

GUJARAT TECHNOLOGICAL UNIVERSITY

MECHATRONICS (47) TOTAL QUALITY MANAGEMENT SUBJECT CODE: 2724705 M.E. 2ND SEMESTER

Type of course: Engineering Science

Prerequisite: NA

Rationale: This subject deals with fundamentals of Total Quality Management and its applications, which are useful for Mechatronics engineers.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks	
L	T	P		Theory Marks		Practical Marks					
			ESE (E)	PA (M)	ESE (V)		PA (I)				
					ESE	OEP	PA	RP			
3	0	2#	4	70	30	20	10	10	10	10	150

Content:

Sr. No	Contents	Teaching Hrs	Weightage (%)
1	Introduction : Introduction, definitions of quality, need for quality, evolution of quality, quality of design, quality of conformance, quality of performance	04	11
2	Quality Management: Quality management approaches, hierarchy of quality management (Inspection, quality control, quality assurance, Total Quality Management)	04	11
3	Cost of Quality: Introduction. Types of costs	02	06
4	Basic Concepts of TQM: Definition of TQM – TQM Framework - Contributions of Deming, Juran, Crosby and Ishikawa – Barriers to TQM	04	11
5	TQM Principles : Leadership , Customer satisfaction, Quality chain, Employee involvement, Continuous process improvement, Supplier relationship, performance measures, benchmarking	12	33
6	Quality Management Tools & Techniques: Pareto diagram, cause and effect diagram, Histogram, control charts, Quality circles	06	17
7	Quality Management Systems: Need for ISO 9000, ISO 9000 Quality System – Elements, Documentation, Quality auditing, Requirements and Benefits	04	11
	TOTAL	36	100

Reference Books:

1. Total Quality Management', Dale H. Besterfield, et al., Pearson Education Asia, Third Edition
2. Total Quality Management', Poornima M. Charantimath, Pearson Education Asia, Second Edition
3. Total Quality Management (Text and Cases)' Dr. Uday Kumar Haldar, Dhanpat Rai & Co. First Edition

Course Outcomes:

After learning the course the students should be able to

- Develop an understanding on quality management philosophies and frameworks
- Develop in-depth knowledge on various tools and techniques of quality management
- Learn the applications of quality tools and techniques in both manufacturing and service industry
- Develop analytical skills for investigating and analysing quality management issues in the industry and suggest implement able solutions to those.

List of Practicals

Practical classes may be arranged as per the requirements of the subject.

Design based/open ended problem

Student may be given a task to exhibit the knowledge of the course studied during the academic year.

Major Equipment:

Computers may be needed as per requirement.

Review Presentation (RP): The concerned faculty member shall provide the list of peer reviewed Journals and Tier-I and Tier-II Conferences relating to the subject (or relating to the area of thesis for seminar) to the students in the beginning of the semester. The same list will be uploaded on GTU website during the first two weeks of the start of the semester. Every student or a group of students shall critically study 2 papers, integrate the details and make presentation in the last two weeks of the semester. The GTU marks entry portal will allow entry of marks only after uploading of the best 3 presentations. A unique id number will be generated only after uploading the presentations. Thereafter the entry of marks will be allowed. The best 3 presentations of each college will be uploaded on GTU website.