

Industrial Fire Protection (FIRT 1347)



Credit: 3 semester credit hours (3 hours lecture, 0 hours lab)

Prerequisite/Co-requisite: Pass the reading and writing portions of COMPASS or other accepted testing instrument.

Course Description

Study of industrial emergency response teams and specific concerns related to business and industrial facilities.

Required Textbook and Materials

1. *Industrial Fire Brigade Principles and Practice*, by International Association of Fire Chiefs and National Fire Protection Association, 1st edition. Jones and Bartlett Publishers
 - a. ISBN number is 13:9780763735029
2. Notebook.

Course Objectives

Upon completion of this course, the student will be able to:

1. Identify hazards common to industrial facilities. (SCANS: C5.5, C6.5, C7.5 F1.5, F2.5, F5.5, F8.4, F10.3, F11.4)
2. Recognize the concerns of management regarding fire protection. (SCANS: C5.5, C6.5, C7.5, C14.5, C15.4, F1.5, F2.5, F3.4, F5.5, F10.3, F11.5, F15.5)
3. Identify planning considerations for emergencies at industrial facilities. (SCANS: C1.2, C2.3, C4.3, C5.4, C6.5, C7.5, C15.3, C18.4, F1.5, F2.5, F3.3)
4. Describe Occupational Safety and Health Administration (OSHA) requirements for fire protection. (SCANS: C5.5, C6.5, C7.5, F1.5, F2.5, F10.3, F11.4)

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor Secretary's Commission on Achieving Necessary Skills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools*. In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

Course Outline

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| A. Introduction | 4. Review Group Project Assignment |
| 1. Introduction of faculty and students | B. Brigade Member Qualifications and Safety |
| 2. Review Syllabus | 1. Roles and responsibilities |
| 3. Review Class Policies | |

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Course Syllabi

2. Brigade member requirements
 3. Member safety and health
 4. Personal Protective Equipment (PPE)
 5. Respiratory Protection: Self-Contained Breathing Apparatus (SCBA)
- C. Salvage and Overhaul
1. Lighting Equipment
 2. Salvage to Limit Water Damage
 3. Salvage to Limit Smoke Damage
 4. Overhauling Techniques
 5. Salvage & Overhaul Equipment
- D. Fire Service Communications
1. The Communications Center
 2. Communications Operations
 3. Radio Systems
 4. Incident Reports
 5. Taking Calls
- E. Incident Management System
1. History of IMS
 2. IMS characteristics
 3. IMS organization
 4. Standard concepts and terms
 5. Implementing IMS
 6. Working within IMS
- F. Fire Behavior
1. Fire Tetrahedron
 2. Chemistry of combustion
 3. Products of combustion
 4. Heat transfer
 5. Liquid Fuel Fires
 6. Gas Fuel Fires
 7. Classes of fire
 8. Phases of fire
 9. Interior structure fires
- G. Portable Fire Extinguishers
1. Classification and labeling
 2. Extinguisher placement
 3. Extinguisher agents
 4. Extinguisher components
 5. Use, care, maintenance, and testing
- H. Brigade Tools and Equipment
1. Types and functions
 2. Phases of use
 3. Tool staging
 4. Cleaning and inspecting
- I. Response and Size-Up
1. Response (getting there)
 2. Arrival at the incident scene
 3. Scene size-up
 4. Incident Action Plan
- J. Water Supply
1. Types of water sources
 2. Water distribution systems
 3. Types of fire hydrants
 4. Fire hydrant operation
 5. Hydrant maintenance
- K. Fire Hose, Nozzles, and Streams
1. Fire hose function and sizes
 2. Hose care and maintenance
 3. Hose testing & rolls
- L. Fire Cause Determination
1. Determining the cause and origin
 2. Fireground observations
 3. Securing and transferring property
- M. Firefighting Foam
1. How it works
 2. Foam Tetrahedron
 3. Foam concentrates
 4. Making foam
 5. Foam equipment
 6. Foam tactics
- N. Brigade Member Survival
1. Risk-benefit analysis
 2. Safe operating procedures
 3. Survival procedures
 4. Air management
 5. Rehabilitation
 6. Critical Incident Stress
- O. Fire Suppression
1. Offensive vs Defensive Operations
 2. Operating hose lines
 3. Protecting exposures
 4. Vehicle fires
 5. Flammable Liquid Fires
 6. Flammable Gas Fires
 7. Electrical fires
 8. Preservation of evidence
- P. Pre-Incident Planning
1. Pre-incident Plan
 2. Conducting a survey
 3. Tactical information
 4. Occupancy considerations
 5. Special considerations
 6. Fire prevention techniques
- Q. Fire Detection, Protection, and Suppression Systems
1. Fire alarm and detection systems
 2. Fire suppression systems
 3. Specialized extinguishing systems

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Grade Scale

90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Course Evaluation

Final grades will be calculated according to the following criteria:

Chapter Assignments	30%
Chapter Tests	45%
Research Paper	15%
Discussion Participation	10%

Late Penalties (5 points per day) will be assessed on all work turned in late.

Course Requirements

1. The student will participate in student-to-instructor discussions by submitting responses to the “You Are the Brigade Member” Scenario for each chapter.
2. The student will complete the online chapter tests.
3. The student will research, write, and submit a paper, with a classmate, on a topic assigned by the course instructor. The research paper requirements will be posted online under assignments. Each of the partners will submit identical papers via the assignments function and will receive the same grade.
4. The student will participate in instructor initiated discussions centered on “Voices of Experience” articles.

Attendance Policy

1. Missing more than 20% of classes will result in an automatic “F” for the course.
2. Absences are counted for unexcused, excused and coming to class late.
3. Missing more than 20% of a class period will count as an absence.
4. Being tardy 3 times equals 1 absence.
5. Students enrolled in an online offering of this course must log-in at least once per week or will be counted as absent. Three absences will result in an “F” for the course.

Course Policies

1. No food, drinks, or use of tobacco products in class.
2. No foul or harsh language will be tolerated
3. Turn off all Cell Phones during lectures
4. Headphones may not be worn

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5. Do not bring children to class.
6. No Cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result from expulsion from LIT.
7. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
8. Internet Usage
 - a. Improper usage of the internet, such as profanity, pornography, gambling, etc... will result in disciplinary action not limited to expulsion from LIT.

Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

Course Schedule

Week	Topic	Reference
1	Course introduction and policies	Syllabus
	Learning Module 1: Chapter 1 Brigade Member Qualifications and Safety	pp. 1-54
	<i>Chapter 1 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 55
	<i>Complete Chapter 1 Test</i>	Online
2	Learning Module 3: Chapter 3 Fire Service Communications	pp. 66-86
	<i>Chapter 3 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 88-89
	<i>Complete Chapter 3 Test</i>	Online
3	<i>Chapter 4 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 115-117
	<i>Complete Chapter 4 Test</i>	Online
4	Learning Module 5: Chapter 5 Fire Behavior	pp. 118-137
	<i>Chapter 5 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 138-139
	<i>Complete Chapter 5 Test</i>	Online
5	Learning Module 7: Chapter 7 Portable Fire Extinguishers	pp. 168-204
	<i>Chapter 7 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 205

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Week	Topic	Reference
6	<i>Complete Chapter 7 Test</i>	Online
	Learning Module 8: Chapter 8 Brigade Member Tools and Equipment	pp. 206-230
	<i>Chapter 8 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 231
	<i>Complete Chapter 8 Test</i>	Online
7	Learning Module 10: Chapter 10 Response and Size-Up	pp. 268-284
	<i>Chapter 10 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 285
	<i>Complete Chapter 10 Test</i>	Online
8	Learning Module 15: Chapter 15 Water Supply	
	<i>Chapter 15 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 438-454 pp. 455
	<i>Complete Chapter 15 Test</i>	Online
9	Learning Module 16: Chapter 16 Fire Hose, Nozzles, and Streams	pp. 456-522
	<i>Chapter 16 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 523
	<i>Complete Chapter 16 Test</i>	Online
10	Learning Module 17: Chapter 17 Foam	pp. 524-542
	<i>Chapter 17 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 543
	<i>Complete Chapter 17 Test</i>	Online
11	Learning Module 18: Chapter 18 Brigade Member Survival	
	<i>Chapter 18 Assignment: Submit Answers to You Are the Brigade Member Scenario</i>	pp. 544-560 pp. 561
	<i>Complete Chapter 18 Test</i>	Online
12	Learning Module 19: Chapter 19 Salvage and Overhaul	pp. 562-594
	<i>Chapter 19 Assignment: Submit Answers to You Are the Brigade Member Scenario</i>	pp. 564
	<i>Complete Chapter 19 Test</i>	Online
13	Learning Module 21: Chapter 21 Fire Suppression	pp. 612-640
	<i>Chapter 21 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 641
	<i>Complete Chapter 21 Test</i>	Online
	Research Papers Due	Online
14	Learning Module 22: Chapter 22 Pre-incident Planning	pp. 642-664
	<i>Chapter 22 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 665
	<i>Complete Chapter 22 Test</i>	Online
15	Learning Module 25: Chapter 25 Fire Detection, Protection, and Suppression Systems	pp. 718-750

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Week	Topic	Reference
	<i>Chapter 25 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 751
	<i>Complete Chapter 25 Test</i>	Online
16	<i>Learning Module 26: Chapter 26 Fire Cause Detection</i>	pp. 752-772
	<i>Chapter 26 Assignment: Submit answers to You Are the Brigade Member Scenario</i>	pp. 754
	<i>Complete Chapter 26 Test</i>	Online