

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. SEMESTER: VI

Industrial Engineering

Subject Name: **Maintenance and Safety Engineering**

Subject Code: **161505**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
4	0	2	6	70	30	50

Sr. No	Course Content	Total Hrs.
1.	Introduction: Importance of maintenance, functions of maintenance, type of maintenance, including total productive maintenance and its implementation, organization of maintenance.	08
2.	Wear and service life of equipment: (i) Methods of assembly and fitting – assembly of keyed joints, splined joints, fixed joints, assembly of ball and roller bearings, repairs and assembly of gears. (ii) Wear of machines- types and reasons of wear, defects due to wear of equipment, corrosion and its prevention. (iii) Recovery and strengthening of machine elements various methods of recovery and and increasing service life.	12
3.	Maintenance of Production Equipment : Maintenance and repair of shafts, bearings, spindles, couplings and clutches, gears, bed services and link mechanisms.	10
4.	Restoring The Guide Ways Of Machine Tools: Test of repaired equipment, fault-tracing sequence in fault tracing, drawing decision tree.	8
5.	Planning and Scheduling Maintenance Work: Factors involved in effective planning of maintenance work, Various methods of scheduling work, Categorization of plant/equipment for the purpose of priorities, VAIN analysis.	14
6.	Preventive Maintenance: Philosophy of PM, methods & schedules. Maintenance cost & replacement economics, Types of cost, Maintenance cost, Methods of cost comparisons, Factors in equipment Replacement, MAPI methods, Economics, Concept of maintainability.	4

7.	Safety Engg.: Background of Industrial safety, Accident Causation, Industrial hazards, Accident investigation, prevention, Safety education, Safety consideration in design of equipment, Legal aspects of Ind.. Safety	8
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Reference Books:

1. Maintenance Engineering and management by R.C. Mishra & K. Pathak, PHI publication
2. Maintenance Engineering and management by K. VenkatRamana, PHI publication
3. Maintenance of Ind. Equipments-by Gellery & Pakelts, MIR publications
4. Ind. Maintenance by H.P. Garg, S. Chand & company
5. Maintenance Engg. Handbook, by Morrow
6. Modern Maintenance Management, by Miller & Blood