

**CENTRAL TEXAS COLLEGE
SYLLABUS FOR FIRT 1319
FIREFIGHTER HEALTH AND SAFETY**

Semester Hour Credit: 3

**INSTRUCTOR:
OFFICE HOURS:**

I. INTRODUCTION

- A. Firefighter Health and Safety provides a study of firefighter occupational safety and health in emergency and non-emergency situations. It will provide a better understanding of wellness issues and programs affecting firefighters.
- B. This is a required course for an Associate of Applied Science Degree in Fire Protection Technology.
- C. This course is occupationally related and serves as preparation for careers in Fire Protection and Fire Service.
- D. Prerequisite: None
- E. Alphanumeric coding used throughout the syllabus denotes the integration of SCANS occupational competencies (C) and Foundation skills. (F)

II. OVERALL OR GENERAL OBJECTIVES OF THE COURSE.

Upon successful completion of this course, Building Codes and Construction, the student will:

- A. Identify and describe components of a firefighter safety program. (C5, C9, F5, F9, F11)
- B. Explain Safety practices and procedures related to emergency and non-emergency operations. (C5, C7, C9, F1, F2, F5, F6, F10, F11)
- C. Explain the benefits of a wellness program. (C5, C7, C9, F1, F2, F5, F6, F10, F11)
- D. List and explain the purpose for the 16 Firefighter Life Safety Initiatives. (C5, C9, F5, F9, F11)

III. INSTRUCTIONAL MATERIALS

- A. The instructional materials identified for this course are viewable through www.ctcd.edu/books

B. Currently (6/15): James S. Angle, *Occupational Safety and Health in the Emergency Services*, fourth edition 2015, Jones and Bartlett Learning, 9781284035919

C. References: As listed by instructor.

IV. COURSE REQUIREMENTS

A. Your first responsibility is scholarship. The grade you receive for this course will not be the grade of the instructor, but the grade you and you alone earn.

B. This course is designed to require a steady, continuous effort from the student. A crash-cram policy will not result in the best grade possible. In addition to exams, factors such as class participation, initiative, attendance, and individual work will be considered in grade computation.

C. You are encouraged to give your best effort throughout the semester. From the beginning, you should plan for a steady, organized, and continuous effort, which in the long run will prove more effective for your final grade than a last minute crash-cram policy. Your course grade is not determined solely by exam grade. Such factors as class participation, initiative, attendance, and individual research papers or projects will be considered in grade computation.

D. From time to time, special library and other assignments may be made to members of the class, individually and in groups. You are expected to read all assignments and fulfill your responsibilities to any group assignments.

E. You are expected to read all assigned material and bring your textbook to class. Keep up to date and informed on assignments, especially after a period of absence.

F. Good class notes are indispensable for earning a good grade since both the material assigned and discussed will be the basis for examination material. Regular attendance is essential for the same reason.

G. Scholastic Honesty: All students are required and expected to maintain the highest standards of scholastic honesty in the preparation of all coursework and during examinations. The following are considered examples of scholastic dishonesty:

Plagiarism: The taking of passages from the writing of others without giving proper credit to the sources.

Collusion: Using another's work as one's own, or working together with another person in the preparation of work, unless such joint preparation is specifically approved in advance by the instructor.

Cheating: Giving or receiving information on examinations.

H. Special Work: Special assignments may be made during the semester, both for regular work or supplemental work.

V. EXAMINATIONS

A. There will be a minimum of three (3) major examinations as follows:

1. Three-week exam
2. Mid-term exam
3. Twelve-week exam (optional)
4. Final exam

B. Unannounced short quizzes may be given covering any material that has been assigned from the beginning of the course.

C. Occasionally a student will find it unavoidable to be absent from an exam. Only students with excused absences will be permitted to take make-up exams. Unexcused absences will result in a zero for the exam missed. The policy of the college is clearly stated in the catalog. A doctor’s excuse is required in case of illness.

D. The exams may be structured to include subjective, objective, or a combination of both types of questions.

VI. SEMESTER GRADE COMPUTATION

<u>EXAM</u>	<u>POINTS</u>	<u>POINTS</u>	<u>GRADES</u>
Three Week Exam	150	900-1000	A=4pts/sem hr.
Mid-Term Exam	200	800-899	B=3pts/sem hr.
Twelve Week Exam(opt)	200	700-799	C=2pts/sem hr.
Final Exam	250	600-699	D=1pt/sem hr.
Homework/Quizzes	<u>200</u>	0-599	F=0pts/sem hr.
Total	1,000		

The Twelve Week Exam is optional: if it is not given, then those points will default to Homework/Quizzes and to Incentive points. Incentive points may be earned for factors such as attendance, initiative, participation in class discussions, and timely completion of assignments. Three points will be deducted for each unexcused absence. Military assignments or unavoidable circumstances will be evaluated upon notification to class instructor.

VII. NOTES AND ADDITIONAL INSTRUCTIONS FROM COURSE INSTRUCTOR

- A. Withdrawal from course: It is the student's responsibility to officially drop a class if circumstances prevent attendance. Any student who desires to, or must, officially withdraw from a course after the first scheduled class meeting must file a Central Texas College application for Withdrawal (CTC Form 59). The withdrawal form must be signed by the student.

CTC Form 59 will be accepted at any time prior to Friday of the 12th. Week of classes during the 16 week fall and spring semesters. The deadline for sessions of other lengths is as follows:

10 week session	Friday of the 8 th . Week.
8 week session	Friday of the 6 th . Week.
5 week session	Friday of the 4 th . Week.

The equivalent date (75% of the semester) will be used for sessions of other lengths. The specific last day to withdraw is published each semester in the Schedule Bulletin.

Students who officially withdraw will be awarded the grade of "W", provided the student's attendance and academic performance are satisfactory at the time of official withdrawal. Students must file a withdrawal application with the college before they may be considered for withdrawal.

At student may not withdraw from a class for which the instructor has previously issued the student a grade of "F" or "FN" for nonattendance.

- B. An Administrative Withdrawal: An administrative withdrawal may be initiated when the student fails to meet College attendance requirements. The instructor will assign the appropriate grade on the Administrative Withdrawal Form for submission to the Registrar.
- C. An Incomplete Grade: The College catalog states, "An incomplete grade may be given in cases where the student has completed the majority of the course work but, because of personal illness, death in the immediate family, or military orders, the student is unable to complete the requirements for a course...." Prior approval from the instructor is required before the grade of "I" is recorded. A students who merely fails to show for the final examination will receive a zero for the final and an "F" for the course.
- D. Cellular phones and Pagers: Cellular phones and pagers will be turned off while the student is in the classroom or laboratory.
- E. Americans with Disabilities Act (ADA): Disability Support Services provides services to students who have appropriate documentation of a disability. Students requiring accommodations for class are responsible for contacting the Office of

Disability Support Services (DSS) located on the central campus. This service is available to all students, regardless of location. Explore the website at www.ctcd.edu/disability-support for further information. Reasonable accommodations will be given in accordance with the federal and state laws through the DSS office.

VIII. COURSE OUTLINE

A. Units One and Two: Chapter 1, Introduction to Emergency Services Occupational Safety and Health; and Chapter 2, Review of Safety-Related Regulations and Standards.

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
 - a. Discuss the history of occupational safety and health in industry.
 - b. Discuss the history of emergency services safety and health programs.
 - c. Identify, through the use of historical data, the safety and health problem among emergency services occupations today.
 - d. Describe the efforts that have been made to address the safety and health problem among emergency services occupations.
 - e. Describe the 16 Firefighter Life Safety Initiatives.
 - f. List the national agencies that produce annual injury and fatality reports for emergency services.
 - g. Identify the information that can be obtained from annual injury and fatality reports.
 - h. Discuss the culture of the emergency services and the need for change.
 - i. Discuss how the changes to emergency services safety and health are working.
2. Learning Activities:
 - a. Read Chapters 1 & 2, pages 1-46.
 - b. Review Key Terms, Case Study, and Review questions at end of chapters.
3. Unit Outline:
 - a. Introduction to Chapter 1
 - b. History of Occupational Safety and Health in Industry
 - c. History of Emergency Services Safety and Health
 - d. Identification of the Safety Problem
 1. National Fire Protection Association
 2. United States Fire Administration
 3. International Association of Fire Fighters
 4. Occupational Safety and Health Administration
 5. National Institute for Occupational Safety and Health
 - e. Review of National Injury Statistics
 1. Injuries by Type of Duty

2. Nature of Injuries
3. Average Number of Fires and Fireground Injuries per Department by Population
- f. What is Being Done?
 1. Fire Fighter Life Safety Initiatives
 - g. Is It Working?
- h. Introduction to Chapter 2
- i. Regulations verses Standards
 1. Regulations
 2. Standards
- j. Standard of Care
- k. Occupational Safety and Health Administration Regulations
 1. OSHA 1910.146 (29 CFR 1910.146) Permit-Required Confined Spaces
 2. OSHA 1910.134 (29 CFR 1910.134) Respiratory Protection
 3. OSHA 1910.120 (29 CFR 1910.120) Hazardous Waste Operations and Emergency Response (HAZWOPER)
 4. OSHA 1910.156 (29 CFR 1910.156) Fire Brigades
 5. OSHA 1910.1030 (29 CFR 1910.1030) Occupational Exposure to Bloodborne Pathogens
 6. OSHA General Duty Clause
- l. NFPA Standards
 1. NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*
 2. NFPA 1521, *Standard for Fire Department Safety Officer*
 3. NFPA 1561, *Standard on Emergency Services Incident Management System*
 4. NFPA 1581, *Standard on Fire Department Infection Control Program*
 5. NFPA 1582, *Standard on Comprehensive Occupational Medical Program for Fire Departments*
 6. NFPA 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*
 7. NFPA 1584, *Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises*
 8. NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*
 9. NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*
 10. Other NFPA Standards
- m. Other Related Standards and Regulations
 1. American National Standards Institute
 2. ASTM International
 3. Environmental Protection Agency
 4. Centers for disease Control and Prevention
 5. National Institute for Occupational Safety and Health

6. Ryan White Comprehensive AIDS Resources Emergency Act of 1990, Subtitle B
7. Fire Fighter Autopsy Protocol

B. Units Three and Four: Chapter 3, Risk Management; and Chapter 4, Safety Program Development and Management

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
 - a. Define risk.
 - b. Define risk management.
 - c. Discuss the meaning of and the process for risk identification, risk evaluation, and risk control.
 - d. Discuss the use of a cause-and-effect diagram.
 - e. Explain the process of interrupting the accident sequence.
 - f. Discuss the components and use of the Haddon matrix.
 - g. Differentiate between passive and active, and voluntary and mandatory risk reduction strategies.
 - h. Apply risk control strategies to an injury problem.
 - i. List the essential elements of a safety and health program.
 - j. Describe the process required for the development of goals and objectives.
 - k. Develop an action plan based on goals and objectives.
 - l. Perform a cost-benefit analysis.
 - m. Describe the relationship of training to the safety and health program.
 - n. Describe the process for developing standard operating procedures.
2. Learning Activities:
 - a. Read Chapters 3 & 4, pages 47-75.
 - b. Review Key Terms, Case Study, and Review questions at end of chapters.
 - c. Three-week examination will be administered if one is given.
3. Unit Outline:
 - a. Introduction to Chapter 3
 - b. Risk Identification
 1. Local Experience
 2. Identification of Trends
 3. Safety Audit
 4. Review of Previous Injury Experience
 - c. Risk Evaluation
 1. Frequency
 2. Severity
 3. Establishment of Priorities for Action
 - d. Risk Control

1. Risk Avoidance
2. Risk Reduction
3. Risk Transfer
- e. Introduction to Chapter 4
- f. Determining Essential Elements
- g. Setting Goals and Objectives
 1. Goals
 2. Objectives
- h. Action Planning
- i. Cost-Benefit Analysis
- j. Training
- k. Developing Standard Operating Procedures and Safety Policies

C. Units Five and Six: Chapter 5, Preincident Safety; and Chapter 6, Safety at the Fire Emergency

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
 - a. Describe safety considerations for the emergency response station.
 - b. Explain safety considerations as they apply to the emergency response vehicle.
 - c. List the components of an effective response safety plan.
 - d. Describe the components of a preincident planning process.
 - e. List the information that should be provided by the pre-incident plan.
 - f. Describe the considerations for safety while training.
 - g. Define the components of a wellness/fitness plan.
 - h. Describe the considerations for interagency coordination as it applies to safety and health.
 - i. List the three incident priorities.
 - j. Explain the relationship between the three incident priorities and their relationship to safety and health.
 - k. Discuss in general terms the hazards faced by responders to fire incidents.
 - l. List the components of personal protective equipment used for fire incidents.
 - m. Discuss the need for and the components of an effective accountability system.
 - n. Describe the concept of and need for fireground air management systems and the safety and health of the responder.
 - o. Describe the concept of and need for fireground air management.
 - p. Define the need for and uses of a rapid intervention crew.
 - q. Discuss the components of incident rehabilitation.

2. Learning Activities:
 - a. Read Chapter 5 & 6, pages 76-132.
 - b. Review Key Terms, Case Study, and Review questions at end of chapters.
3. Unit Outline:
 - a. Introduction to Chapter 5
 - b. Station Safety
 1. Design
 2. Ongoing Operations
 - c. Apparatus Safety
 1. Design
 2. Ongoing Operational Concerns
 - d. Response Safety
 - e. Preincident Planning
 - f. Safety in Training
 - g. Building Fire Protection: A Short History
 - h. Member Wellness and Fitness
 1. Medical Fitness
 2. Physical Fitness
 3. Emotional/Behavioral Fitness
 - i. Interagency Considerations
 - k. Introduction to Chapter 6
 - l. Incident Priorities and Safety
 1. Life Safety
 2. Incident Stabilization
 3. Relationship Between Incident Priorities and Safety
 4. Hazards Faced by Responders
 5. Design and Purchase of PPE
 6. Use of PPE
 7. Care and Maintenance of PPE
 - m. Incident Management Systems
 - n. Air Management
 - o. Accountability
 - p. Rapid Intervention Crews
 - q. Rehabilitation

D. Units Seven and Eight: Chapter 7, Safety and the Medical or Rescue Emergency; review and Mid-Term Examination.

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
 - a. Discuss the hazards faced by responders at emergency medical or rescue incidents.
 - b. Explain methods of minimizing and preventing injuries associated with hazards found at emergency medical incidents.
 - c. List various requirements and uses of commonly used personal protective equipment.

- d. Explain the requirements for infection control.
 - e. Discuss procedures that can be used to meet the requirements of infection control.
 - f. Discuss the systems used for scene accountability and incident management.
2. Learning Activities:
- a. Read Chapter 7, pages 133-148.
 - b. Review Key Terms, Case Study, and Review questions at end of chapters.
 - c. Review and discuss the first seven chapters, and administer Mid-Term Examination.
3. Unit Outline:
- a. Introduction to Chapter 7
 - 1. Hazards Faced by Responders
 - b. Incident Management Systems
 - c. **Review all material and administer Mid-Term Exam**
- E. Units Nine and Ten: Chapter 8, Safety at Specialized Incidents; and Chapter 9, Postincident Safety Management
1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
- a. Describe the safety issues related to hazardous materials incident responses.
 - b. Describe the safety issues relating to technical rescue operations.
 - c. Explain safe procedures to be used during helicopter landing zone operations.
 - d. List specific safety issues relating to operations at civil disturbances.
 - e. List Specific safety concerns when responding to terrorism events and natural disasters.
 - f. List the safety and health considerations of incident termination.
 - g. Describe the demobilization process.
 - h. Compare the concepts of first in/last out with first in/first out.
 - i. Explain the need for and the process used for postincident analysis.
 - j. Describe the advantages of a critical incident stress management program.
 - k. List the key components of a critical incident stress management program.

2. Learning Activities:

- a. Read Chapters 8 & 9, pages 149-185.
- b. Review Key Terms, Case Study, and Review questions at end of chapters.

3. Unit Outline:

- a. Introduction to Chapter 8
- b. Hazardous Materials Incidents
- c. Technical Rescues
- d. Helicopter Operations
 1. Landing Zone
 2. Crowd Control
 3. Approaching the Aircraft
- e. Civil Disturbances
- f. Terrorism Events
- g. Natural Disasters
- h. Introduction to Chapter 9
- i. Incident Termination
 1. Demobilization
 2. Returning to the Station
 3. Postincident Analysis
- j. Critical Incident Stress Management
- k. Introduction to Chapter 10
- l. Individual Responsibility
- m. Supervisors
- n. Emergency Services Management
- o. Incident Commander
- p. Safety and Health Program Manager
- q. Incident Safety Officer
- r. The Safety Committee
- s. Crew Resource Management

F. Units Eleven and Twelve: Chapter 10, Safety Program Evaluation; and Chapter 11, Information Management

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
 - a. List the roles and responsibilities of individual responders, supervisors,, the emergency services management team, the incident commander, the safety and health program manager, the incident safety officers, and the safety committee; and their relationship to the overall safety and health program.
 - b. List the reasons that crew resource management can improve safety in operations.
 - c. Describe the purpose of evaluating the safety and health program.
 - d. Compare the two types of evaluations—process and outcome.

- e. Explain who is responsible for evaluating the safety and health program.
- f. Describe the recommended frequency of evaluation and the factors that affect the frequency.

2. Learning Activities:

- a. Read Chapter 10 & 11, page 186-211.
- b. Review Key Terms, Case Study, and Review questions at end of chapters.
- c. Twelve-week exam will be administered if one is given.

3. Unit Outline:

- a. Introduction to Chapter 10
- b. Individual Responders
- c. Supervisors
- d. Emergency Services Management
- e. Incident Commander
- f. Safety and Health Program Manager
- g. Incident Safety Officer
- h. The Safety Committee
- i. Crew Resource Management
- j. Introduction to Chapter 11
- k. The Evaluation Process
 - 1. Process Evaluation
 - 2. Outcome Evaluation
- l. Responsibility for Evaluation
- m. Evaluation Frequency

G. Units Thirteen and Fourteen: Chapter 12, Information Management; and Chapter 13, Special Topics in Emergency Services Occupational Safety and Health

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:

- a. Define green (sustainable) construction.
- b. Explain the role of green certification rating programs and green construction regulations.
- c. Identify and describe the four general categories of green construction.
- d. Identify firefighting hazards associated with each type of green construction material and green building system.

2. Learning Activities:

- a. Read Chapters 12 & 13, pages 212-239.
- b. Review Key Terms, Case Study, and Review questions at end of chapters.

3. Unit Outline:
 - a. Introduction to Chapter 12
 - b. Internal Data Collection
 - c. External Data Collection
 1. Workers' Compensation
 2. Occupational Safety and Health Administration
 3. National Fire Protection Association
 4. U. S. Fire Administration
 5. International Association of Fire Fighters
 6. National Institute for Occupational Safety and Health
 - d. Publishing the Safety and Health Report
 - e. Accessing Safety and Health Information
 - f. Introduction to Chapter 13
 1. Tort Liability
 2. Americans with Disabilities Act
 3. Age Discrimination in Employment Act
 - g. Ethical Issues
 - h. Financial Issues
 1. Annual Budget Process
 2. Grant Funding
 - i. Safety Considerations in the Diversified Workforce
 - j. Future Trends and Technologies

H. Units Fifteen and Sixteen: Review of Chapters 8-13; review of Chapters 1-7 with discussion; give the Final Examination and assign final grade

1. Unit Objectives: Upon successful completion of this unit, the student will be able to:
 - a. Comprehensively discuss topics and issues presented in the textbook and through lecture and discussion.
 - b. Provide a summation of what was learned and retained during this course.
 - c. Display knowledge via answering questions & completing essays on the examination.
2. Learning Activities:
 - a. Read all Chapters and inspect charts and tables.
 - b. Review and discuss all materials and clarify issues in preparation for the examination.
 - d. **Administer the Final Examination.**
3. Unit Outline:
 - a. Review and discuss all material and concerns
 - H. Review, discuss, prepare and administer Final Examination; return and discuss final exam grade, return and discuss if necessary term paper grade, and assign final course grade.