

Course Code	Course Name	Credits
MEDLO8063	Total Quality Management	03

Objectives:

1. To understand the importance of Quality Management and principles of TQM
2. To understand seven basic QC tools and advanced QM tools
3. To understand the concept of Statistical Quality Control
4. To understand the concept of Continuous Improvement and TQM implementation
5. To understand different Quality Systems and Quality Standards
6. To understand the future trends in TQM and TQM strategies

Outcomes: The students will be able to use the tools and techniques of TQM in the manufacturing and service sectors.

1. To apply QM and principles of TQM in organizational development process.
2. To apply the QC & QM tools in process improvement.
3. To apply SQC techniques to improve process quality.
4. To apply Six Sigma project in TQM Implementation
5. To apply QMS and Certification for Quality Accreditation
6. To apply the advanced tools for Quality Sustainability.

Module	Contents	Hours
1	<p>Introduction to Quality Management :</p> <p>A) Definitions of Quality, product quality and service quality; the evolution of quality; need for Quality Management, Quality statements and Policy, Customer orientation & satisfaction, Customer complaints, customer retention; Supplier partnership, Supplier rating & selection, CSI, Costs of Quality, Prevention , appraisal and failure aspects , Use of COQ for improving quality and performance, Designing for quality, Quality of design, Quality of conformance.</p> <p>B) Basic concepts of TQM, TQM framework, Contributions of Deming, Juran and Crosby, Juran Trilogy , PDCA Cycle, Barriers to TQM; TQM principles; Strategic Quality Planning; Quality councils; employee involvement, motivation; Empowerment; Team and Teamwork; recognition and reward, performance appraisal.</p>	08
2	<p>QC Tools :</p> <p>A) Seven QC Tools: Check Sheet, Histogram, Pareto Chart, Fishbone Diagram, Run Charts, Scatter Diagram, Process Flow Chart.</p> <p>B) Seven QM Tools: Program Decision Process Chart, Tree Diagram, Affinity Diagram, Prioritization Matrix, etc. Bench Marking Types – Process, Product, Quality Improvement Tools: Why-Why Analysis, Root Cause Analysis, Poka Yoke (Mistake Proofing)</p>	06

3	<p>Statistical Quality Control: 100% Inspection versus Sampling Inspection, Reasons for SQC.</p> <p>A) Acceptance Sampling: Concept of Producer Risk and Consumers Risk. Operating Characteristics Curve. Sampling Plan – Single Sampling Plan versus Double Sampling Plan. Design Sampling Plan on the basis of MIL, ASQ Standards.</p> <p>B) Statistical Process Control: Variations – Concept, Causes – Random & Assignable, Difference – Process in Control versus Process is Capable, Control Charts, X-Bar, R, P and C Charts, Process Capability (Cp) & Process Capability Index (Cpk), Sigma Limits. Applications of Control Charts in Mass Production, Process Production.</p>	06
4	<p>A) Continuous Improvement: Quality Circles, Quality Function Development (QFD), Taguchi quality loss function, Parameter Design, Robust Design; TPM- concepts, 5S, Kaizen, FMEA- stages, Zero Defect.</p> <p>B) TQM Implementation: Manufacturing and Service sectors, Introduction to Six Sigma: Definition, Concept, Methodology. Six Sigma Approaches – Design for Six Sigma (DFSS) Approach & DMAIC Approach, Six Sigma Tools: Applications to manufacturing and service sector including IT, ITeS, and E Com.</p>	08
5	<p>Quality Management System & Certification:</p> <p>A) QMS: Elements and documentation, Quality auditing, Necessity for Certification & Certification Process, Benefits of Certification. Certifying Bodies & Accreditation Agencies, ISO 9000-2015 (5th Edition), Introduction to TS16949: Technical Specifications, QS9000, ISO14000- concepts, requirements and benefits. Case studies of TQM implementation in manufacturing and service sectors including IT and Environmental management systems- ISO 14000 Series Standards, Integration of ISO 14000 with ISO 9000.</p> <p>B) Quality Awards: Malcom Baldrige National Quality Award and Rajiv Gandhi National Quality award.</p>	06
6	<p>Future Trends in TQM : Strategic approach to leadership , Customer centric endeavors , Involvement & empowerment of all employees / stake holders , Decision making based on real time facts , Win-Win policy with suppliers , New paradigms of Green & sustainability , TQM beyond Manufacturing i.e. Healthcare, Education, Finance. Accountability through new tools and technologies, Quality Analytics.</p>	06

Text Books:

1. Besterfield D.H. et al.: Total quality Management, 3rd Edition, Pearson Education Asia, 2006.
2. Janakiraman B. and Gopal R.K.: Total Quality Management, Prentice Hall India, 2006.
3. Poornima M. Charantimath: Total Quality Management, 2nd Edition, Pearson Education Asia, 2006.
4. N. Logothetis: Managing for Total Quality, 6th Edition, Prentice Hall of India Pvt. Ltd. 2003.
5. Suganthi L. and Samuel A.: Total Quality Management, Prentice Hall India, 2006.
6. Evans J.R. and Lindsay W.M.: The Management and Control of Quality, 8th Edition, 1st Indian Edition, Cengage Learning, 2012.

Reference Books:

1. James R. Evans and William M. Lindsay, “The Management and Control of Quality”, 6th Edition, South-Western (Thomson Learning), 2005.
2. Oakland, J.S. “TQM – Text with Cases”, Butterworth – Heinemann Ltd., Oxford, 3rd Edition, 2003.