

COURSECODE 1154ME105	INDUSTRIAL SAFETY, HEALTH & HAZARDS	L	T	P	C
		3	0	0	3

1. Preamble

This course provides an introduction about industrial safety, health and hazards where an engineer is going to be employed in his professional life. It also enhances his ability to deal with various situations during his stay in industry.

2. Pre-Requisite

NIL

3. Links to Other Courses

Project Work

4. Course Educational Objectives

Students undergoing this course are expected to

- Understand about Industrial Safety
- Possess knowledge of Industrial Safety Legislations
- Interpret Occupational Safety, Health and Environment Legislations
- Understand about Hazard Identification
- Possess knowledge of Occupational Health

5. Course Outcomes

Upon the successful completion of the course, learners will be able to

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
CO1	Understand about Industrial Safety	K2
CO2	Possess knowledge of Industrial Safety Legislations	K2
CO3	Interpret Occupational Safety, Health and Environment Legislations	K2
CO4	Understand about Hazard Identification	K2
CO5	Possess knowledge of Occupational Health	K2

6. Correlation of Cos with Programme Outcomes

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	H					L	L	L					M	L
CO2	H					L	L	L					M	L
CO3	H					L	L	L					M	L
CO4	H					L	L	L					M	L
CO5	H					L	L	L					M	L

H-High; M-Medium; L-Low

7. Course Content

Unit I: Introduction to Industrial Safety

L-9

History and development of safety movement Need for safety, Safety legislation: Acts and rules. Safety standards and codes, Safety policy: safety organization and responsibilities and authorities of different levels. Accident sequence theory, Causes of accidents, Accident prevention and control techniques

Unit II : Industrial Safety Legislations

L-9

Legislative measures in industrial safety -Factories Act, Workman's Compensation Act, Employees State Insurance Act, Mines Act , Air (Prevention and control) Pollution Act, Water (Prevention and Control) Pollution Act, ,Boiler Vessels Act. Child Labour and Women Employee Act. The factories rules, History, Provisions under the factories Act and rules made there under with amendments, Functions of safety management. ILO Convention and Recommendations in the furtherance of safety, health and welfare.

Unit III Occupational Safety, Health and Environment Legislations

L-9

Bureau of Indian standards on safety and health 14489 - 1998 and 15001 – 2000 OSHA, Process Safety Management (PSM) as per OSHA, PSM principles, OHSAS – 18001, EPA Standards, Performance measurements to determine effectiveness of PSM

Unit IV: Hazard Identification

L-9

Identification of hazard, Categorization methods for elimination of hazard, Mechanical hazards; machine guarding, safety with hand tools/ portable power tools, Pressure vessel hazards and their control, Safety in material handling: hazards and safe Practices, safety with storage of materials, Electrical hazards: classification, safe work practices, Chemical hazards: laboratory safety, bulk handling of chemicals, Fire and explosion hazards, Fire detection, Prevention ,control, and extinguishments, Industrial layout, Industrial waste management.

Unit V: Occupational Health

L-9

Concept of health and occupational health, Spectrum of health, Occupational and work related diseases, Levels of prevention, History of occupational health, Characteristics of occupational diseases, Essentials of occupational health service, personal protective equipment's.

8. Text Book

1. R.K.Jain and Sunil S.Rao , Industrial Safety, Health and Environment Management Systems,
2. Khanna publishers , New Delhi (2006)
3. Slote.L.Handbook of Occupational Safety and Health, John Willey and Sons, NewYork .

9. Reference Books

1. Grimaldi and Simonds , Safety Management, AITBS Publishers , New Delhi (2001)
2. "Industrial Safety and Pollution Control Handbook" National Safety Council and Associate Publishers Pvt. Ltd, Hyderabad (1993).
3. "Handbook of Environmental Health and Safety" Herman Koren and Michel Bisesi, Jaico Publishing House, Delhi (1999).
4. Handbook of Environmental Risk Assessment and Management: Peter Calow, Blackwell Science Ltd. USA (1998).
5. Risk Assessment and Environmental Management: D. Kofi Asvite-Dualy, John Willey & Sons, West Sussex, England (1998).
6. The Factories Act with amendments 1987, Govt. of India Publications DGFASLI, Mumbai