

Academic Course Description

<p>BHARATH UNIVERSITY Faculty of Engineering and Technology Department of Civil Engineering</p> <p>BMA008 TOTAL QUALITY MANAGEMENT Seventh Semester, 2017-18 (Odd Semester)</p>
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Course (catalogue) description

The purpose of this course is to learn the basic terms related to quality and concepts of quality management

Compulsory/Elective course : Elective course for civil students

Credit/ Contact hours : 3 credits / 45 hours

Course Coordinator : Dr.N.Janaki Manohar, Professor

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@bharathuniv.ac.in)	Consultation
Dr.N.Janaki Manohar	Final year Civil	Civil Block			9.00 - 9.50 AM

Relationship to other courses:

Pre –requisites : Professional Courses

Assumed knowledge : Basic knowledge in Management concepts

Following courses : Nil

Syllabus Contents

UNIT I CONSTRUCTION PLANNING 9

Basic Concepts in the Development of Construction Plans - Choice of Technology and Construction Method - Defining Work Tasks - Defining Precedence Relationships among Activities - Estimating Activity Durations - Estimating Resource Requirements for Work Activities - Coding Systems

UNIT II SCHEDULING PROCEDURES AND TECHNIQUES 9

Construction Schedules - Critical Path Method – Scheduling Calculations - Float - Presenting Project Schedules - Scheduling for Activity-on-Arrow and with Leads, Lags, and Windows - Scheduling with Resource Constraints and Precedences - Use of Advanced Scheduling Techniques - Scheduling with Uncertain Durations - Calculations for Monte Carlo Schedule Simulation - Crashing and Time/Cost Tradeoffs - Improving the Scheduling Process.

UNIT III COST CONTROL, MONITORING AND ACCOUNTING 9

The Cost Control Problem - The Project Budget - Forecasting for Activity Cost Control - Financial Accounting Systems and Cost Accounts - Control of Project Cash Flows - Schedule Control - Schedule and Budget Updates - Relating Cost and Schedule Information.

UNIT IV QUALITY CONTROL DURING CONSTRUCTION

9

Quality Concerns in Construction - Organizing for Quality - Work and Material specifications - Total Quality Control - Quality Control by Statistical Methods - Statistical Quality Control with Sampling by Attributes - Statistical Quality Control with Sampling by Variables

UNIT V ORGANIZATION AND USE OF PROJECT INFORMATION

9

Types of Project Information - Accuracy and Use of Information - Computerized Organization and Use of Information - Organizing Information in Databases - Relational Model of Databases - Other Conceptual Models of Databases - Centralized Database Management Systems - Databases and Applications Programs - Information Transfer and Flow.

TEXT BOOKS:

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

REFERENCES:

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

Professional component

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

Broad area: Planning | Estimating | Scheduling |

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

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

This Course is to introduce the applications to formulate new plans/procedures to be implemented to achieve the desired quality status by knowing about the various principles 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, i	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, i	J,k
3. The student will be able to analyze the periodical data in quality control using statistical tools	e,h	C, i	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	g, i	c, e, h	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	g, i	c, e, h	J, k

Draft Lecture Schedule

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

26.	Process capability	No	
27.	Concept of six sigma, New seven Management tools		
UNIT IV TQM TOOLS			
28.	Benchmarking	No	[T1, R2]
29.	Reasons to Benchmark	No	
30.	Benchmarking Process	No	
31.	Quality Function Deployment (QFD)	No	
32.	House of Quality, QFD Process	No	
33.	Benefits, Taguchi Quality Loss Function	YES	
34.	Total Productive Maintenance (TPM)	YES	
35.	Concept, Improvement Needs		
36.	FMEA –Stages of FMEA.		
UNIT V QUALITY SYSTEMS			
37.	Need for ISO 9000 and Other Quality Systems	No	[T1, R2]
38.	ISO 9000:2000 Quality System	No	
39.	ISO 9000:2000 Quality System	No	
40.	Elements, Implementation of Quality System	No	
41.	Elements, Implementation of Quality System	No	
42.	Documentation	No	
43.	Documentation	No	
44.	Quality Auditing	No	
45.	TS16949, ISO 14000 – Concept, 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	-	5%
Assignment	-	5%
Attendance	-	10%
Final exam	-	70%

Prepared by : Dr.N.Janaki Manohar Assistant Professor, Department of Civil

Dated:

Addendum**ABET Outcomes expected of graduates of B.Tech / Civil / 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**

Civil Engineering graduates will have knowledge to apply the fundamental principles for a successful profession and/or for higher education in Civil Engineering based on mathematical, scientific and engineering principles, to solve realistic and field problems that arise in engineering and non engineering sectors

PEO2: CORE COMPETENCE

Civil Engineering graduates will adapt to the modern engineering tools and construction methods for planning, design, execution and maintenance of works with sustainable development in their profession.

PEO3: PROFESSIONALISM

Civil Engineering Graduates will exhibit professionalism, ethical attitude, communication and managerial skills, successful team work in various private and government organizations both at the national and international level in their profession and adapt to current trends with lifelong learning.

PEO4: SKILL

Civil Engineering graduates will be trained 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

Civil Engineering graduates will be installed with ethical feeling, encouraged to make decisions that are safe and environmentally-responsible and also innovative for societal improvement.

Course Teacher	Signature
Dr.N.Janaki Manohar	

Course Coordinator

HOD/CIVIL