

IV Year B.Tech. Mechanical Engg. II-Semester

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ME420 TOTAL QUALITY MANAGEMENT

(Dept. Elective - V)

Course Description & Objectives:

To understand the Total Quality Management concepts, principles and the various tools available to achieve Total Quality Management. To understand the statistical approach for quality control. To create an awareness about the ISO and QS certification process and its need for the industries.

Course Outcomes:

Upon completion of the subject, students will be able to

1. select and apply appropriate techniques in identifying customer needs, as well as the quality impact that will be used as inputs in TQM methodologies;
2. measure the cost of poor quality and process effectiveness and efficiency to track performance quality and to identify areas for improvement;
3. understand proven methodologies to enhance management processes, such as benchmarking and business process reengineering;
4. Choose a framework to evaluate the performance excellence of an organization, and determine the set of performance indicators that will align people with the objectives of the organization.

UNIT - I Introduction:

Definition of Quality, Dimensions of Quality, Quality Planning, Quality costs - Analysis Techniques for Quality Costs, Basic concepts of Total Quality Management, Deming Philosophy, Barriers to TQM Implementation.

UNIT - II TQM Principles:

Customer satisfaction – Customer Perception of Quality, Customer Complaints, Service Quality, Customer Retention, Employee Involvement – Benefits, Continuous Process Improvement – Juran Trilogy, PDCA Cycle, 5S, Kaizen, Supply Chain Management. Concepts in Performance Measures of Quality.

UNIT - III Statistical Process Control (SPC):

The seven tools of quality, Statistical Fundamentals – Measures of central Tendency and Dispersion, Population and Sample, Normal Curve, Control Charts for variables and attributes, Process capability, Concept of six sigma.

UNIT - IV TQM Tools:

Benchmarking – Reasons to Benchmark, Benchmarking Process, Quality Function Deployment (QFD) – House of Quality, QFD Process, Benefits, Taguchi Quality Loss Function, Total Productive Maintenance (TPM) – Concept, Improvement Needs, FMEA – Stages of FMEA.

UNIT - V Quality Systems:

Need for ISO 9000 and Other Quality Systems, ISO 9000:20XX Quality System – Elements, Implementation of Quality System, Documentation, Quality Auditing, ISO 14000 – Concept, Requirements and Benefits.

TEXT BOOKS :

1. Dale H.Besterfield, "Total Quality Management", 2nd ed., Pearson Education, 2011.
2. James R.Evans & William M.Lindsay, "The Management and Control of Quality", 5th ed., South-Western Publication, 2010.

REFERENCES BOOKS :

1. Feigenbaum.A.V. "Total Quality Management", 2nd ed., McGraw-Hill, 2003.
2. Oakland.J.S. "Total Quality Management", 1st ed., Butterworth Hcinemann Ltd., Oxford, 2005.
3. Narayana V. and Sreenivasan, N.S. "Quality Management – Concepts and Tasks", 2nd ed., New Age International, 2000.
4. Zeiri. "Total Quality Management for Engineers", 1st ed., Wood Head Publishers, 1998.