

COURSE CODE	COURSE TITLE	L	T	P	C
1153AE103	MAINTENANCE AND RELIABILITY ENGINEERING	3	0	0	3

Course Category:

Programme Elective

UNIT I MAINTENANCE MANAGEMENT 12

Need for maintenance – Objective – Concepts – Types of Maintenance – Organization – Trade force mix, type and location – Maintenance costs – Benefits – Computer Aided Maintenance Management – Total Productive Maintenance

UNIT II TYPES OF MAINTENANCE 10

Breakdown and Preventive maintenance – Advantages and Limitations – Maintenance prevention – Diagnostic maintenance – Design out maintenance – Opportunity maintenance

UNIT III DIAGNOSTIC MAINTENANCE 12

Leak detection – Wear monitoring – Temperature monitoring – Vibration monitoring – Signature analysis – Shock monitoring – Lubricant – Analysis – Methodology – Equipments - Applications

UNIT IV CONCEPTS OF RELIABILITY 14

Elements of Probability – Reliability Definition – Measures of Reliability – Failures – Classification of Failures – Failure data analysis – Availability – Criticality matrix – Event Tree Analysis – Utilization Factor – Factors Affecting Reliability

UNIT V DESIGN FOR RELIABILITY 12

Analysis of reliability data – Weibull analysis – Design and manufacture for reliability – Reliability of parts and components – Design for system reliability – Economics of Standby or redundancy in a production system – Reliability testing - Types

Text Book

1. Higgins And Morrow, - “Maintenance Engineering Hanbook”, Tata McGraw Hill, 1985
2. Collact, “Mechanical Fault Diagnostis and Condition Monitoring” – Tata McGraw Hill, 1985
3. Miller & Blood, - “ Modern Maintenance Management” – Tarapooriwala & sons, 1976

REFERENCES

1. Jentryej And Kumamoto.H, “Reliability Engineering and Test Assessment”, Prentice Hall, 1992
2. Carter, A.D.S, “Mechanocal; Reliability”, Macmillan, 1984
3. Nakajima.S, “Introduction to TPM – Total Productive Maintenance”, Productivity Press – 1985
4. O’connor, P.D.T, “ Practical Reliability Engineering”, John Wiley – 1994
5. Kelley.A & M.J.Harris, “Management of Industrial Maintenance”, Newnes Butter Worth