

**UTKALMANI GOPABANDHU INSTITUTE OF  
ENGINEERING, ROURKELA**



**LESSON PLAN**

**DEPARTMENT OF CHEMICAL ENGINEERING**

## LESSON PLAN



SUBJECT CODE : TH-1

NAME : PSM

BRANCH : CH

SEMESTER : Diploma-VI

CREDIT POINTS : 4

NUMBER OF MODULES : 4

CLASSES REQUIRED : 60

PRE-REQUISITE : To understand Concept of safety management, Safe working practice, Chemical Hazards, Mechanical Hazards, Electrical Safety, and Electrical Shocks.

## MODULE-I

INTRODUCTION TO INDUSTRIAL SAFETY MANAGEMENT: 1.1 Fundamental of safety 1.2 unsafe act and unsafe condition 1.3 Integration of Safety, Health and Environment 1.4 Objective and principle of Safety Management 1.5 Terms and definition used in safety management 1.6 Classification of accidents

### Objectives:

To understand Fundamental of safety, Integration of Safety, Health and Environment, Objective and principle of Safety Management

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
1	Fundamental of safety	R1
2	Unsafe act and unsafe condition	T1
3	Integration of Safety, Health and Environment	T1
4	Objective of Safety Management	R1
5	Principle of Safety Management	R1
6	Terms and definition used in safety management	T1, R1
7	Classification of accidents	R1
8	Revision	T1

## MODULE-II

SAFE WORKING PRACTICE 2.1 Good Housekeeping practice 2.2 Work place safety 2.3 Safe working environment 2.4 Spot a hazard to stop an accident 2.4 Precaution in use of ladder 2.5 Safety instruction during maintenance 2.6 Safety measures during handling of compressed system, cylinders and painting Equipments 2.7 Permit to work system

### Objectives:

To understand and practice Good Housekeeping, Work place safety. To know Safety instruction during maintenance, handling of compressed system, cylinders and painting Equipments.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
9	Good Housekeeping practice	T1, R1
10	Work place safety	R1
11	Safe working environment	T1
12	Spot a hazard to stop an accident	T1, R1
13	Case Study- Spot a hazard to stop an accident	R1
14	Precaution in use of ladder	T1
15	Safety instruction during maintenance	T1, R1
16	Safety measures during handling of compressed system, cylinders	R1
17	Safety measures during handling of painting Equipments.	T1
18	Permit to work system	T1, R1

## MODULE-III

PERSONAL PROTECTIVE EQUIPMENTS (PPE) 3.1 Requirement of personal protective equipment 3.2 Classification of Hazards 3.3 Personal protective equipments for different parts of body 3.4 Guideline to use personal protective equipment

### Objectives:

To understand requirement of personal protective equipment, Classification of Hazards, Personal protective equipments for different parts of body measurement

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
19	Requirement of personal protective equipment	T1, R1
20	Classification of Hazards	T1
21	Types of Personal protective equipments	T1
22	Types of Personal protective equipments	R1
23	Personal protective equipments for different parts of body	T1
24	Guideline to use personal protective equipment	T1, R1
25	Safety practices in using personal protective equipment	R1
26	Revision	T1

#### MODULE-IV

FIRE PREVENTION AND FIRE FIGHTING 4.1 Fundamentals of fire, elements of fire. 4.2 Terms and definition in Fire Management. 4.3 Classification of fire and fire extinguishing technique 4.4 Causes of fire and its prevention 4.5 Different types of fire extinguisher and their application 4.6 Precaution for prevention of fire

#### Objectives:

To understand Fundamentals of fire, elements of fire. To understand Terms and definition in Fire Management, Causes of fire and its prevention, Different types of fire extinguisher and their application.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
27	Fundamentals of fire	T1
28	Elements of fire	T1
29	Terms and definition in Fire Management	T1
30	Classification of fire	R1
31	Classification of fire extinguishing technique	T1
32	Causes of fire and its prevention	R1
33	Different types of fire extinguisher and their application	T1, R1
34	Precaution for prevention of fire	R1

#### MODULE-V

CHEMICAL HAZARDS 5.1 Classification of Chemical Hazards 5.2 Factors influencing effects of toxic chemicals 5.3 Terms related to concentration level as per industrial hygiene norm 5.4 Control measure for Chemical hazards

#### Objectives:

To understand Classification of Chemical Hazards. To Factors influencing effects of toxic chemicals, Terms related to concentration level as per industrial hygiene norm.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
35	Definition of Chemical Hazards	T1, R1
36	Classification of Chemical Hazards	T1
37	Case study- Chemical Hazards	R1
38	Factors influencing effects of toxic chemicals	T1
39	Terms related to industrial hygiene	R1
40	Guidelines and norms for level as per industrial hygiene	T1, R1
41	Control measure for Chemical hazards	T1, R1
42	Control measure for Chemical hazards	R1
43	Revision	T1

44	Quiz test	T1, R1
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## MODULE-VI

ELECTRICAL SAFETY, ELECTRICAL SHOCK AND THEIR PREVENTION 6.1 Introduction to electrical safety 6.2 Precaution and safety in use of electricity 6.3 Electrical hazards in Industrial system 6.4 Safety provision to prevent electrical hazards

### Objectives:

To understand electrical safety, Precaution and safety in use of electricity. To understand Electrical hazards in Industrial system, Safety provision to prevent electrical hazards.

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
45	Introduction to electrical safety	T1, R1
46	Precaution in use of electricity	R1
47	Safety in use of electricity	T1
48	Electrical hazards in Industrial system	T1, R1
49	Electrical safety, prevention in Industrial system	R1
50	Safety provision to prevent electrical hazards	T1
51	Safety provision to prevent electrical hazards	T1, R1
52	Revision	R1
53	Revision	T1
54	Quiz test	T1, R1

## MODULE-VII

MECHANICAL HAZARDS 7.1 Sources of mechanical hazards 7.2 Machine Guard and Safety devices 7.3 Pressure hazards and pressure vessel 7.4 Safety measures in use of gas cylinders 7.5 Types of maintenance (example- Breakdown, preventive)

### Objectives:

To understand sources of mechanical hazards. To understand safety measures in use of gas cylinders, Types of maintenance (example- Breakdown, preventive).

Lecture no	Topics to be covered	PRIMARY REFERENCE (BOOKS/NOTES)
55	Sources of mechanical hazards	T1, R1
56	Machine Guard and Safety devices	R1
57	Pressure hazards and pressure vessel	T1
58	Safety measures in use of gas cylinders	T1, R1
59	Types of maintenance (example- Breakdown, preventive)	R1
60	Revision	T1

### Course Delivery Plan

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**BOOKS FOR REFERENCE:****TEXT BOOKS**

T1: Industrial safety Health and Environment System by R.K. Jain, Sunil Rao, Khanna Publication.

**REFERENCE**

R1: Industrial, Safety and Environment by Amit Gupta, Laxmi Publication.

	<b>Prepared by</b>	<b>Approved by</b>
<b>Signature</b>		
<b>Name</b>	<b>SOVAN KUMAR SAHOO</b>	
<b>Designation</b>	<b>Lecturer</b>	<b>HOD, Chemical.</b>
<b>Date</b>		