

Academic Course Description

BHARATH UNIVERSITY Faculty of Engineering and Technology Department of Electronics and Communication Engineering BBA008- TOTAL QUALITY MANAGEMENT Fifth Semester, 2017-18 (odd Semester)

Course (catalog) description

To introduce to the student about the basic terms related to quality and concepts of quality management to familiarize the student about the basic principles of total quality management to acquaint the student with the basic statistical tools used in process control to introduce to the student about the various tools used in implementing and checking total quality management

Compulsory/Elective course : Elective for ECE students

Credit & contact hours : 3 & 45

Course Coordinator : Mr.Ramamoorthy, Asst. Professor

Instructor(s) :

Name of the instructor	Class handling	Office location	Office phone	Email (domain: @bharathuniv.ac.in)	Consultation
Mr RamaMoorthy	Third year	SA006			9.00-9.50 AM
Mr.R.Mohanraj	Third year	SA006		mohanraj.ece@bharathuniv.ac.in	12.45-1.15 PM

Relationship to other courses

Pre-requisites : Professional courses

Assumed knowledge : By understanding about various quality terms, it will be helpful for the student to maintain quality in his/her organization

Following courses : Nil

Syllabus Contents

UNIT 1 INTRODUCTION

9 HOURS

Definition of Quality, Dimensions of Quality, Quality Planning, Quality costs – Analysis Techniques for Quality Costs, Basic concepts of Total Quality Management, Historical Review, Principles of TQM, Leadership – Concepts, Role of Senior Management, Quality Council, Quality Statements, Strategic Planning, Deming Philosophy, Barriers to TQM Implementation

UNIT 2 TQM PRINCIPLES

9 HOURS

Customer satisfaction – Customer Perception of Quality, Customer Complaints, Service Quality, Customer Retention, Employee Involvement – Motivation, Empowerment, Teams, Recognition and Reward, Performance Appraisal, Benefits, Continuous Process Improvement – Juran Trilogy, PDSA Cycle, 5S, Kaizen, Supplier Partnership –Partnering, sourcing, Supplier Selection, Supplier Rating, Relationship Development, Performance Measures – Basic Concepts, Strategy, Performance Measure.

UNIT 3 STATISTICAL PROCESS CONTROL (SPC)

9 HOURS

The seven tools of quality, Statistical Fundamentals – Measures of central Tendency and Dispersion, Population and Sample, Normal Curve, Control Charts for variables and attributes, Process capability, Concept of six sigma, New seven Management tools.

UNIT 4 TQM TOOLS

9 HOURS

Benchmarking – Reasons to Benchmark, Benchmarking Process, Quality Function Deployment (QFD) – House of Quality, QFD Process, Benefits, Taguchi Quality Loss Function, Total Productive Maintenance (TPM) – Concept, Improvement Needs, and FMEA –Stages of FMEA.

UNIT 5 QUALITY SYSTEMS

9 HOURS

Need for ISO 9000 and Other Quality Systems, ISO 9000:2000 Quality System –Elements, Implementation of Quality System, Documentation, Quality Auditing, TS16949, ISO 14000 – Concept, Requirements and Benefits

TOTAL 45 HOURS

Text book(s) and/or required materials

TEXT BOOKS

Dale H.Besterfield, et al., “Total Quality Management”, Pearson Education, Inc.2003. (Indian reprint 2004). ISBN 81-297-0260-6.

REFERENCES

- R1. Evans. J. R. & Lindsay. W,M “The Management and Control of Quality”, (5th Edition),South-Western (Thomson Learning), 2002 (ISBN 0-324-06680-5).
- R2. Feigenbaum.A.V. “Total Quality Management”, McGraw-Hill, 1991.
- R3. Oakland.J.S. “Total Quality Management”, Butterworth Heinemann Ltd., Oxford, 1989.
- R4. Narayana V. and Sreenivasan, N.S. “Quality Management – Concepts and Tasks”, New Age International 1996.
- R5. Zeiri. “Total Quality Management for Engineers”, Wood Head Publishers, 1991.

Computer usage: Nil

Professional component

General	-	0%
Basic Sciences	-	0%
Engineering sciences & Technical arts	-	0%
Professional subject	-	100%

Broad area : | Quality Engineering

Test Schedule

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	August 1 st week	Session 1 to 14	2 Periods
2	Cycle Test-2	September 2 nd week	Session 15 to 28	2 Periods
3	Model Test	October 2 nd week	Session 1 to 45	3 Hrs
4	University Examination	TBA	All sessions / Units	3 Hrs.

Mapping of Instructional Objectives with Program Outcome

To introduce to the student about the basic terms related to quality and concepts of quality management to familiarize the student about the basic principles of total quality management to acquaint the student with the basic statistical tools used in process control to introduce to the student about the various tools used in implementing and checking total quality management	Correlates to program outcome		
	H	M	L
1. By understanding about various quality terms, it will be helpful for the student to maintain quality in his/her organization	a	f,l,j	g
2. The student will be able to formulate new plans/procedures to be implemented to achieve the desired quality status by knowing about the various principles of quality management	c	a,e,d	i
3. The student will be able to analyze the periodical data in quality control using statistical tools	d	a	h
4. The total quality management tools will help the student to understand the procedures in measuring the quality of the organization/process and will also enable him/her to identify the parameters that are improving/depriving the quality	e,j	a,e,g	i
5. By knowing about the quality ISO systems, the student will be maintain processes/documentation properly so that the quality maintained by his/her organization gets recognized.	a	i	b
6. To familiarize the student about the different quality systems used in auditing the quality of a company/industry/organization	f		

H: high correlation, M: medium correlation, L: low correlation

Draft Lecture Schedule

Session	Topics	Text / Chapter
UNIT 1 INTRODUCTION		
1.	Definition of Quality, Dimensions of Quality	No
2.	Quality Planning, Quality costs	No
3.	Analysis Techniques for Quality Costs	No
4.	Basic concepts of Total Quality Management	No
5.	Historical Review, Principles of TQM	No [T2] chapter 5, [R1] chapter -3
6.	Leadership – Concepts	No
7.	Role of Senior Management, Quality Council, Quality Statements	No
8.	Strategic Planning, Deming Philosophy	No
9.	Barriers to TQM Implementation	No
UNIT 2 TQM PRINCIPLES		
10.	Customer satisfaction – Customer Perception of Quality	No
11.	Customer Complaints, Service Quality	No
12.	Customer Retention, Employee Involvement	No
13.	Motivation, Empowerment, Teams, Recognition and Reward	No
14.	Performance Appraisal, Benefits, Continuous Process Improvement	No [T2] chapter – 6
15.	Juran Trilogy, PDSA Cycle, 5S	No
16.	Kaizen, Supplier Partnership –Partnering, sourcing	No
17.	Supplier Selection, Supplier Rating, Relationship Development	No
18.	Performance Measures – Basic Concepts, Strategy, Performance Measure.	No
UNIT 3 STATISTICAL PROCESS CONTROL (SPC)		
19.	The seven tools of quality	No

20.	Statistical Fundamentals	No	[T2] chapter – 6, [R1] chapter - 8
21.	Measures of central Tendency and Dispersion	No	
22.	Population and Sample	No	
23.	Normal Curve	No	
24.	Control Charts for variables and attributes	No	
25.	Process capability,	No	
26.	Concept of six sigma	No	
27.	New seven Management tools.	No	
UNIT 4 TQM TOOLS			
28.	Benchmarking – Reasons to Benchmark	No	[T2] chapter– 4, [R1] chapter– 2
29.	Benchmarking Process	No	
30.	Quality Function Deployment (QFD)	No	
31.	House of Quality	No	
32.	QFD Process	No	
33.	Benefits, Taguchi Quality Loss Function	No	
34.	Total Productive Maintenance (TPM)	No	
35.	Concept, Improvement Needs	No	
36.	FMEA –Stages of FMEA	No	
UNIT 5 QUALITY SYSTEMS			
37.	Need for ISO 9000	No	[T2] chapter– 5,6 [R1] chapter– 7
38.	Other Quality Systems	No	
39.	ISO 9000:2000 Quality System	No	
40.	Quality System –Elements	No	
41.	Implementation of Quality System	No	
42.	Documentation	No	
43.	Quality Auditing	No	
44.	TS16949, ISO 14000 – Concept	No	
45.	Requirements and Benefits	No	

Teaching Strategies

The teaching in this course aims at establishing a good fundamental understanding of the areas covered using:

- Formal face-to-face lectures
- Tutorials, which allow for exercises in problem solving and allow time for students to resolve problems in understanding of lecture material.
- Small periodic quizzes, to enable you to assess your understanding of the concepts.

Evaluation Strategies

Cycle Test – I	-	5%
Cycle Test – II	-	5%
Model Test	-	10%
Assignment /Seminar /Online test/Quiz	-	5%
Attendance	-	5%
Final exam	-	70%

Prepared by: Mr RamaMoorthy, Assistant Professor.

Dated :

Addendum

ABET Outcomes expected of graduates of B.Tech / ECE / program by the time that they graduate:

- a. An ability to apply knowledge of mathematics, science, and engineering
- b. An ability to design and conduct experiments, as well as to analyze and interpret data
- c. An ability to design a hardware and software system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- d. An ability to function on multidisciplinary teams
- e. An ability to identify, formulate, and solve engineering problems
- f. An understanding of professional and ethical responsibility
- g. An ability to communicate effectively
- h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- i. A recognition of the need for, and an ability to engage in life-long learning
- j. A knowledge of contemporary issues
- k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program Educational Objectives

PEO1: PREPARATION

Electronics Engineering graduates are provided with a strong foundation to passionately apply the fundamental principles of mathematics, science, and engineering knowledge to solve technical problems and also to combine fundamental knowledge of engineering principles with modern techniques to solve realistic, unstructured problems that arise in the field of Engineering and non-engineering efficiently and cost effectively.

PEO2: CORE COMPETENCE

Electronics engineering graduates have proficiency to enhance the skills and experience to apply their engineering knowledge, critical thinking and problem solving abilities in professional engineering practice for a wide variety of technical applications, including the design and usage of modern tools for improvement in the field of Electronics and Communication Engineering.

PEO3: PROFESSIONALISM

Electronics Engineering Graduates will be expected to pursue life-long learning by successfully participating in post graduate or any other professional program for continuous improvement which is a requisite for a successful engineer to become a leader in the work force or educational sector.

PEO4: SKILL

Electronics Engineering Graduates will become skilled in soft skills such as proficiency in many languages, technical communication, verbal, logical, analytical, comprehension, team building, interpersonal relationship, group discussion and leadership ability to become a better professional.

PEO5: ETHICS

Electronics Engineering Graduates are morally boosted to make decisions that are ethical, safe and environmentally-responsible and also to innovate continuously for societal improvement.

Course Teacher	Signature
MR.RAMAMOORTHY	
Mr.MOHANRAJ	

Course Coordinator

HOD/ECE