

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. SEMESTER: VI Automobile Engineering

Subject Name: **Total Quality Management**

Subject Code: **160206**

Teaching Scheme				Evaluation Scheme		
Theory	Tutorial	Practical	Total	University Exam (Theory) (E)	Mid Sem Exam (Theory) (M)	Practical (I)
3	1	0	4	70	30	50

Sr. No.	Course Contents	Total Hrs
1.	Introduction & Principles of Quality Management: World scenario, quality education, benefits of quality management, changing criteria of quality, efficiency v/s effectiveness, drivers of quality, definition of quality, Internal & External customers, Understanding of Vision and Mission Statements. Objectives, Goals, Targets & action plan to align with the Vision statement.	8
2.	Quality management : Principles of TQM by Deming, Crosby and Juran. Total Quality management Philosophies : Importance of TQM in comparison to quality-inspection/control/assurance. Evolution of TQM. Tools and Techniques for preparation and models of TQM. Quality Planning: SWAT Analysis, strategic planning, Organisation culture.	6
3.	Customer Orientation: Customer focus, Customer satisfaction & retention models. Quality function deployment. Customer satisfaction measurement. Human Dimension of TQM: Top Management commitment, Leadership for TQM. Change management. Motivational strategies. Quality circle philosophy.	12

	<p>Team Development:</p> <p>Synergy. Team Building. Communication and transactional analysis.</p>	
4.	<p>Problem Solving Tools:</p> <p>Process of problem solving. Brain storming, histogram, check sheets, Ishikawa diagrams, Pareto analysis, scatter diagrams, statistical process control and control charts – application of these tools.</p> <p>Seven Quality management tools.</p> <p>Continuous Improvement Strategies:</p> <p>Deming wheel, Zero defects Concept, Bench marking. Six sigma (6σ)</p> <p>Preventive Techniques:</p> <p>Failure Mode Effect Analysis (FMEA). Poka Yoke.</p> <p>Quality Ambiance:</p> <p>Five S. Time Management.</p>	12
5.	<p>Quality Certification:</p> <p>ISO 9000 series, ISO 14000 series and QS 9000 certification. EURO standards, Quality Auditing. Quality Awards.</p>	2
6.	<p>Reliability:</p> <p>Failure rate analysis, Mean failure rate, Mean time to failure (MTTF), Mean time between failures (MTBF). Graphical representation of f_d , Z and R. Generalization in graphic and integral form. Hazard model. System reliability, availability, maintenance – reliability centered maintenance (RCT), total preventive maintenance (TPM), and overall equipment effectiveness (OEE) model.</p> <p>Cost of Quality:</p> <p>Characteristics of Quality cost, Micro analysis of Quality cost, Cost of quality – prevention/appraisal/failure; Optimum Cost Relationship with Quality.</p> <p>TQM Road Map:</p> <p>Measurement of Quality, TQM road map, TQM Implementation strategy, When TQM fails.</p>	8

Note:

Tutorials can be conducted for the Case studies related to above topics, Reliability problems and Team building Exercise.

Text Books:

1. Suganthi, L. and Samuel, A.A. "Total Quality Management", Prentice Hall of India Private Limited.

Reference Books:

1. Logothetis, N. "Managing for Total Quality: From Deming to Taguchi and SPC", Prentice-Hall of India Private Limited.
2. Feigenbaum, A. "Total Quality Control", Mc Graw Hill.
3. Mitra, A. "Fundamentals of quality control and improvement", Pearson Education.
4. Hansen, B.L. and Ghare, P.M. "Quality control and application", Prentice-Hall of Indian Private Limited.
5. Srinath, L.S. "Reliability Engineering", East-West Press (EWP) PVT LTD.