understanding and implementing techniques for a safer work environment. Recognition, evaluation and control of occupational health and safety hazards. Accident prevention, accident analysis, training techniques, worker's compensation insurance, guarding and personal protective equipment.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

General Education and other Course Attributes: Society & Human Behavior

FPST 3113 Advanced Special Hazard Suppression and Detection**Prerequisites:** FPST 2483 or ENSC 3233.**Description:** Design and analysis of special hazard suppression and detection systems using code requirements. Emphasis is also placed on the ability to select the appropriate system for a given hazard. May not be used for degree credit with FSEP 5123.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3143 Life Safety Analysis****Prerequisites:** A grade of "C" or better in FPST 1373 or CMT 3463 or ARCH 2263.**Description:** Life safety concepts related to building codes including means of egress design criteria and components, exits, component details, occupancy types, occupancy load, emergency lighting, marking of means of egress, evacuation movement, human performance capabilities, human response to fire cues, occupant pre-evacuation, and toxicology.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Engineering Technology**FPST 3213 Human Factors in Accident Prevention****Prerequisites:** Grade of "C" or better in (STAT 2013, STAT 4013, or STAT 4033) and (GENT 2323 or ENSC 2113).**Description:** Human factors and workplace ergonomics as it relates to the prevention of accidents and workplace injuries. Fundamentals and techniques of task analysis.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3373 Fire Dynamics****Prerequisites:** A grade of "C" or better in (CHEM 1414 or CHEM 1215 or CHEM 1515), (MATH 2133 or MATH 2153), (FPST 2483 or MAE 3333).**Description:** Fundamentals of thermochemistry, vent flows, heat transfer, ignition of liquids and solids, compartment fire phenomena, and introduction of computer fire modeling. Previously offered as FPST 4373.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 2 Contact: 4**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Engineering Technology**FPST 3383 Building Electrical Systems****Prerequisites:** A grade of C or better in FPST 1373 and a grade of C or better in PHYS 2014.**Description:** Detail current standards for design, selection and installation of electrical distribution and utilization equipment. Emphasis on personnel safety and fire prevention using current codes and standards. May not be used for degree credit with FSEP 5163.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3611 Human Behavior in Fire****Description:** Concepts related to human behavior in terms of both the decision-making process of individuals and the impact of fire on occupants' ability to respond. May not be used for FSEP 5173.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3621 Wildland Urban Interface Fire Impact on Infrastructure****Description:** Concepts related to wildland urban interface fires in terms of both the identification of hazards and solutions for protecting the building infrastructure. May not be used with FSEP 5173.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3631 Fire Impact on Tall Building Infrastructure****Description:** Concepts related to tall building fires in terms of both the identification of hazards and solutions for protecting the building infrastructure. May not be used with FSEP 5173.**Credit hours:** 1**Contact hours:** Lecture: 1 Contact: 1**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3713 Hydraulic Design of Automatics Sprinkler Systems****Prerequisites:** FPST 1373, FPST 2483, MATH 1513.**Description:** Hydraulic calculation technique for the design and analysis of automatic sprinkler fire extinguishing systems.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3723 Industrial Fire Pump Installations****Prerequisites:** FPST 2483, MATH 1513.**Description:** Applications, design and analysis of industrial fire pump installations. Graphical analysis of fire pump contributions to existing fire protection water supply systems emphasized.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 3733 Sprinkler System Design for High Piled and Rack Storage****Prerequisites:** FPST 2243, MATH 1513.**Description:** Specific design techniques for sprinkler system protection of commodities stored in solid piles or racks over 12 feet in height.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology

FPST 4050 Special Problems in Loss Control**Prerequisites:** Consent of department head.**Description:** Special technical problems in fire protection and safety. Offered for variable credit, 1-4 credit hours, maximum of 6 credit hours.**Credit hours:** 1-4**Contact hours:** Contact: 1-4 Other: 1-4**Levels:** Undergraduate**Schedule types:** Independent Study**Department/School:** Engineering Technology**FPST 4143 Industrial Ventilation and Smoke Control****Prerequisites:** A grade of "C" or better in (FPST 2483 or MAE 3333) and FPST 3373 and (ENSC 2213 or MET 3433 or MET 3453).**Description:** Principles of dilution and comfort ventilation; contaminant control; ventilation system testing and guidelines. Design and analysis of smoke management systems in buildings. Performance characteristics of smoke control systems. Previously offered as FPST 4133.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 4153 Issues in Local Government and Fire Services****Prerequisites:** FPST 2153, MGMT 3013.**Description:** Issues relating to the proper operation of a fire department and the fire department's role within the structure of local government.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 4213 Advanced Building Design and Analysis****Prerequisites:** Grade of "C" or better in FPST 2243 or CMT 3463 or ARCH 2263.**Description:** Fire protection and life safety concepts and applications in the built environment related to building and fire codes including building height and area, structural fire protection, occupancy classifications, passive fire protection systems, means of egress, active fire protection systems, fire detection systems, and fire department access. May not be used for degree credit with FSEP 5213.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 4233 Advance Exposure Assessment****Prerequisites:** Grade of "C" or better in FPST 2344.**Description:** Evaluation of CBRNE exposure risks in industry and emergency response including statistical/computational techniques, regulatory obligations, and the use of instrumentation. Same course as FPST 3233.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 4333 System and Process Safety Analysis****Prerequisites:** Grade of "C" or better in FPST 2023, STAT 2013, and MATH 2123 or MATH 2144.**Description:** Fire and safety techniques to anticipate, recognize and control hazards. Fault Tree, HazOp, FMEA and other process safety techniques.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Engineering Technology**FPST 4383 Fire and Evacuation Modeling****Prerequisites:** A grade of "C" or better in CHEM 1515 or CHEM 1225 or CHEM 1414 and FPST 2483 and MATH 2133 or MATH 2153 and STAT 2013 and GENT 3433 or MET 3433 or ENSC 2213 or GENT 4433 or MET 4433.**Description:** Fundamentals of fire dynamics and occupant egress and their numerical approaches for computer models. Practical knowledge of how to use fire and evacuation modeling tools: CFAST, FDS, Pyrosim, and Pathfinder, and how to analyze modeling results. May not be used for degree credit with FSEP 5383.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 4403 Hazardous Materials Management****Prerequisites:** Grade of "C" or better in FPST 2343, and (CHEM 1225 or CHEM 1414 or CHEM 1515).**Description:** An integrated approach to hazardous materials management with emphasis on comprehensive environmental, health, safety, and fire protection program compliance relating to the transportation, storage, use and disposal of hazardous materials and wastes.**Credit hours:** 3**Contact hours:** Lecture: 3 Contact: 3**Levels:** Undergraduate**Schedule types:** Lecture**Department/School:** Engineering Technology**FPST 4683 Risk Control Engineering****Prerequisites:** A grade of "C" or better in FPST 2023, FPST 2343, FPST 2243, FPST 3373, FPST 3013, and ENGL 3323, or Department Permission, Junior Standing.**Description:** Analysis of specific processes, equipment, facilities and work practices for detecting and controlling potential hazards, evaluating risk and developing risk control methodologies.**Credit hours:** 3**Contact hours:** Lecture: 2 Lab: 3 Contact: 5**Levels:** Undergraduate**Schedule types:** Lab, Lecture, Combined lecture and lab**Department/School:** Engineering Technology

FPST 4982 Fire Protection and Safety Projects I

Prerequisites: A grade of "C" or better in ENGL 1113 or ENGL 1123 or ENGL 1313. A grade of "C" or better or concurrent enrollment in ENGL 3323. A grade of "C" or better or concurrent enrollment in FPST 3013.

Description: Two-semester project with team format. Team members work with sponsors and faculty who serve as mentors in fields related to their topics. Students complete topic selection, progress reports, final reports, and poster presentations.

Credit hours: 2

Contact hours: Lecture: 2 Contact: 2

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

FPST 4992 Fire Protection & Safety Projects II

Prerequisites: A grade of "C" or better in ENGL 3323 and FPST 4982.

Description: Two-semester project with team format. Second of two-semester sequence of senior project courses.

Credit hours: 2

Contact hours: Lecture: 2 Contact: 2

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

FPST 4994 Fire Protection and Safety Projects

Prerequisites: A grade of "C" or better in ENGL 1113 or ENGL 1123 or ENGL 1313. A grade of "C" or better or concurrent enrollment in ENGL 3323. A grade of "C" or better or concurrent enrollment in FPST 3013 and FPST 3373.

Description: Students work in small teams on a semester-long design project sponsored by a company, agency, or individual. Team members work with mentors from sponsors and with faculty members in fields related to their topics. Presentations on safety, patent law, product liability, report writing, oral presentations, scheduling and ideation. Oral presentations, progress reports, and a professional log book documenting personal activity and contributions. Previously offered as FPST 4993.

Credit hours: 4

Contact hours: Lecture: 4 Contact: 4

Levels: Undergraduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5000 Master's Thesis

Prerequisites: Consent of instructor.

Description: Methods used in research and thesis writing. Offered for variable credit, 1-6 credit hours, maximum of 18 credit hours. Same course as MERO 5000.

Credit hours: 1-6

Contact hours: Contact: 1-6 Other: 1-6

Levels: Graduate

Schedule types: Independent Study

Department/School: Engineering Technology

FSEP 5013 Research Design & Methodology

Prerequisites: Consent of instructor.

Description: Overview of research design methods and skills necessary for conducting research projects, including: conceptualization and operationalization, literature review, deductive and inductive theorizing, hypothesis testing, quantitative and qualitative data collection and analysis, maintaining research records, experiment design, data validation, result presentation, and research ethics. Same course as FEMP 5013 and MERO 5013. Previously offered as GENT 5013.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5023 Project Management

Prerequisites: Consent of instructor.

Description: Methods and skills needed to successfully improve your employability and advancement in today's dynamic workforce. Understanding of the responsibilities of project leader and become better prepared to apply these knowledge/skills to the project environment. Previously offered as GENT 5023.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5033 Risk Analysis

Prerequisites: Consent of instructor.

Description: Identification of various risks and analytical treatment of those risks in various work settings, such as energy, mechanical and construction. Previously offered as GENT 5033.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5043 Principles and Impacts of Explosions

Description: Concepts related to understanding explosion phenomena, analyze and calculate explosion pressures, conceptual design of ventilation, suppression or isolation systems. Approaches of explosion protection and evaluation of structural damage and injury potential of blast waves.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5060 Emerging Topics in Engineering Technology

Prerequisites: Consent of instructor.

Description: Advanced and emerging topics normally not included in existing MSET program. Repeat credit may be earned with different course subtitles assigned. Same course as MERO 5060. Offered for fixed credit, 3 credit hours, maximum of 6 credit hours.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5113 Introduction to Fire Dynamics

Description: Fundamentals principles of combustion and fire. The thermochemistry and physical phenomena of fire.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5123 Advanced Special Hazard Suppression and Detection

Description: Design and analysis of special hazard suppression and detection systems using code requirements. Emphasis is also placed on the ability to select the appropriate system for a given hazard. May not be used with FPST 3113.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5133 Principles of Industrial and Process Safety

Description: Fundamentals of industrial safety in general, chemical release, dispersion, toxicity, fire, and explosion. Safety design for industrial safety and mitigating consequences of catastrophic fire and explosion. Same course as MERO 5033.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5143 Performance Based Design for Life Safety in Fire and Other Hazards

Description: Identification and application of performance based design practices with an emphasis on determining the response and requirements of occupants. Building construction standards and codes to assure maximum life and property safety from fires, explosions and natural disasters. Egress design specifications, human factors and fire protection requirements.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5153 Advanced Exposure Assessment

Description: Identification of critical infrastructure and the societal risk caused by its vulnerability. Methods of analyzing the hazards and threats facing critical infrastructure components and the methods of minimizing those risks.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5163 Building Electrical Systems

Description: Detail current standards for design, selection and installation of electrical distribution and utilization equipment. Emphasis on personnel safety and fire prevention using current codes and standards. May not be used with FPST 3383.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5173 Explosion and Fire Impact on Infrastructure

Description: Concepts related to explosions, Wildland Urban Interface (WUI) fires, and tall buildings in terms of both the identification of hazards and solutions for protecting the building infrastructure. May not be used with FPST 3611, FPST 3621, or FPST 3631.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5213 Advanced Building Design and Analysis

Description: Fire protection and life safety concepts and applications in the built environment related to building and fire codes including building height and area, structural fire protection, occupancy classifications, passive fire protection systems, means of egress, active fire protection systems, fire detection systems, and fire department access. May not be used for degree credit with FSEP 4213.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5383 Fire and Evacuation Modeling

Description: Fundamentals of fire dynamics and occupant egress and their numerical approaches for computer models. Practical knowledge of how to use fire and evacuation modeling tools: CFAST, FDS, Pyrosim, and Pathfinder, and how to analyze modeling results. May not be used for degree credit with FPST 4383.

Credit hours: 3

Contact hours: Lecture: 3 Contact: 3

Levels: Graduate

Schedule types: Lecture

Department/School: Engineering Technology

FSEP 5990 Directed Studies

Prerequisites: Consent of instructor.

Description: Individual report topics in fire safety and explosion protection involving processes, equipment, experiments, literature search, theory, computer use or combinations of these. Same course as MERO 5070. Offered for variable credit, 2-4 credit hours, maximum of 4 credit hours.

Credit hours: 2-4

Contact hours: Contact: 2-4 Other: 2-4

Levels: Graduate

Schedule types: Independent Study

Department/School: Engineering Technology

Undergraduate Programs

- Construction Engineering Technology: Building, BSET (<http://catalog.okstate.edu/engineering-architecture-technology/fire->

construction-emergency-management/construction-engineering-technology-building-bset/)

- Construction Engineering Technology: Heavy, BSET (<http://catalog.okstate.edu/engineering-architecture-technology/fire-construction-emergency-management/construction-engineering-technology-heavy-bset/>)
- Fire Protection and Safety Engineering Technology, BSET (<http://catalog.okstate.edu/engineering-architecture-technology/fire-construction-emergency-management/fire-protection-safety-engineering-technology-bset/>)

Graduate Programs

Master of Science in Engineering Technology: Fire Protection and Explosion Protection

The Fire Protection and Safety Engineering Technology (FPST) program offers a graduate program leading to the Master of Science in Engineering Technology with an option in Fire Safety and Explosion Protection (FSEP). The program extends the FPST undergraduate program into graduate research, scholarship and creative activities. The FSEP program is designed to prepare students for professional practice that may include research or consulting components, with major emphasis in fields of interest such as fire protection engineering, explosion protection, fire and explosion hazards, and process safety. This is the nation's only master's degree program that is dedicated to both fire and explosion protection and related to safety. The program is geared toward recent graduates and professionals in a variety of industries, including insurance companies, the oil & gas industry, and fire protection engineering companies. The graduates of this program will have the deeper knowledge base that is needed to safeguard people in Oklahoma, the nation, and the world. The FSEP program is intended to be especially attractive to engineering and engineering technology graduates from any discipline, and many science majors. The program is interdisciplinary in nature and hence students with undergraduate degrees in fire and safety related fields or other STEM disciplines are invited to apply for admission. Students can complete degree requirements either online as distance students or as a resident on campus.

Admission Requirements

Admission to the Master of Science degree program requires a B.S. degree in engineering or engineering technology from an ABET-accredited (or equivalent) program or a B.S. from other related disciplines with foundations in mathematics. Admission is competitive based on undergraduate GPA and TOEFL (for international students), statement of interests, experience and recommendation letters. The GRE exam is optional but encouraged.

Degree Requirements

A candidate for the graduate degree must satisfy at least the minimum University requirements for that particular degree. The program consists of 30 hours of coursework with a thesis option or 33 hours of coursework with a non-thesis option. For both options, the courses taken must include FSEP 5013, 5023, and 5133. Both options require nine hours from the FSEP core courses that include 5033, 5113, 5143, and 5043.

Master of Science in Fire and Emergency Management Administration

Admission Requirements

Any student having a bachelor's degree with an overall 3.00 grade-point average (on a 4.00 scale) may be admitted as a student in full standing. Those with less than an overall 3.00 grade-point average are considered for admission on a probationary basis.

In addition to the general requirements outlined above, candidates for the Master of Science degree in fire and emergency management administration must meet one of the following requirements:

1. Have significant practical experience in a fire or emergency service organization.
2. Have a bachelor's degree or a minor in fire or emergency services related discipline such as fire protection technology, fire management administration, fire science, emergency management, disaster science, criminal justice, emergency services administration; or
3. Not meeting the criteria specified in 1 or 2 above, completed a minimum of 12 hours of undergraduate study in fire protection and/or emergency management, or provide significant proof that studies in another field led to knowledge and experience in fire or emergency services field, such as a final project related to fire or one of the emergency services listed above or an internship with a fire, emergency service, or law enforcement related organization in the public, private, or nonprofit sector.

A complete application for admission to the master's program must include:

1. A completed Graduate College application submitted with a non-refundable application fee.
2. A copy of undergraduate transcript(s).
3. Two letters of recommendation with at least one from an employer or faculty member familiar with applicant's academic abilities.
4. TOEFL results for students for whom English is a second language. Students must have a score above 549 (paper exam) or 79 (internet-based test) to be considered for admission.
5. A brief letter indicating interests, career goals and other information the applicant considers relevant.

Degree Requirements

In addition to the general requirements of the Graduate College, requirements for the Master of Science degree in fire and emergency management administration are listed below.

1. A minimum of 33 credit hours in FEMP or closely related courses. Required courses include a 12-hour core requirement, a three-hour methods requirement, a three-hour administration course requirement, a six-hour emergency management or fire administration requirement, and six or nine hours of electives. Students must complete a three-hour practicum research project or a thesis with a minimum of six hours. Most courses in the FEMP MS program are conducted in the department's state-of-the-art virtual classroom, where both on-site and off-site students participate simultaneously in the same class sessions.
2. Satisfactory completion of a final assessment project (either a Thesis or a Practicum).

3. Minimum 3.00 grade-point average, with only one grade of "C" allowed.

PhD in Fire and Emergency Management Administration

Admission Requirements

OSU Graduate College admission requirements include the following: an OSU Graduate College Application, payment of the OSU Graduate Application fee and transcripts of all previous college level coursework including transcripts that verify receipt of an undergraduate and graduate master's degree.

1. GPA: minimum cumulative GPA of 3.0.
2. GRE: Graduate Record Examination (GRE) scores are waived for students who have a 3.5 or above at the conclusion of their Master's degree program. GRE scores taken within the last 5 years are required for students who have less than a cumulative 3.5 GPA at the completion of their Master's degree program.
3. Professional experience in a fire or emergency services related field is preferred, but not required.
4. Academic experience in a fire or emergency services related field is preferred. If applicant has a degree outside of the fire or emergency services related field, they should spend time explaining how their academic background (i.e. degree, courses, research) has prepared them for the pursuit of a PhD in Fire and Emergency Management Administration.
5. English Language Proficiency: For international students, a minimum TOEFL score of 79 (Internet) and 550 (paper) is required.
6. A current resume
7. Three letters of recommendation: At least two letters must come from individuals who can speak directly to the applicant's abilities in the classroom and conducting research at the level required for doctoral work (i.e. faculty members).
8. An essay: This 1-2 page essay should address the applicant's previous professional and academic experience and how it has prepared them to seek a PhD in Fire and Emergency Management Administration. Candidates should also address their 5- and 10-year goals, discuss their research interests, and explain how the FEMP program and faculty can help them reach their goals and develop their research interests.
9. Copy of the applicant's thesis or other written example of applicant's research abilities.
10. Copies of any published materials authored by the candidate.

Degree Requirements

Degree candidates must have completed a master's degree. In addition, they must complete 60 hours of required common coursework that includes 15 hours in core courses, 12 hours of research tools, 18 hours of elective courses closely aligned with their academic and research interests, and 15 hours of dissertation research. Finally, candidates must take written and oral comprehensive exams and must successfully defend their dissertation before their dissertation committee. Most courses in the FEMP PhD program are conducted in the department's state-of-the-art virtual classroom, where both on-site and off-site students participate simultaneously in the same class sessions.

Minors

- Construction (CNST), Minor (<http://catalog.okstate.edu/engineering-architecture-technology/fire-construction-emergency-management/construction-minor/>)
- Emergency Management (EM), Minor (<http://catalog.okstate.edu/engineering-architecture-technology/fire-construction-emergency-management/emergency-management-minor/>)
- Safety and Exposure Sciences (SAES), Minor (<http://catalog.okstate.edu/engineering-architecture-technology/fire-construction-emergency-management/safety-exposure-sciences-minor/>)

Faculty

Heather Yates, EdD, CPC—Professor and School Head

Professor: Bryan Hoskins, PhD, PE (FSEP Graduate Program Coordinator)

Associate Professors: Virginia Charter, PhD, PE, FSFPE (FPSET Program Coordinator); Xiangyu "Dale" Li, PhD; Rachel Mosier, PhD, PE (CET Program Coordinator); Tony McAleavy, PhD (FEMP Program Coordinator); Haley Murphy, PhD; Haejun Park, PhD

Assistant Professors: Chen Chen, PhD; Diana Rodriguez Coca, PhD; Marllon "Dan" Cook, PhD; Amy Lewis, PhD, CPC; Ruiqing "Ryan" Shen, PhD; Chelsie McWhorter, PhD; Soojin Yoon, PhD

Associate Professor of Professional Practice: Leslie Stockel, PhD, CSP

Assistant Professor of Professional Practice: Paul Christian, CPC

Associate Teaching Professor: Laura Emerson

Assistant Teaching Professor: Muhammad Jujuly

Affiliated Faculty: Ed Kirtley, PhD, Associate Dean of Engineering Extension and Professor of Professional Practice