

GUJARAT TECHNOLOGICAL UNIVERSITY

BRANCH NAME: PRODUCTION ENGINEERING
SUBJECT NAME: Quality Engineering & Management
SUBJECT CODE: 2172507
B.E. 7TH SEMESTER

Type of course: Under Graduate

Prerequisite: NIL

Rationale: The course aims to impart basic knowledge about various aspects of Quality Management.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
				ESE (E)	PA (M)		PA (V)		PA (I)	
				PA	ALA	ESE	OEP			
3	2	0	5	70	20	10	30	0	20	150

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	Introduction Quality Management Indian Companies Monopolize the Deming Awards in 2003, Quality Management- A conceptual frame work, Strategic Quality Management, Benchmarking.	4	8
2	Quality Standards and business excellence models Quality system Standards, Bureau of Indian Standards, Agmark Grading and standardization, Quality council of India, International Organization for Standardization, Conformance to Specifications, Quality Assurance, Quality Circles, Quality audits, ISO 14000, Customer Operations Performance Centre (COPC) 2000	4	8
3	Total Quality Management (TQM) W. Edwards Deming's Contribution to TQM, Juran's Contribution to TQM, Crosby's contribution to TQM, Ishikawa's contribution to TQM, Comparing the Quality Gurus, Total Productive Maintenance (TPM).	6	14
4	Service quality management and Cost of Quality Products and services, Classification of services, Service Quality, Measuring Service Quality, Prevention costs, Appraisal Costs, Internal and External failure costs, Cost of quality models, India's Quality Journey so far, Quality management in India, Quality related priorities of Indian companies, Case studies	8	21

5	Six sigma and Experimental design Meaning of Six sigma, The seven magnificent Quality tools, Introduction of experimental design, Taguchi Method in Experimental Design, Concept, Application of QFD, Case Study.	8	16
6	Statistical Quality Control Quality control-its introduction and benefits, Variation in processes: factors, process capability & Its analysis, control charts for variables and attributes, Establishing & interpreting control charts, Concept of Acceptance Sampling, sampling by attributes, single and double sampling plans, inspections by samples, AQL, LTPD, consumers and producer's risk, construction and use of operating characteristic curves, use of standard sampling tables and related IS, sampling by variables, Continuous sampling plan, vendor ratings.	10	25
7	Intellectual Properties System Definition of intellectual property, importance of IPR; TRIPS and its implications, patent, copyright, industrial design and trademark.	4	8
	Total	44	100%

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
3	21	21	7	14	4

Legends: R: Remembrance; U = Understanding; A = Application and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table

Reference Books:

1. Quality Management by Kanishka Bedi
2. Intellectual Property Rights, Prbuddha Ganguli, TMH
3. Probability and Reliability with Statistics, Trivedi, PHI
4. Statistical Quality Control By M. Mahajan
5. TQM in Service Sector, R.P.Mohanty and R.R.Lakhe
6. Total Quality Management, Arora ,Kataria
7. Total Quality Management, Subburaj, TMH

Course Outcome:

After learning the course the students should be able to:

1. Understand QM.
2. Evaluate Q.S. & B.E.models..
3. Understand TQM & Its various Tools.
4. Implement SQC.
5. Understand basics of IPR.

List of Experiments:

Assign Tutorials based on Syllabus

Design based Problems (DP)/Open Ended Problem:

NA

Major Equipment:

NIL

List of Open Source Software/learning website:

<http://nptel.ac.in/>

ACTIVE LEARNING ASSIGNMENTS: Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.