

EN555: Industrial Hygiene and Safety

Teaching Scheme			Credits	Marks Distribution				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE	CE	ESE	CE	
3	2	0	5	70	30	30	20	150

Course Contents:

Sr. No.	Topics	Teaching Hrs.
1	<p><u>Introduction To Safety Standards:</u></p> <p>Safety, Safety and Productivity, Role of Government, ILO, Factory act, Boiler Act, Concept of safety, safety Terminology, Accident problem, Reasons for prevention, factors impending safety, Accident prevention.</p>	06
2	<p><u>Safety engineering and Planning for safety:</u></p> <p>Concept of management, element of management, functions, management principles, safety management & its responsibilities, safety organization, Purpose for planning: planning procedure; Range of plans, Safety policies, Elements of safety policy, Implementation.</p>	05
3	<p><u>Accident and Incident Investigation:</u></p> <p>Reporting and Analysis, Accident and Incident Investigation, Identifying the key factors and the immediate and basic causes. Corrective Action, Agencies investigating accident. Accident reporting: Report forms, writing reports, essential elements. Accident and Incident Analysis Standard classification of factors associated with accident, Record keeping.</p> <p>Risk identification and Risk Assessment, hazard analysis (HAZAN) study, HAZOP Study.</p>	06
4	<p><u>Personal Protective Equipment:</u></p> <p>Need for personal protection equipment: selection; applicable standards; supply; use; care & maintenance respiratory and non-respiratory personal protective equipment: Classification and selection</p>	03

5 **Occupational Health And Ergonomics:** 10

Objectives, Classification of occupational health hazards, dangerous properties of chemical and their health effects, routes of entry of toxic material into human body, permissible exposure limits, Threshold limit value, lethal dose and lethal concentration.

Ergonomics, Human-body, Health, Posture, Workplace or office ergonomics, Ergonomics for women at work: physical work and environment, Anthropometry, Work related stress: Causes of stress.

6 **Safety In Chemical Industry:** 06

U.N Classification of Hazardous materials, Criteria for siting and layout of Chemical and Petrochemical Plants. Instrumentation for safe plant operations, Hazards in Unit Processes and Unit Operations, Control, precautions and prevention, specific safety measures for certain chemical industry like fertiliser, insecticide, pesticides-choler-alkali, explosives, polymer plants, pharmaceuticals, petro-chemical. Transportation of hazardous materials.

7 **Fire Engineering:** 04

Chemistry of fire, Factors contributing towards fire, Classification of fires, Common causes of industrial fires, Determination of fire load, Design of building exists, etc. for fire safety, Fire resistance of building materials Prevention of fire, Portable extinguishers, Hydrant system, sprinkler system, introduction to Carbon dioxide systems, Foam extinguisher system, Dry Chemical Extinguishing systems Halon replacement of fire fighting products, Fire detection and alarms system.

Total Hrs. 40

Reference Books:

1. American Management Association Hand Book for Safety Managers.s
2. International organization UNO Encyclopedia for Occupational Health published.
3. Mistry K.U. "*Industrial safety*".
4. Fingret Ann and Smith Akin, "*Occupational Health*", A Practical Guide for Managers.
5. Kudesia Y P and Kudesia.Ritu, "*Environmental Health & Technology*".
6. Triff N M, "*Environment & Health*".