IV Year II Semester	L	T	P	C
17ME832	3	1	0	3

TOTAL QUALITY MANAGEMENT
(Professional Elective-IV)

Professional Elective-IV

Course objectives:
1. The aim of this course is to provide students with a basic understanding of the approaches and techniques to assess and improve process and/or product quality and reliability.
2. The objectives are to introduce the principles and techniques of Statistical Quality Control and their practical uses in product and/or process design and monitoring
3. To understand techniques of basic modern reliability engineering tools.

Unit I
Quality, Strategic Planning and Competitive Advantage: Brief history, definitions of quality. Quality in manufacturing and service systems. Quality and price, quality and market share, quality and cost, quality & competitive advantages. ISO 9000, 14000.

Unit II
Managing and Organization for Quality: Quality policy, quality objectives, leadership for quality, quality and organization culture, cross-functional teams, supplier/customers partnerships.

Unit III
Quality Control and Improvement Tools: Cheek sheet, histogram, paretochart, cause and effect diagram, scatter diagram, control chart, graph, affinity diagram, tree diagram, matrix diagram, process decision program chart, arrow diagram, acceptance sampling, process capability studies, zero defect program (POKA-YOKE)

Unit IV
Quality Circles: Concept and total quality through bench marking, Japanese 5-S, quality management systems QS 9000, ISO 14000.Statistical process control: Control chart - X bar R, P, np and C Charts, benefits of control charts and applications (10 %).

Unit V
Customer Focus: The customer - Driven quality cycle, quality function deployment. Customer satisfaction measurement techniques, customer relationship management techniques.

Unit VI
Reliability – Evaluation of design by tests - Hazard Models, Linear, Raleigh Weibull. Failure Data Analysis, reliability prediction based on Weibull distribution, Reliability improvement.

Text Book(s)

1. Quality Engineering in Production Systems / G Taguchi /McGraw Hill
2. Statistical Quality Control: A Modern Introduction/ Montgomery/Wiley

References

1. Jurans Quality planning & Analysis/ Frank.M.Gryna Jr. / McGraw Hill.
2. Taguchi Techniques for Quality Engineering/ Philipposs/ McGraw Hill,
3. Statistical Process Control/ Eugene Grant, Richard Leavenworth / McGraw Hill.
4. Optimization & Variation Reduction in Quality / W.A. Taylor / Tata McGraw Hill
5. Quality and Performance Excellence/ James R Evans/ Cengage learning