Academic Course Description

BHARATH UNIVERSITY
Faculty of Engineering and Technology
Department of Civil Engineering

BCE080 - CONSTRUCTION PERSONNEL MANAGEMENT

Eighth Semester, 2016-17 (Even Semester)

Course (catalog) description
To create a complete understanding on quality planning, quality assurance, quality control and safety management

Compulsory/Elective course : Elective course for Civil students

Credit / Contact hours : 3 credits / 45 hours

Course Coordinator : Mr.Vinothkumar

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@ bharathuniv.ac.in	Consultation
Mr.Vinothkumar	Fourth year Civil	Civil Block		vinothsenna@gmail.com	9.00 - 9.50 AM

Relationship to other courses:

Pre –requisites **:** Personality Development

Assumed knowledge : Quality planning, quality assurance, quality control

Following courses : NIL

Syllabus Contents

UNIT I QUALITY MANAGEMENT 9

Introduction – Definitions and objectives – Factor influencing construction quality - Responsibilities and authority - Quality plan - Quality Management Guidelines – Quality circles.

UNIT II QUALITY SYSTEMS 9

Introduction - Quality system standard – ISO 9000 family of standards – Requirements – Preparing Quality System Documents – Quality related training – Implementing a Quality system – Third party Certification.

UNIT III QUALITY PLANNING 9

Quality Policy, Objectives and methods in Construction industry - Consumers satisfaction, Ergonomics - Time of Completion - Statistical tolerance – Taguchi's concept of quality – Codes and Standards – Documents – Contract and construction programming – Inspection procedures - Processes and products – Total QA / QC programme and cost implication.

UNIT IV QUALITY ASSURANCE AND CONTROL 9

Objectives - Regularity agent, owner, design, contract and construction oriented objectives, methods - Techniques and needs of QA/QC - Different aspects of quality - Appraisals, Factors influencing construction quality - Critical, major failure aspects and failure mode analysis, -Stability methods and tools, optimum design - Reliability testing, reliability coefficient and reliability prediction.

UNIT V QUALITY IMPROVEMENT TECHNIQUES 9

Selection of new materials -Influence of drawings, detailing, specification, standardization –Bid preparation -Construction activity, environmental safety, social and environmental factors -Natural causes and speed of construction -Life cycle costing - Value engineering and value analysis.

REFERENCES:

1. James, J.O' Brian, Construction Inspection Handbook – Quality Assurance and Quality Control, Van Nostrand, New York, 1989.
2. Kwaku, A., Tena, Jose, M. Guevara, Fundamentals of Construction Management and Organisation, Reston Publishing Co., Inc., Virginia, 1985.
3. Juran Frank, J.M. and Gryna, F.M. Quality Planning and Analysis, Tata McGraw Hill, 1993 Hutchins.G, ISO 9000, Viva Books, New Delhi, 2000
4. Clarkson H. Oglesby, Productivity Improvement in Construction, McGraw-Hill, 1989.
5. John L. Ashford, the Management of Quality in Construction, E & F.N.Spon, New York, 1989.
6. Steven McCabe, Quality Improvement Techniques in Construction, Addison Wesley Longman Ltd, England. 1998.

Computer usage: Nil

Professional component

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

Broad area: Quality planning, quality assurance, quality control and safety management

Test Schedule

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	February 1st week	Session 1 to 14	2 Periods
2	Cycle Test-2	March r 2nd week	Session 15 to 28	2 Periods
3	Model Test	April 2nd 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

To create a complete understanding on quality planning, quality assurance, quality control and safety management	Correlates to program outcome		
	H	**M**	**L**
1. Know the Quality plan and Quality Management Guidelines	a,e,	b,d	
2. Understand the Quality system and standard Documents and Quality related training	b	e	
3. Know the quality planning, Contract and construction programming, Inspection procedures, Processes and products	a,e		
4. Know the quality assurance, appraisals and quality control by reliability testing	a	d	
5. Understand how the quality techniques can be improved.		e	

Draft Lecture Schedule

Session	Topics	Problem solving (Yes/No)	Text / Chapter
UNIT I	**QUALITY MANAGEMENT**		
1.	Introduction	No	[R2]
2.	Definitions and objective	No	
3.	Factor influencing construction quality	No	
4.	Responsibilities and authority	No	
5.	Quality plan	No	
6.	Quality Management Guidelines	No	
7.	Quality Management Guidelines	No	
8.	Quality circles	No	
9.	Quality circles	No	
UNIT II	**QUALITY SYSTEMS**		
10.	Introduction	No	[R3]
11.	Quality system standard	No	
12.	ISO 9000 family of standards	No	
13.	Requirements	No	
14.	Preparing Quality System Documents	No	
15.	Quality related training	No	
16.	Implementing a Quality system	No	
17.	Third party Certification.	No	
18.	Third party Certification.	No	
UNIT III	**QUALITY PLANNING**		
19.	Quality Policy, Objectives and methods in Construction industry	No	[R3]
20.	Consumers satisfaction, Ergonomics	No	
21.	Total QA / QC programme and cost implication.	No	
22.	Time of Completion	No	
23.	Statistical tolerance	No	
24.	Taguchi's concept of quality	No	
25.	Codes and Standards	No	
26.	Documents – Contract and construction programming	No	
27.	Inspection procedures - Processes and products	No	
UNIT IV	**QUALITY ASSURANCE AND CONTROL**		
28.	Objectives	No	[R3]
29.	Regularity agent, owner	No	
30.	Design, contract and construction oriented objectives	No	
31.	methods - Techniques and needs of QA/QC	No	
32.	Different aspects of quality	No	
33.	Appraisals, Factors influencing construction quality	No	
34.	Critical, major failure aspects and failure mode analysis	No	
35.	Stability methods and tools, optimum design	No	
36.	Reliability testing, reliability coefficient and reliability predictio	No	
UNIT V	**QUALITY IMPROVEMENT TECHNIQUES**		

37.	Selection of new materials	No	[R2]
38.	Influence of drawings, detailing, specification	No	
39.	standardization	No	
40.	Bid preparation	No	
41.	-Construction activity, environmental safety	No	
42.	Social and environmental factors	No	
43.	Natural causes and speed of construction	No	
44.	Life cycle costing	No	
45.	Value engineering and value analysis.	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%
Attendance	-	5%
Assignment	-	10%
Final exam	-	70%

Prepared by: Mr.Vinothkumar, Assistant Professor , Department of Civil Engineering **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
Mr.Vinothkumar	

Course Coordinator **HOD/CIVIL**