ITT Technical Institute

IE2510T

Industrial Safety

Onsite and Online Course

SYLLABUS

Credit hours: 4.5

Contact/Instructional hours: 67 (41 Theory Hours, 26 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

Prerequisite: IE1110T Introduction to Industrial Engineering Technology or equivalent

Course Description:

This course introduces safety programs used in industry. Topics include three key techniques for increasing safety in the workplace: preliminary hazard analysis, failure modes and effects analysis, and OSHA hazard analysis and safety review requirements.

COURSE SUMMARY

COURSE DESCRIPTION

This course introduces safety programs used in industry. Topics include three key techniques for increasing safety in the workplace: preliminary hazard analysis, failure modes and effects analysis, and OSHA hazard analysis and safety review requirements.

MAJOR INSTRUCTIONAL AREAS

1. Identify hazard and potential hazard areas.
2. Develop safety programs to prevent or mitigate damage or losses.
3. Assess safety practices and programs.
4. Conduct safety audits.
5. Improve safety practices.

COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:

1. Explain industrial accident problems, historical antecedents, legislation, and general principles of occupational safety and health.
2. Identify the responsibilities of a manager for safety in the workplace.
3. Explain various accident sources and factors in the environment that contribute to and cause hazardous conditions and unsafe acts in the industrial workplace.
4. Explain appraisal methods, analysis procedures, and appropriate follow-up techniques as related to industrial accidents.
5. Describe common hazards and potential problems in the man-machine environment and the basic principles of recognition, evaluation, and corrective action measures.
6. Explain the Occupational Safety and Health Act and some of the basic safety standards that are a part of OSHA.
7. Explain the basic elements of an effective occupational safety and health program.
8. Identify the specific health and safety activities and practices used to develop safe work procedures and habits.

COURSE OUTLINE

MODULE 1: THE HEALTH AND SAFETY FUNCTION

COURSE LEARNING OBJECTIVES COVERED

- Explain industrial accident problems, historical antecedents, legislation, and general principles of occupational safety and health.
- Identify the responsibilities of a manager for safety in the workplace.
- Explain various accident sources and factors in the environment that contribute to and cause hazardous conditions and unsafe acts in the industrial workplace.
- Explain the Occupational Safety and Health Act and some of the basic safety standards that are a part of OSHA.

TOPICS COVERED

- Health and Safety Function
- Role of a Health and Safety Manager
- Impact of Federal Regulations

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Asfahl, C. R. & Rieske, D. W., Chapters 1, 2, and 4	No	6.5 hr
Lesson: Study the lesson for this module.	No	1 hr
Discussion: Participate in the discussion titled "Safety and Health Hazards."	Yes	1 hr
Lab: Complete the lab titled "Mechanism to Ensure Industrial Safety."	Yes	N/A
Project: Read and begin the project for this course.	No	0.5 hr

Total Out-Of-Class Activities: 9.0 Hours

MODULE 2: HAZARDS: PREVENTION AND PREPAREDNESS

COURSE LEARNING OBJECTIVES COVERED

- Explain various accident sources and factors in the environment that contribute to and cause hazardous conditions and unsafe acts in the industrial workplace.
- Explain appraisal methods, analysis procedures, and appropriate follow-up techniques as related to industrial accidents.
- Describe common hazards and potential problems in the man-machine environment and the basic principles of recognition, evaluation, and corrective action measures.
- Identify the specific health and safety activities and practices used to develop safe work procedures and habits.

TOPICS COVERED

- Approaches to Hazard Avoidance
- Hazard Classification
- Process Safety and Disaster Preparedness
- Personal Protection

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Asfahl, C. R. & Rieske, D. W., Chapters 3, 6, and 12	No	8 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled "Event-Hazard Research."	Yes	1.5 hr
Analysis: Submit the analysis titled "Personal Protection."	Yes	4 hr
Lab 1: Complete the lab titled "Approaches to Hazard Avoidance."	Yes	N/A
Lab 2: Complete the lab titled "Hazard Classification and Avoidance."	Yes	N/A
Project: Continue work on Project Part 1.	No	1 hr

Total Out-Of-Class Activities: 16.0 Hours

MODULE 3: SAFETY IN BUILDING AND CONSTRUCTION ENVIRONMENT

COURSE LEARNING OBJECTIVES COVERED

- Explain appraisal methods, analysis procedures, and appropriate follow-up techniques as related to industrial accidents.
- Describe common hazards and potential problems in the man-machine environment and the basic principles of recognition, evaluation, and corrective action measures.
- Identify the specific health and safety activities and practices used to develop safe work procedures and habits.

TOPICS COVERED

- Safety Concerns for Construction Industry
- Safety Concerns for Buildings
- Effect of Ergonomics

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Asfahl, C. R. & Rieske, D. W., Chapters 7, 8, and 18	No	10 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled "Ergonomics in the Industrial Workplace."	Yes	1 hr
Analysis: Submit the analysis titled "Construction Site Hazards."	Yes	3 hr
Lab: Complete the lab titled "Hazards in Construction Environment."	Yes	N/A
Project: Submit Project Part 1.	Yes	2 hr

Total Out-Of-Class Activities: 17.5 Hours

MODULE 4: SAFETY IN MATERIAL HANDLING AND STORAGE

COURSE LEARNING OBJECTIVES COVERED

- Explain various accident sources and factors in the environment that contribute to and cause hazardous conditions and unsafe acts in the industrial workplace.
- Explain appraisal methods, analysis procedures, and appropriate follow-up techniques as related to industrial accidents.
- Explain the Occupational Safety and Health Act and some of the basic safety standards that are a part of OSHA.
- Identify the specific health and safety activities and practices used to develop safe work procedures and habits.

TOPICS COVERED

- Safety Concerns Around Toxic Substances
- Safety Concerns Around Flammable and Explosive Materials
- Safe Material Handling and Storage

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Asfahl, C. R. & Rieske, D. W., Chapters 5, 9, 11, and 14	No	8.5 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled "Safe Practices for Handling Material."	Yes	N/A
Analysis: Submit the analysis titled "Safety Concerns with Toxic Contaminants and Combustible Liquids."	Yes	3 hr
Lab 1: Complete the lab titled "Safety Concerns with Material Handling and Storage."	Yes	N/A
Lab 2: Complete the lab titled "Safety Concerns for Toxic and Explosive Substances."	Yes	N/A
Project: Continue work on Project Part 2.	No	4 hr

Total Out-Of-Class Activities: 17.0 Hours

MODULE 5: SAFETY IN MACHINE ENVIRONMENT

COURSE LEARNING OBJECTIVES COVERED

- Explain industrial accident problems, historical antecedents, legislation, and general principles of occupational safety and health.
- Explain various accident sources and factors in the environment that contribute to and cause hazardous conditions and unsafe acts in the industrial workplace.
- Describe common hazards and potential problems in the man-machine environment and the basic principles of recognition, evaluation, and corrective action measures.
- Explain the Occupational Safety and Health Act and some of the basic safety standards that are a part of OSHA.
- Explain the basic elements of an effective occupational safety and health program.
- Identify the specific health and safety activities and practices used to develop safe work procedures and habits.

TOPICS COVERED

- Safety Concerns Around Machine Guarding
- Safety Concerns Around Welding
- Safety Concerns for Electricity

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Asfahl, C. R. & Rieske, D. W., Chapters 15, 16, and 17	No	10 hr
Lesson: Study the lesson for this module.	No	1.5 hr
Discussion: Participate in the discussion titled "Safety in the Machine Environment."	Yes	N/A
Lab 1: Complete the lab titled "Safety in the Machine Environment."	Yes	N/A
Lab 2: Complete the lab titled "Electrical Hazards."	Yes	N/A
Project: Submit Project Part 2.	Yes	2 hr
Final Exam: Prepare for the final exam.	No	5 hr

Total Out-Of-Class Activities: 18.5 Hours

MODULE 6: GENERAL HEALTH AND SAFETY ISSUES

COURSE LEARNING OBJECTIVES COVERED

- Explain industrial accident problems, historical antecedents, legislation, and general principles of occupational safety and health.

- Explain various accident sources and factors in the environment that contribute to and cause hazardous conditions and unsafe acts in the industrial workplace.
- Identify the specific health and safety activities and practices used to develop safe work procedures and habits.

TOPICS COVERED

- Environmental Control
- Noise Control
- Fire Protection

MODULE LEARNING ACTIVITIES	GRADED	OUT-OF-CLASS TIME
Reading: Asfahl, C. R. & Rieske, D. W., Chapters 10 and 13	No	7 hr
Lesson: Study the lesson for this module.	No	1 hr
Lab: Complete the lab titled "Hazard Due to Noise and Fire."	Yes	N/A
Final Exam: Take the final exam.	Yes	N/A

Total Out-Of-Class Activities: 8 Hours

EVALUATION AND GRADING

EVALUATION CRITERIA

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
Analysis	15%
Lab	25%
Project	20%
Discussion	15%
Final Exam	25%
TOTAL	100%

GRADE CONVERSION

The final grades will be calculated from the percentages earned in the course, as follows:

Grade	Percentage
A (4.0)	90–100%
B+ (3.5)	85–89%
B (3.0)	80–84%
C+ (2.5)	75–79%
C (2.0)	70–74%
D+ (1.5)	65–69%
D (1.0)	60–64%
F (0.0	<60%

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LEARNING MATERIALS AND REFERENCES

REQUIRED RESOURCES

COMPLETE TEXTBOOK PACKAGE

- Asfahl, C. R., & Rieske, D. W. (2010). *Industrial Safety and Health Management (6th* ed.). Upper Saddle River, NJ: Pearson Education Inc.

RECOMMENDED RESOURCES

- ITT Tech Virtual Library *(accessed via Student Portal | https://studentportal.itt-tech.edu)*
  - ITT Tech Virtual Library> School of Study> School of Electronics Technology> Databases>Access Science> Engineering & Materials
    - Lehto, Dr. Mark R. (2014). Industrial health and safety. AccessScience. McGraw-Hill Education. Retrieved from http://www.accessscience.com/content/industrial-health-and-safety/341830
  - ITT Tech Virtual Library> Basic Search
    - Lingard, H., & Rowlinson, S. M. (2005). *Occupational Health and Safety in Construction Project Management. London: Spon Press.*
    - Levy, B. S. (2011). *Occupational and Environmental Health: Recognizing and Preventing Disease and Injury. New York: Oxford University Press.*
- Other References
  - Occupational Safety & Health Administration https://www.osha.gov/
  - The National Institute for Occupational Safety and Health http://www.cdc.gov/niosh/

INSTRUCTIONAL METHODS AND TEACHING STRATEGIES

The curriculum employs a variety of instructional methods that support the course objectives while fostering higher cognitive skills. These methods are designed to encourage and engage you in the learning process in order to maximize learning opportunities. The instructional methods include but are not limited to lectures, collaborative learning options, use of technology, and hands-on activities.

To implement the above-mentioned instructional methods, this course uses several teaching strategies, such as the use of scenarios to highlight the various aspects of industrial safety. Your progress will be regularly assessed through a variety of assessment tools including lab, discussion, analysis, exam and project.

OUT-OF-CLASS WORK

For purposes of defining an academic credit hour for Title IV funding purposes, ITT Technical Institute considers a quarter credit hour to be the equivalent of: (a) at least 10 clock hours of classroom activities and at least 20 clock hours of outside preparation; (b) at least 20 clock hours of laboratory activities; or (c) at least 30 clock hours of externship, practicum or clinical activities. ITT Technical Institute utilizes a “time-based option” for establishing out-of-class activities which would equate to two hours of out-of-class activities for every one hour of classroom time. The procedure for determining credit hours for Title IV funding purposes is to divide the total number of classroom, laboratory, externship, practicum and clinical hours by the conversion ratios specified above. A clock hour is 50 minutes.

A credit hour is an artificial measurement of the amount of learning that can occur in a program course based on a specified amount of time spent on class activities and student preparation during the program course. In conformity with commonly accepted practice in higher education, ITT Technical Institute has institutionally established and determined that credit hours awarded for coursework in this program course (including out-of-class assignments and learning activities described in the “Course Outline” section of this syllabus) are in accordance with the time-based option for awarding academic credit described in the immediately preceding paragraph.

ACADEMIC INTEGRITY

All students must comply with the policies that regulate all forms of academic dishonesty or academic misconduct. For more information on the academic honesty policies, refer to the Student Handbook and the School Catalog.

INSTRUCTOR DETAILS

Instructor Name	
Office Hours	
Contact Details	

(End of Syllabus)