

Academic Course Description

<p style="margin: 0;">BHARATH UNIVERSITY</p> <p style="margin: 0;">Faculty of Engineering and Technology</p> <p style="margin: 0;">Department of Civil Engineering</p> <p style="margin: 0;">BCE072 Construction Project Management</p> <p style="margin: 0;">Sixth Semester, 2016 -17 (Even Semester)</p>
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Course (catalog) description

To study the elements of construction project management; consisting of owners' perspective, organization, design and construction procedures, resource utilization and cost estimation.

Compulsory/Elective course : Elective for Civil students

Credit / Contact hours : 3 credits / 45 hours

Course Coordinator : Mr.S.Vinothkumar, Assistant Professor

Instructors :

Name of the instructor	Class handling	Office location	Office phone	Email (domain:@bharathuniv.ac.in)	Consultation
Mr.S.Vinothkumar	Third Year Civil	Civil Block			9.00 - 9.50 AM
Mr.K.Venkatraman	Third Year Civil	Civil Block			12.45 - 1.15 PM

Relationship to other courses:

Pre –requisites : Building Construction Technology

Assumed knowledge : Basic knowledge in Building construction

Following courses : BCE701 Estimation and Costing , BECE053 Construction Planning ,scheduling and control

Syllabus Contents

UNIT I THE OWNERS' PERSPECTIVE

9 Hours

Introduction - Project Life Cycle - Types of Construction - Selection of Professional Services - Construction Contractors - Financing of Constructed Facilities - Legal and Regulatory Requirements - Changing Environment of the Construction Industry - Role of Project Managers

UNIT II ORGANIZING FOR PROJECT MANAGEMENT

9 Hours

Project Management – modern trends - Strategic Planning - Effects of Project Risks on Organization - Organization of Project Participants -Traditional Designer- Constructor Sequence - Professional Construction Management - Owner-Builder Operation - Turnkey Operation - Leadership and Motivation for the Project Team

UNIT III DESIGN AND CONSTRUCTION PROCESS

9 Hours

Design and Construction as an Integrated System - Innovation and Techno logical Feasibility - Innovation and Economic Feasibility - Design Methodology - Functional Design - Construction Site Environment

UNIT IV LABOUR, MATERIAL AND EQUIPMENT UTILIZATION**9 Hours**

Historical Perspective - Labour Productivity - Factors Affecting Job-Site Productivity - Labour Relations in Construction - Problems in Collective Bargaining - Materials Management - Material Procurement and Delivery - Inventory Control - Tradeoffs of Costs in Materials Management. - Construction Equipment - Choice of Equipment and Standard Production Rates - Construction Processes Queues and Resource Bottlenecks

UNIT V COST ESTIMATION**9 Hours**

Costs Associated with Constructed Facilities - Approaches to Cost Estimation - Type of Construction Cost Estimates - Effects of Scale on Construction Cost - Unit Cost Method of Estimation - Methods for Allocation of Joint Costs - Historical Cost Data - Cost Indices - Applications of Cost Indices to Estimating - Estimate Based on Engineer's List of Quantities - Estimation of Operating Costs

REFERENCES:

1. Chris Hendrickson and Tung Au, Project Management for Construction – Fundamental Concepts for Owners, Engineers, Architects and Builders, Prentice Hall, Pittsburgh, 2000.
2. Chitkara, K.K. Construction Project Management: Planning, Scheduling and Control, Tata McGraw-Hill Publishing Company, New Delhi, 1998.
3. Frederick E. Gould, Construction Project Management, Wentworth Institute of Technology, Vary E. Joyce, Massachusetts Institute of Technology, 2000.
4. Choudhury, S, Project Management, Tata McGraw-Hill Publishing Company, New Delhi, 1988.
5. George J.Ritz , Total Construction Project Management - McGraw-Hill Inc, 1994.

Computer usage: Nil**Professional component**

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

Broad area : Building Estimation**Test Schedule**

S. No.	Test	Tentative Date	Portions	Duration
1	Cycle Test-1	February 1 st 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 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 study the elements of construction project management; consisting of owners' perspective, organization, design and construction procedures, resource utilization and cost estimation.	Correlates to program outcome		
	H	M	L
1. Know the types and financing of construction and changing Environment of the industry.		a,f,h	e
2. Understand the organisation of project management		a,f,h	
3. Know the design and construction process as an integrated system.		a,f,h	j
4. Know the labour, material and equipment utilization		a,f,h	
5. Understand Cost Estimates and the Costs Associated with Construction Facilities.		a,f,h	

Draft Lecture Schedule

Session	Topics	Problem solving (Yes/No)	Text / Chapter
UNIT I THE OWNERS' PERSPECTIVE			
1	Introduction - Project Life Cycle	No	R1
2	Types of Construction	No	
3	Selection of Professional Services	No	
4	Construction Contractors	No	
5	Financing of Constructed Facilities	No	
6	Legal and Regulatory Requirements	No	
7	Changing Environment of the Construction Industry	No	
8	Changing Environment of the Construction Industry	No	
9	Role of Project Managers	No	
UNIT II ORGANIZING FOR PROJECT MANAGEMENT			
10	Project Management	No	R1
11	modern trends - Strategic Planning	No	
12	Effects of Project Risks on Organization	No	
13	Organization of Project Participants	No	
14	Traditional Designer	No	
15	Constructor Sequence	No	
16	Professional Construction Management	No	
17	- Owner-Builder Operation - Turnkey Operation	No	
18	Leadership and Motivation for the Project Team	No	
UNIT III DESIGN AND CONSTRUCTION PROCESS			
19	Design and Construction as an Integrated System	No	R1
20	Design and Construction as an Integrated System	No	
21	Innovation and Techno logical Feasibility	No	
22	Innovation and Techno logical Feasibility	No	
23	Innovation and Economic Feasibility	No	
24	Design Methodology	No	
25	Design Methodology	No	
26	Functional Design	No	
27	Construction Site Environment	No	
UNIT IV LABOUR, MATERIAL AND EQUIPMENT UTILIZATION			
28	Historical Perspective Labour Productivity	No	
29	Factors Affecting Job-Site Productivity	No	

30	Labour Relations in Construction	No	R1
31	Problems in Collective Bargaining	No	
32	Materials Management	No	
33	Material Procurement and Delivery Inventory Control	No	
34	Tradeoffs of Costs in Materials Management. Construction Equipment	No	
35	Choice of Equipment and Standard Production Rates	No	
36	Construction Processes Queues and Resource Bottlenecks	No	
UNIT V COST ESTIMATION			
37	Costs Associated with Constructed Facilities	No	R1
38	Approaches to Cost Estimation	No	
39	Type of Construction Cost Estimates	No	
40	Effects of Scale on Construction Cost	No	
41	Unit Cost Method of Estimation	No	
42	Methods for Allocation of Joint Costs	No	
43	Historical Cost Data - Cost Indices	No	
44	Applications of Cost Indices to Estimating	No	
45	Estimate Based on Engineer's List of Quantities Estimation of Operating Costs	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
- Laboratory sessions, which support the formal lecture material and also provide the student with practical construction, measurement and debugging skills.

Evaluation Strategies

Cycle Test – I	-	5%
Cycle Test – II	-	5%
Model Test	-	5%
Attendance	-	10%
Assignment	-	5%
Final exam	-	50%

Prepared by: Mr.S.Vinothkumar 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
Mr.S.Vinothkumar	
Mr.K.Venkatraman	

Course Coordinator

HOD/Civil