

1152AU118

TOTAL QUALITY MANAGEMENT**L T P C****3 0 0 3****1. Preamble:**

This course Total Quality Management concept and principles and the various tools are available to achieve Total Quality Management, and to enhance the statistical approach for quality control. To create awareness about the ISO and QS certification process and its needs for the industries

2. Prerequisite:

NIL

3. Link to other Courses:

NIL

4. Course Educational Objectives :

Students undergoing this course are expected to

- Demonstrate knowledge of quality management principles, techniques and philosophies.
- Apply statistical process control technique to improve the quality.
- Demonstrate knowledge of TQM tools for industries.
- Apply appropriate techniques for reliability assessment.
- Demonstrate knowledge of advanced techniques for reliability engineering..

5. Course Outcomes :

The students would be benefitted with the following outcomes:

CO Nos.	Course Outcomes	Level of learning domain (Based on revised Bloom's)
CO1	Demonstrate knowledge of quality management principles, techniques and philosophies	K2
CO2	Apply statistical process control technique to improve the quality.	K2
CO3	Demonstrate knowledge of TQM tools for industries.	K2
CO4	Apply appropriate techniques for reliability assessment.	K2
CO5	Demonstrate knowledge of advanced techniques for reliability engineering.	K2

6. Correlation of COs with Programme Outcomes :

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	L		H	M	H		L			H			L	L
CO2	L		M		M	L				H			M	M
CO3	L				H	H	L	M					M	L
CO4		M	L			M		L			M		L	L
CO5	L		H		M		L				M		M	M

H- High; M-Medium; L-Low

7. Course Content

UNIT I INTRODUCTION

L-9

Definition of Quality, Historical Review, Principles of TQM, Leadership – Concepts, Role of Senior Management, Quality Council, Strategic Planning, Deming Philosophy, Continuous Process Improvement – Juran Trilogy, PDSA Cycle, 5S, Kaizen

UNIT II STATISTICAL PROCESS CONTROL (SPC)

L-9

The Seven Tools of Quality, Statistical Fundamentals, Population and Sample, Normal Curve, Control Charts For Variables And Attributes, Process Capability, Concept of Six Sigma, New Seven Management Tools.

UNIT III TQM TOOLS AND QUALITY SYSTEMS

L-9

Quality Function Deployment (QFD) – House of Quality, QFD Process, Benefits, Taguchi Quality Loss Function, Total Productive Maintenance (TPM) – Concept, Improvement Needs, Need For ISO 9000 and Other Quality Systems, ISO 9000:2000 Quality System – Elements, Implementation of Quality System, Quality Auditing

UNIT IV INTRODUCTION TO RELIABILITY

L-9

Importance of Reliability, Performance Cost and Reliability, Quality and Safety, System Configuration with Examples, Stochastic Processes, Bathtub Concept, MTBF, MTTR, Hazard Rate, Failure Rate, Probability and Sampling, Cumulative Probability Distribution Function, Data and Distributions.

UNIT V RELIABILITY IN DESIGN AND LIFE CYCLE COSTING

L-9

Survival Rate, Bath-Tub Curve Analysis of Characteristics of Failure Regimes, Design Synthesis, Reliability Effort Function, Safety Margin, Allocation of Reliabilities by AGREE, ARINC, Proportional Distribution of Unreliability, Heuristic Method, Mean and Median Methods.

Total: 45 periods

8. Text Books:

1. Joel E. Rose, Total Quality Management, 3rd Edition, Kogan Page Ltd., USA 1999
2. Srinath, L. S., Reliability Engineering, Affiliated East West Press, New Delhi 2005

9. References:

1. James R.Evans& William M.Lidsay, “The Management and Control of Quality”, (5th Edition), South-Western (Thomson Learning), 2002 (ISBN 0-324-06680-5).
2. Feigenbaum.A.V. “Total Quality Management”, McGraw Hill, 1991.
3. Zeiri. “Total Quality Management for Engineers”, Wood Head Publishers, 1991.
4. E. E. Lewis, “Introduction to Reliability Engineering”, John Wiley and Sons.
5. S. S. Rao, “Reliability Engineering”.