

**ME468: MAINTENANCE MANAGEMENT**  
**CREDITS = 5 (L=3, T=0, P=2)**

**Course Objective:**

To apply maintenance management principles for maximum utilization of plant and machinery at optimal cost.

**Teaching and Assessment Scheme:**

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

**Course Contents:**

Unit No.	Topics	Teaching Hours
1	<b><u>Maintenance management –policies, strategies &amp; options:</u></b> Maintenance, Need of Maintenance Management, Maintenance Policies, Strategies and options in Maintenance management. Maintenance forms/actions and their inter relationships, Brief descriptions of various Maintenance actions Organizations: factors determining effectiveness of a Maintenance organization, objectives of organization design, and types of organization. Maintenance Planning and Control: Establishing a Maintenance Plan-Preliminary considerations, Systematic method of Maintenance Plan and schedule planning and schedule of Plant shut downs Maintenance.	06
2	<b><u>Maintenance System:</u></b> Principles of Condition-based maintenance (CBM), condition based maintenance techniques, manual inspections, performance monitoring, and steps in implementation of CBM. RCM logic, maintenance and RCM benefits of RCM, total productive maintenance (TPM) introduction, key-supporting elements of TPM, methodology, evaluation and benefits, Corrective maintenance, design maintenance and contract maintenance- AMC, FMS and SLC.	08
3	Pareto’s principles for repetitive breakdown analysis, Spares management, planning considerations for each type of activities.	08

Unit No.	Topics	Teaching Hours
4	<b><u>Failure analysis &amp; prevention:</u></b> Engineering aspects of failure & failure analysis Defects, Types and characteristics, Effects of defects on service properties General Procedures for Failure Analysis Basic Failure Mechanisms, Non Destructive Testing Techniques and Metallographic Techniques. Failure Modes and Effect Analysis, Case Studies on failure Analysis.	08
5	<b><u>Maintenance man power planning:</u></b> maintenance work force measurement, scheduling maintenance cost, Budget preparation, various performance indices and their evaluation, Replacement Techniques, maintenance effectiveness assessment, maintenance audit, benefit of audit, maintenance benchmarking.	08
6	<b><u>Computerized maintenance management system (CMMS):</u></b> Definition, objectives, factor affecting selection of CMMS, emphasis for integrated CMMS, process planning, route card, future of CMMS, IoT based asset management.	06
<b>TOTAL</b>		<b>42</b>

#### List of References:

1. Gopalakrishnan, P & Sundararajan, “*Maintenance Management*”, Prentice Hall of India , New Delhi
2. R. Keith Mobley “*Maintenance Engineering Handbook*” McGraw Hills
3. R. Keith Mobley “*Maintenance Fundamentals*” Elsevier Butterworth–Heinemann
4. B.S.Dhillon, “*Engineering Maintenance - A Modern Approach*” CRS Press
5. Er.Sushil kumar Srivastava “*Maintenance Engineering* “S. Chand & Company Pvt.Ltd.

#### Course Outcomes (COs):

At the end of this course students will be able to ...

1. Assimilate modern maintenance practices and their integration within the production organization.
2. Implement maintenance system.
3. Apply effectively spares management.
4. Investigate failure analysis of system or components.
5. Identify improvements for a work place using results from a maintenance strategy audit- internal audit, external audit, benchmarking.
6. Suggest computerized maintenance management system suitable for a given system.