

Safety, Health, and Environment I (PTAC 1408) Online



Credit: 4 semester credit hours (4 hours lecture)

Prerequisite/Co-requisite: None. Complete the Online Orientation and answer yes to 7+ questions on the Online Learner Self-Assessment: <http://www.lit.edu/depts/DistanceEd/OnlineOrientation/OOStep2.aspx>

Course Description

An overview of safety, health, and environmental issues in the performance of all job tasks in the process industry. *This course is time-bound, structured, and completed totally online.*

Required Textbook and Materials

1. *Safety, Health, and Environment*, CAPT
 - a. ISBN number is 013700401X

Course Objectives

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

1. Describe the components of a typical plant safety and environmental program and the role of a process technician in relation to safety, health, and the environment;
2. Identify the functionality of safety, health and environmental equipment used.

Course Outline

- A. Introduction
 1. Introduction of faculty and students
 2. Review Syllabus
 3. Review Class Policies
- B. Safety, Health, & Environment-
 1. Overview
 2. Different government agencies & regulations.
 3. Industry organizations that develop S.H.E. standards.
 4. Role of the operator in S.H.E. matters.
- C. Hazards and Their Effects
 1. Hazards found in work place.
 2. Effects of hazards on health.
 3. Effects of hazards on environment.
- D. Chemical Hazards
 1. Organic and inorganic chemical hazards.
 2. Introduction to MSDS
- E. Biological Hazards
 1. Biological hazards in the workplace
 2. Role of government relating to biological hazards.
- F. Equipment and Energy Hazards
 1. Hazards of process equipment.

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Course Syllabus

2. Hazards caused by energy sources; i.e. electricity, steam, etc.
- G. Fire and Explosive Hazards
 1. The fire triangle
 2. Government regulations relating to fire & explosives.
- H. Pressure, Temperature and Radiation Hazards
 1. "Process variable Hazards"
 2. Government regulations dealing with process variable hazards.
- I. Atmospheric and Respiration Hazards
 1. Respiratory hazards.
 2. "Confined space" hazard.
 3. Government regulations dealing with atmospheric & respiratory hazards.
- J. Work Area and Height Hazards
 1. "Work area" hazard
 2. Fall protection and confined space entry.
 3. Government regulations dealing with "work area, fall and confined space hazards
- K. Hearing and Noise Hazards
 1. Noise & how it affects hearing.
 2. Types of hearing protection
 3. Government regulations regulating noise hazards
- L. Construction, Maintenance, & Tool Hazards
 1. Hazards associated with construction in the process area.
 2. Hazards of tools used by process operators
 3. Appropriate government regulations.
- M. Vehicle and Transportation Hazards
 1. Forklift, power truck, and other forms of transportation.
 2. Appropriate government regulations.
- N. Natural disasters
 1. Hurricanes and storms
 2. Emergency plans
 3. Governmental agencies
- O. Physical and Cyber-Security
 1. Terrorists and insiders
 2. Workplace violence
 3. Government regulations
- P. Ergonomic Hazards
 1. Ergonomic stress
 2. Lifting and working at heights
 3. Government and industry guidelines
- Q. Environmental hazards
 1. Hazardous chemical classifications
 2. EPA regulations
- R. Hazard Controls
 1. Engineering, Administrative and PPE
 2. Why, When and How controls are applied
- S. Alarms and Indicator systems
 1. Fire alarms and detection systems
 2. Interlocks and shutdowns

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- T. Process containment and Process Upset Controls
 - 1. Containment and control systems
 - 2. Flares and relief valves
- U. Administrative Controls
 - 1. Policies and procedures
 - 2. Training and HAZOPS
- V. Permitting Systems
 - 1. Lockout devices
 - 2. Types of permits: hot work, confined space, safe work, etc
 - 3. Government regulations and industry guidelines
- W. PPE and First Aid
 - 1. Respiratory and hearing
 - 2. Eye and face
 - 3. Foot and legwear
- X. Monitoring Equipment
- Y. Emergency Response

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:

Assignments	20%
Discussions	10%
Tests	40%
Final	30%

Course Requirements

1. Post weekly, online responses to student-to-student and student-to-instructor discussions.
2. Complete the online test, quizzes and assignments by the due dates shown on the course calendar
3. Log onto Blackboard and access the course a minimum of three times per week.

Course Policies

1. You must log onto Blackboard and access this course a minimum of three times per week.
2. 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 in expulsion from LIT.
3. If you wish to drop a course, the student is responsible for initiating and dropping the course. If you stop logging-in to the course and do not complete the course drop process, then you will receive an "F" grade for the course
4. Internet Usage – Students are expected to use proper net etiquette while participating in course emails, assignment submissions, and online discussions.
5. If a test is missed due to an emergency situation, the student will have one week to make it up; otherwise a grade of 0 will be assigned.
6. A student who wishes to drop a course is responsible for initiating and completing the drop process. A student who stops coming to class, and fails to drop the course, will earn an "F" in the course.

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 online resource: <http://www.lit.edu/depts/stuserv/special/defaults.aspx>

Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office.

Technical Requirements

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

<http://kb.blackboard.com/pages/viewpage.action?pageId=25368512>

A functional broadband internet connection, such as DSL, cable, 3G, 4G, WiMAX, Wi-Fi, satellite, or other broadband access is necessary to maximize the use of the online technology and resources.

Course Schedule (Subject to Change)

Week	Topic	Reference
1	Course introductions and policies Intro to Safety, Health, and Environment	Ch 1
2	Types of Hazards and their Effects	Ch 2
3	Recognizing Chemical Hazards	Ch 3
4	Recognizing Biological Hazards TEST 1	Ch 4
5	Equipment and Energy Hazards Fire and Explosion Hazards	Ch 5 Ch 6
6	Pressure, Temperature and Radiation Hazards Hazardous Atmospheres and Respiration Hazards TEST 2	Ch 7 Ch 8
7	Working Area and Height Hazards Hearing and Noise Hazards	Ch 9 Ch 10
8	Construction, Maintenance, and Tool Hazards Vehicle and Transportation Hazards TEST 3	Ch 11 Ch 12
9	Natural Disasters and Inclement Weather Physical Security and Cybersecurity	Ch 13 Ch 14
10	Recognizing Ergonomic Hazards Recognizing Environmental Hazards	Ch 15 Ch 16
11	TEST 4 Introduction to Hazard Control Engineering Controls: Alarms and Indicators	Ch 17 Ch 18
12	Engineering Controls: Containment and Upset Administrative Controls	Ch 19 Ch 20
13	TEST 5 Permitting Systems PPE and First Aid	Ch 21 Ch 22
14	Monitoring Equipment Fire, Rescue, and Emergency Response	Ch 23 Ch 24

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15	TEST 6	
16	FINALS WEEK	