

Academic Course Description
BHARATH UNIVERSITY
Faculty of Engineering and Technology
Department of Mechanical Engineering
BBA008 – TOTAL QUALITY MANAGEMENT
Eight semester 2015 -2016 (even semester)

Course (catalog) description

To understand the concept of basic engineering mechanism

Compulsory/Elective course : Non Major Elective - II

Credit & contact hours : 3&45

Course Coordinator : Dr.Praveen

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@ bharathuniv.ac.in)	Consultation
Dr.R.Raja	VII –A & VII - B	JR112,JR 201	044-22290125	rraja.mech@bharathuniv.a.in	9.00 to 9.50 am & 10.40
Mr.S.Nakkeeran	VII -C	JR 202	044-22290125	nakkeeran.mech@bharathuniv.ac.in	10.50 to 11.40
Mr.S.Jeeva Bharathi	VII - D	JR 203	044-22290125	jeevabharathi.mech@bharathuniv.ac.in	

Relationship to other courses:

Pre –requisites : Professional Courses

Assumed knowledge : By understand the basic principles of total quality management

Following courses : Total Quality Management

Syllabus Contents**UNIT I INTRODUCTION**

9

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 II TQM PRINCIPLES

9

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 III STATISTICAL PROCESS CONTROL (SPC)

9

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 IV TQM TOOLS

9

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, FMEA – Stages of FMEA.

UNIT V QUALITY SYSTEMS

9

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

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

Total :

Computer usage:

Professional component

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

Broad area : Engineering

Test Schedule

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

Mapping of Instructional Objectives with Program Outcome

Familiarize the students with the fundamental concepts of basic terms related to quality and concepts of 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	e,h	c,g,i,l	j,k
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	e,h	c,g,i,l	j,k
3. The student will be able to analyze the periodical data in quality control using statistical tools	e,h	c,g,i,l	j,k
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	c,e,h	g,i,l	j,k
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	c,e,h	g,i,l	j,k
6. As a whole the students will understand the importance of quality in all the fields of engineering and the social circle.	c,e,h	g,i,l	j,k

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

Draft Lecture Schedule

S.NO	Topics	Problem solving (Yes/No)	Text / Chapter
UNIT I INTRODUCTION			
1.	Definition of Quality,	No	[T1] chapter - 2, [R3] chapter -1
2.	Dimensions of Quality,	No	
3.	Quality Planning, Quality costs	No	
4.	Analysis Techniques for Quality Costs	No	
5.	Basic concepts of Total Quality Management	No	
6.	Historical Review,	No	
7.	Principles of TQM	No	
8.	Leadership – Concepts	No	
9.	Role of Senior Management, Quality Council	No	
10.	Quality Statements	No	
11.	Strategic Planning	No	
12.	Deming Philosophy, Barriers to TQM Implementation	No	
UNIT II TQM PRINCIPLES			
13.	Customer satisfaction	No	[T1] chapter - 6, [T3] chapter - 4
14.	Customer Perception of Quality	No	
15.	Customer Complaints	No	
16.	Service Quality	No	
17.	Customer Retention	No	
18.	Employee Involvement – Motivation	No	
19.	Empowerment, Teams	No	
20.	Recognition and Reward	No	
21.	Performance Appraisal, Benefits Continuous Process Improvement	No	
22.	Juran Trilogy, PDSA Cycle, 5S,	No	
23.	Kaizen, Supplier Partnership –Partnering	No	
24.	sourcing, Supplier Selection, Supplier Rating, Relationship Development,	No	
UNIT III STATISTICAL PROCESS CONTROL (SPC)			
25.	The seven tools of quality	No	[T1] chapter - 10, [R2] chapter - 6
26.	Statistical Fundamentals – Measures of central	No	
27.	Tendency and Dispersion	No	
28.	Population and Sample,	No	
29.	Normal Curve,	No	
30.	Control Charts for variables and attributes,	No	
31.	Process capability,	No	
32.	Concept of six sigma,	No	

33.	New seven Management tools.	No	
UNIT IV TQM TOOLS			
34.	Benchmarking	No	[T1] chapter - 12, [R2] chapter - 9
35.	Reasons to Benchmark	No	
36.	Benchmarking Process,	No	
37.	Quality FunctionDeployment (QFD)	No	
38.	House of Quality,	No	
39.	QFD Process	No	
40.	Benefits, Taguchi Quality LossFunction,	No	
41.	Total Productive Maintenance (TPM) – Concept,	No	
42.	Improvement Needs,	No	
43.	FMEA –Stages of FMEA.	No	
UNIT V QUALITY SYSTEMS			
44.	Need for ISO 9000 and Other Quality Systems	No	[T1] chapter - 12, [R2] chapter - 9
45.	ISO 9000:2000 Quality System –Elements,	No	
46.	ISO 9000:2000 Quality System –Elements	No	
47.	Implementation of Quality System	No	
48.	Implementation of Quality System	No	
49.	Documentation	No	
50.	Quality Auditing,	No	
51.	TS16949, ISO 14000 – Concept,	No	
52.	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.
- Laboratory sessions, which support the formal lecture material and also provide the student with practical construction, measurement and debugging skills.
- 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.S.Jeeva Bharathi

Addendum

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

- a) The ability to apply knowledge of mathematics, science, and engineering fundamentals.
- b) The ability to identify, formulate and solve engineering problems.
- c) The ability to design a system, component, or process to meet the desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- d) The ability to design and conduct experiments, as well as to analyze and interpret data
- e) The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- f) The ability to apply reasoning informed by the knowledge of contemporary issues.
- g) The ability to broaden the education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- h) The ability to understand professional and ethical responsibility and apply them in engineering practices.
- i) The ability to function on multidisciplinary teams.
- j) The ability to communicate effectively with the engineering community and with society at large.
- k) The ability in understanding of the engineering and management principles and apply them in project and finance management as a leader and a member in a team.
- l) The ability to recognize the need for, and an ability to engage in life-long learning.

Program Educational Objectives

PEO1: PREPARATION:

Mechanical Engineering graduates are enthusiastic to provide strong foundation in mathematical, scientific and engineering fundamentals necessary to analyze, formulate and solve engineering problems in the field of Mechanical Engineering.

PEO2: CORE COMPETENCE:

Mechanical Engineering graduates have competence to enhance the skills and experience in defining problems in the field of Mechanical Engineering and Technology design and implement, analyzing the experimental evaluations, and finally making appropriate decisions.

PEO3: PROFESSIONALISM:

Mechanical Engineering graduates made competence to enhance their skills and embrace new thrust areas through self-directed professional development and post-graduate training or education.

PEO4: PROFICIENCY:

Mechanical Engineering graduates became skilled to afford training for developing soft skills such as proficiency in many languages, technical communication, verbal, logical, analytical, comprehension, team building, inter personal relationship, group discussion and leadership skill to become a better professional.

PEO5: ETHICS:

Mechanical Engineering graduates are morally merged to apply the ethical and social aspects of modern Engineering and Technology innovations to the design, development, and usage of new products, machines, gadgets, devices, etc.

BBA008 – TOTAL QUALITY MANAGEMENT

Course Teacher	Signature
Dr.R.Raja	
Mr.S.Nakkeeran	
Mr.S.Jeeva Bharathi	

Course Coordinator
Dr.Praveen

HOD/MECH