

GUJARAT TECHNOLOGICAL UNIVERSITY
B.E. SEMESTER : VII
MANUFACTURING ENGINEERING

Subject Name: Total Quality Management

Subject Code:173401

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	University Exam(E)	University Exam(P)	Mid Sem Exam(Theory) (M)	Practical (Internal)
3	0	0	3	70	0	30	50

Sr No	Course Contents
1	Introduction Definition of Quality, Dimensions of Quality, Quality Planning, Quality costs – Basic concepts of Total Quality Management, Historical Review, Principles of TQM, Quality in Manufacturing and Service Systems, Leadership Concepts, The Baldrige view of Leadership, Role of Senior Management, Economic Issues - Quality and Price – Quality and Market Share – Quality and Cost, Quality Council, Quality Statements, Barriers to TQM Implementation.
2	Principles of Total Quality Management Elements of Total Quality Management– A Customer Focus – Fact-Based Management – Continuous Improvement –Teamwork and Participation. Customer Perception of Quality, Customer Complaints, Service Quality, Customer Retention, Employee Involvement, Malcolm Baldrige National Quality Award ,Award Criteria. Benefits of Total Quality Management. The Deming Management Philosophy – Profound Knowledge – The Impact of Profound Knowledge – Deming's 14 Points for Management- PDCA Cycle, The Juran Philosophy – The Juran Quality Trilogy. The Crosby Philosophy. The Taguchi Loss Function, 5S, Kaizen, Performance Measures.
3	TQM Tools Ishikawa ‘s Seven Quality Tools, Ishikawa Fish bone diagram – Nominal Group Technique – Quality Circles – Flow Charts – Pareto Analysis– Poka Yoke (Mistake Proofing), 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, Cybernetic Analysis.
4	Reliability Concept and Components – Types of failure – Reliability of system – Success and Failure models in series and parallel – Methods of achieving higher reliability – Concept of maintainability and availability – Weibull Distribution (Bath Tub curve), Comparison with reliability ,MTBF, MTTF and FMEA
5	Managing and organization for Quality Quality Policy – Quality Objectives– Leadership for Quality – Quality and organization culture – Change Management – Team Building. Partnerships - Cross-Functional Teams –Supplier/Customer Partnerships, Control Charts for variables and attributes, Process capability, Concept of six sigma, Auditing Techniques - Planning

	for an audit - Developing a Check-list -Conducting an Audit - Writing an Audit Report - Auditor Ethics - Value -addition process during Internal Audit - Mock Audits.
6	Quality Management Standards: (Introductory aspects only) The ISO 9001:2000 Quality Management System Standard - The ISO 14001:2004 Environmental Management System Standard - ISO 27001:2005 Information Security Management System - ISO / TS16949:2002 for Automobile Industry - CMMI Fundamentals and Concepts.

REFERENCE BOOKS

1. Dale H.Besterfield, et al., "Total Quality Management", Pearson Education Asia, 3rd edition, Indian reprint, 2008.
2. Dale H. Besterfield, "Quality Control", Pearson Education, 2012.
3. Subburaj Ramasamy, "Total Quality Management", Tata McGraw Hill, 2008.
4. Jain, "Quality Control and Total Quality Management", Khanna Publications, New Delhi
5. Smith, "Quality Problem Solving", Quality Press, Wisconsin Avenue, USA
6. James R.Evans and William M.Lidsay, "The Management and Control of Quality", 5th Ed., South-Western (Thomson Learning), 2002.
7. Feigenbaum.A.V., "Total Quality Management", McGraw-Hill, 1991.
8. Oakland.J.S., "Total Quality Management", Butterworth Heinemann Ltd., Oxford. 1989.
9. Narayana V. and Sreenivasan, N.S., "Quality Management - Concepts and Tasks", New Age International 1996.
10. Zeiri, "Total Quality Management for Engineers", Wood Head Publishers, 1991.