Humanities and Social Sciences Elective

20CE7701A - CONSTRUCTION MANAGEMENT

Course Category:	Humanities and Social Sciences Elective	Credits:	3
Course Type:	Theory	Lecture-Tutorial-Practical:	3-0-0
Prerequisites:	20ES1301- Construction materials and Concrete Technology	Continuous Evaluation:	30
		Semester End Evaluation:	70
		Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to:

CO1	**Knowledge** on different methods of planning, scheduling and controlling and Work break down structure	K2
CO2	A complete **idea** on developing time estimates and problems on network analysis.	K2
CO3	**Understanding** of cost analysis and resource allocation and scheduling	K2
CO4	An **idea** on construction management, safety and roles of different stake holders	K2
CO5	**Knowledge** on types of organization and related policies and acts	K2

Contribution of Course Outcomes towards achievement of Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		2	2			2		3	2		2	1	1	2
CO2		2	2			2		3	2		2	1	2	1
CO3		2	2			2		3	2		2	1	2	1
CO4		2	2			2		1	1		1	1	2	2
CO5		2	2			2		1	2		2	1	2	2
Avg.		2	2			2		3	2		2	1	1	2

1- Low **2-Medium** **3-High**

Course Content

UNIT-1	**Introduction to Construction Management :** Introduction : Origin of PERT and CPM, Planning, Scheduling and controlling, Bar Charts, Milestone charts, weaknesses in Bar charts, PERT and CPM networks and Problems, Comparison, Event, Activity, Rules for drawing networks Numbering the events (Fulkerson's law), Dummy activities, Work Break-down structure.	CO1.
UNIT-2	**CPM-PERT-Network Analysis:** Time estimate-Expected time, Earliest allowable occurrence time, Latest allowable occurrence time, slack and Problems, Problems on Network Analysis, project duration, probability of completion, Start and Finish time estimates, Floats and Problems, Project scheduling, Critical and sub-critical path. Updating – Process of updating; when to update	CO2.
UNIT-3	**CPM Cost Model & Resources allocations, resource scheduling:** Cost Analysis; direct and indirect costs, operation time, Normal and crash times and costs, Problems on cost analysis, Optimizing project cost, crash limit, Free float limit, Optimization Resource smoothening. Resource levelling.	CO3
UNIT-4	**Management:** Scope of Construction Management; Significance of Construction Management, Concept of Scientific Management; Safety in Construction, Qualities of Manager; The roles/functions performed by effective and competent Managers, The Manager: i) as a decision maker; ii) as a motivator; iii) as a communication-link; iv) as a conflict resolver; v) as a well – wisher of co-employees and the employer; etc Role play with roles of different stakeholders of construction industry.	CO4

UNIT-5	**Organization –** Types of organization; Merits and demerits of different types of organization – Authority –Policy– Labour Problems; Labour Legislation in India; 'Workmen's compensation Act of 1923 and Minimum Wages Act of 1948', and subsequent amendments.	CO5

Learning Resources

Text Books	1. Dr. B. C. Punmia and K. K. Khandelwal, Project Planning and Control with PERT and CPM, 4/e, Laxmi Publications, 2016 2. Kumar Neeraj Jha, Construction Project Management: Theory and Practices, 2/e, Pearson Education, 2015
Reference Books	1. Dr. P. N. Modi, Rajeev Modi, PERT and CPM - Project Evaluation Review Technique and Critical Path Method, 5/e, Standard Book House, 2012. 2. L S Srinath, PERT and CPM Principles and Applications, 3/e, Affiliated East-West Press, 2001. 3. U.K. Shrivastava, Construction Planning and Management, 2/e, Galgotia Publications- New Delhi, 2000. 4. Kerzner H., Project Management- A systems approach to planning, scheduling and controlling, 10/e, John Wiley & Sons, Inc., New Jersey, USA, 2009.
e-Resources& other digital material	1. https://nptel.ac.in/courses/105104161/ 2. http://jntuk-coeerd.in/