

Name of Faculty	:	Faculty of Engineering & Technology
Name of Program	:	Master of Technology (M. Tech)
Course Code	:	2MEE05
Course Title	:	Occupational Health & Safety
Type of Course	:	Programme Elective (PE)
Year of Introduction	:	2023-24

Prerequisite	:	A foundational understanding of science principles is often beneficial for comprehending the concepts covered in an OHS course. Familiarity with topics such as chemistry, biology, and physics can help students grasp the scientific basis behind workplace hazards and safety measures.
Course Objective	:	Understanding of Occupational Hazards, Knowledge of OHS Laws and Regulations, Hazard Identification and Risk Assessment, Control Measures and Safety Practices.
Course Outcomes	:	At the end of this course, students will be able to:
	CO1	Master hazard identification, chemical risks, exposure limits, ergonomics, and occupational disease recognition.
	CO2	Grasp safety concepts, terminology, psychology, and accident causation.
	CO3	Navigate hazard analysis methods like PHA, HAZAN, FMEA, HAZOP, fault tree, and event tree analysis,
	CO4	Electrical Safety, Fire & Explosion, and PPE Standards course participants acquire hazard recognition and safety implementation skills for a secure workplace.

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	SEE	CIA	SEE	CIA	
3	0	0	3	70	30	0	0	100

Legends: L-Lecture; T-Tutorial/Teacher Guided Theory Practice; P - Practical, C - Credit, SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with CO
1	OCCUPATIONAL HEALTH: Classification of occupational health hazards, dangerous properties of chemical and their health effects, permissible exposure limits, Threshold limit value, lethal dose and lethal concentration, Ergonomics, application of ergonomics for safety & health, occupational diseases due to metals & dusts, fumes & chemical compounds.	10	24%	CO1
2	SAFETY: Concept of safety, Nature of concept of safety, Philosophy of safety, safety terminology, safety psychology, accident causative factors, general psychological factors. Safety Management: Concept of management, element of management, functions, management principles, safety management & its responsibilities, safety organization	10	28%	CO2
3	Hazards & Risk identification, Assessment and control techniques: Hazards, Risks & detection techniques, Preliminary hazard analysis (PHA) & hazard analysis(HAZAN), failure mode effect analysis(FMEA), Hazard and operability(HAZOP) study, Hazard ranking (DOW & MOND index), Fault tree analysis, Event tree analysis(ETA), major accident hazard control, onsite and off-site emergency plans.	13	24%	CO3
4	Electrical Safety: Electricity and Hazardous, Indian standards, effects of electrical parameters on human body, safety measures for electric works Fire & Explosion: Fire phenomena, classification of fire and extinguishers, statutory and other standards, fire prevention & protection system, explosion phenomena, explosion control devices, fire awareness signs.	12	24%	CO4

	<p>Personal Protective Equipment: Need of PPE, Indian standards, factors of selection of PPE, non-respiratory equipments, respiratory equipments.</p> <p>Accident Causes and prevention: Causation, Accident problem, Reasons for prevention, factors impeding safety, Accident prevention</p>			
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Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	10	40	30	20	0	0

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested Learning Websites

Sr. No.	Name of Website
1	https://www.osha.gov/
2	https://www.ccohs.ca/
3	https://www.cdc.gov/niosh/

Reference Books

Sr. No.	Name of Reference Books
1	Fundamentals of Industrial safety & health by Dr. K. U. Mistry.
2	Morgan M T, Environmental Health, Wadsworth Publishing Co, 1997
3	National Safety Council Publication
4	Occupational Health, a Practical Guide for Managers -by Ann Fingret & Akin Smith.
5	CPCB Green Book