



**Subject Code:01OE9003**

**Subject Name: Industrial Safety**

**M. Tech. I Year-Semester-III**

**Type of course:** Open elective

**Objective:**

Safety is major issue in any industry; awareness about safety helps students from any major accidents, Different rules regulation of safety helps students apply it in industry for performance and productivity improvements. Knowledge of Maintenance, its type and application give better work environments and helps industry from major shutdown. Different maintenance tools and technique for different situation and industry equipment's helps students to apply it in real life industry problems.

**Teaching and Examination Scheme:**

Teaching Scheme (Hours)			Credits	Evaluation Scheme					Total Marks
Theory	Tutorials	Practicals		Theory Marks			Practical Marks		
				ESE (E)	IA	CSE	Viva (V)	Term Work (TW)	
3	0	0	3	50	30	20	0	0	100

**Course Outcome:** after learning this course, students will be able to

1. Understand Importance of Safety and Important related Acts
2. Apply Maintenance techniques as per requirements and able to compare for with different technique for better performance.
3. Understand wear and corrosion, its causes and remedial actions for preventions
4. Demonstrate fault tracing, its methods and application

**Course Contents:**

Sr No	Contents	Total hours
1	<b>Industrial safety</b> Accident, causes, types, results and control, mechanical and electrical hazards, types, causes and preventive steps/procedure, describe salient points of factories act 1948 for health and safety, wash rooms, drinking water layouts, light, cleanliness, fire, guarding, pressure vessels, etc.	7



2	<b>Fundamentals of maintenance engineering</b> Definition and aim of maintenance engineering, Primary and secondary functions and responsibility of maintenance department, Types of maintenance, Types and applications of tools used for maintenance.	9			
3	<b>Wear and Corrosion and their prevention</b> Wear- types, causes, effects, wear reduction methods, lubricants-types and applications, Lubrication methods, general sketch, working and applications, i. Screw down grease cup, ii. Pressure grease gun, iii. Splash lubrication, iv. Side feed lubrication, v. Ring lubrication, Definition, principle and factors affecting the corrosion.	12			
4	<b>Fault tracing</b> Fault tracing-concept and importance, decision tree concept, need and Applications, sequence of fault-finding activities, show as decision tree, draw decision tree for problems in machine tools, hydraulic, pneumatic, automotive, thermal and electrical Equipments like, I. Any one machine tool, ii. Pump iii. Air compressor.	8			
5	<b>Periodic and preventive maintenance</b> Periodic inspection-concept and need, degreasing, cleaning and repairing schemes, overhauling of mechanical components, overhauling of electrical motor, common troubles and remedies of electric motor, repair complexities and its use, definition, need, steps and advantages of preventive maintenance. Steps/procedure for periodic and preventive maintenance of: I. Machine tools, ii. Pumps, iii. Air compressors, iv. Diesel generating (DG) sets.	6			
	R Level	U Level	A Level	N Level	E Level
	15	20	30	30	5

#### Distribution of Theory Marks

**Legends:** R: Remembrance; U: Understanding; A: Application, N: Analyze, and E: Evaluate

#### Reference Books:

1. Maintenance Engineering Handbook, Higgins & Morrow, Da Information Services.
2. Maintenance Engineering, H. P. Garg, S. Chand and Company.
3. Pump-hydraulic Compressors, Audels, McGraw Hill Publication.
4. Foundation Engineering Handbook, Winterkorn, Hans, Chapman & Hall London.

#### List of Open-Source Software/learning website:



**Marwadi**  
University

MARWADI UNIVERSITY  
MASTER OF TECHNOLOGY  
DEPARTMENT OF ELECTRICAL ENGINEERING

### Open-Source Software

1. <https://www.anaconda.com/>
2. <https://www.python.org/>
3. <https://colab.research.google.com/>
4. <https://www.iitk.ac.in/ee/data-mining-lab/>