



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

TOTAL QUALITY MANAGEMENT								
II Semester: MBA								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
CMBE24	Elective	L	T	P	C	CIA	SEE	Total
		3	-	-	3	40	60	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 45			
Prerequisite: Basic concepts of management								
SDGs Mapped: SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption & Production)								

I. COURSE OVERVIEW:

This course is designed to introduce the principles and practices of Total Quality Management, a management philosophy focused on continuous improvement, customer satisfaction, and the pursuit of excellence in all aspects of an organization. Students will learn about the key principles, tools, and strategies for implementing TQM in various business settings.

II. COURSES OBJECTIVES:

The students will try to learn:

- I. The fundamental concepts of Total Quality Management, including quality evolution, philosophies, customer focus, and cost of quality.
- II. How to apply TQM principles such as leadership, employee involvement, continuous improvement techniques, and supplier partnership for organizational excellence.
- III. The use of Statistical Process Control tools and traditional quality control techniques to analyze and improve process performance.
- IV. The various quality tools, methodologies, and standards such as QFD, FMEA, Six Sigma, and ISO systems to implement effective quality management in manufacturing and service sectors.

III. COURSE OUTCOMES:

At the end of the course students should be able to:

- CO1 Apply TQM tools and techniques to improve processes and operations.
- CO2 Identify and address quality issues within an organization.
- CO3 Analyze customer needs and expectations to enhance satisfaction.
- CO4 Implement continuous improvement practices in various business contexts.
- CO5 Assess the role of leadership and employee involvement in TQM.
- CO6 Interpret case studies and real-world examples of successful TQM implementations.

IV. COURSE CONTENT:

MODULE - I: INTRODUCTION TO TOTAL QUALITY MANAGEMENT (08)

Evolution of Quality, Quality Definition, Need for Quality, Dimensions of Product and Service Quality, Basic Concepts of TQM, TQM Framework, Quality Philosophies, Contributions of Deming, Juran and Crosby, Feiganbaum, Ishikawa and Taguchi, Barriers to TQM, Quality Statements, Customer Focus, Customer Orientation, Customer satisfaction, Customer Complaints, Customer Retention, Costs of Quality.

MODULE - II: TQM PRINCIPLES (10)

Leadership, Strategic Quality Planning, Quality Councils, Employee Involvement, Motivation, Empowerment, Team and Teamwork, Quality Circles Recognition and Reward, Performance Appraisal, Continuous Process Improvement, PDCA Cycle, 5S, Kaizen, Supplier Partnership, Partnering, Supplier Selection, Supplier Rating.

MODULE - III: STATISTICAL PROCESS CONTROL (09)

Statistical Fundamentals such as Mean and Standard Deviation, Chance and Assignable Causes, Control Charts for Variables, Process Capability Analysis such as Cp and Cpk, Seven basic (Traditional) Quality Control Tools: 1) Check Sheets (Tally Sheet) 2) Stratification (Alternatively, Flowchart or Run-chart) (Trend Analysis) 3) Histograms 4) Pareto Chart (80-20 Rule) 5) Cause-and-Effect Diagrams (Fishbone or Ishikawa Diagram) 6) Scatter Diagrams 7) Control charts.

MODULE - IV: TOOLS AND TECHNIQUES (10)

Quality Functions Development (QFD), Benefits, Voice of Customer, Information Organization, House of Quality (HOQ), Building a HOQ, QFD Process, Taguchi Method and Quality Loss function, Failure Mode Effect Analysis (FMEA): Requirements of Reliability, Failure rate, Total Productive Maintenance (TPM), Seven New Management Tools for Process Improvement: Affinity diagram, Interrelationship Diagram, Tree Diagram, Matrix Diagram, Matrix Data Analysis, Arrow Diagram, Process Decision program Chart, Benchmarking and POKA YOKE, Six Sigma, Methodologies: DMAIC, DFSS, Six Sigma Belts, Quality Circles.

MODULE - V: QUALITY MANAGEMENT SYSTEMS (08)

Introduction, Benefits of ISO Registration, ISO 9000 Series of Standards, ISO 9001, Requirements, Implementation, Documentation, Writing the Documents, Quality Auditing, TQM Culture, Quality Auditing, QS 9000, ISO 14000, Concepts, Requirements and Benefits, TQM Implementation in Manufacturing and Service Sectors.

V. TEXTBOOKS:

1. Sunil Sharma, Total Quality Management, Sage Publications, 5e, 2024.
2. Bester field, et al., Total Quality Management, Pearson Education Asia, 6e, 2016.
3. Suganthi, L. and Samuel, A., Total Quality Management, Prentice Hall (India) Pvt. Ltd., 2016.
4. Janakiraman. B and Gopal.R.K., “Total Quality Management – Text and Cases”, Prentice Hall (India) Pvt. Ltd., 2014.

VI. REFERENCE BOOKS:

1. James R. Evans and William M. Lindsay, “The Management and Control of Quality”, 16th Edition, South-Western (Thomson Learning), 2025.
2. Oakland, J.S., TQM – Text with Cases, Butterworth – Heinemann Ltd., Oxford, 8th Edition, 2020.

VII. Web References:

1. <https://www.igi-global.com/chapter/the-changes-brought-by-total-quality-management-to-cognitive-learning/264577>

VIII. E-Text Books:

1. <https://www.igi-global.com/book/digital-technology-advancements-knowledge-management/257158>
2. https://books.google.co.in/books/about/Digital_Technology.html?id=My7Zr0aP2L8C&redir_esc=y