Advanced Maintenance Management

Course Objectives

Down time of machines at reduced cost by applying proper maintenance management tools and techniques forms the major objective of this course. Later developments like Reliability Centred Maintenance, Expert Systems applications in maintenance, Maintenance Management Information system, Predictive maintenance and signature analysis are included to make the student aware of the latest practices in Maintenance Management.

Syllabus

Maintenance Concepts-strategies-organization-Reliability-Mean Time Between Failure-Availability- Design for Maintenance-Replacement decision- Maintenance policies and recent developments in maintenance.

Expected Outcomes

The student should be able to suggest a suitable maintenance management technique to reduce cost arising out machine down time for practical situation in an organization. Also the student will be aware of computer based maintenance management systems and contemporary techniques in maintenance management.

References

6. Mishtra RC and Pathak K, Maintenance Engineering and Management, PHI.

7. Sushil Kumar Srivatsava, Industrial Maintenance Management, S Chand and Company.

8. Gopalakrishnan, P. Banerji, A.K., "Maintenance and Spare Parts Management", Prentice Hall of India. 9. Jardine AK, Maintenance, Replacement and Reliability, Pitman Publishing.

10. Kelly and Harris MJ, Management of Industrial Maintenance, Butterworth and Company Limited.

COURSE PLAN

I Maintenance - Objectives and functions– Preventive, Breakdown - Predictive Maintenance Strategies – Five Zero Concept - Organisation for Maintenance

2 Reliability of an equipment-Time to Failure Analysis - Bath Tub Curve MTBF, MTTF, Useful Life – Survival Curves – Failure Time distributions (Poisson, Exponential, and Normal) - Repair Time Distribution – Maintainability Prediction – Design for Maintainability – Availability.

First Internal Examination

3 Replacement Decision - Overhaul and repair – meaning and difference – Optimal overhaul – Repair policies for equipment subject to break down – Group replacement. Optimal interval between preventive replacement of equipment subject to break down

Second Internal Examination

4 Maintenance Policies - Fixed Time Maintenance – Condition based Maintenance -Operate to failure – Opportunity Maintenance – Design out maintenance – Total Productive Maintenance

5 Recent Techniques - Reliability Centered Maintenance (RCM) – Philosophy and implementation – Signature Analysis – CMMS – Concept of Terotechnology –Expert Systems-Maintenance Management Information Systems-Reengineering Maintenance process.

Final Exam