

# FIRE PROTECTION & SAFETY TECH (FPST)

## 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:** Social & Behavioral Sciences

**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 1314 or CHEM 1215 or CHEM 1515, MATH 2133 or MATH 2153, STAT 2013, FPST 2483, and GENT 3433 or ENSC 2213 or GENT 4433.

**Description:** Fundamental thermodynamics of combustion, fire chemistry and fire behavior. The physical evidence left by fire for investigation and the use of computer models to study fire behavior. Previously offered as FPST 4373.

**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 3383 Building Electrical Systems**

**Prerequisites:** FPST 1373.

**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 Explosion Impact on Infrastructure**

**Description:** Concepts related to explosions in terms of both the identification of hazards and solutions for protecting the building infrastructure. 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 2344 and FPST 2483 and FPST 3373.

**Description:** Principles of dilution and comfort ventilation; heat-cold stress control, system design, contaminant control; ventilation system testing and guidelines. Design and analysis of smoke management systems in buildings for survivability and safe egress. Assessment of human health hazards posed by smoke. 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 2023, FPST 2344, 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 4982, ENGL 3323, and Department Permission.

**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 Interdisciplinary 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