GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Civil and Infrastructure Engineering
Subject Code: 3164014
Semester – VI
Subject Name: Construction Project Planning and Management

Type of Course: Professional Elective Course
Prerequisite: NIL

Course Objectives: students may be able:

1. To make students aware of construction project environment and the construction project management process in general.
2. To impart knowledge on methods and tools necessary for planning, scheduling, monitoring and control of construction projects.
3. To impart the basic training on the professional software applications in project planning, scheduling and control

Teaching and Examination Scheme

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE	PA(M)	Viva	PA (I)	
3	0	2	4	70	30	30	20	150

Course Contents

Sr.No.	Topics	Hrs.
1	**Introduction to Construction Management**: Constriction projects & their features, Purpose and functions of construction management, Construction management process & scope, Construction project life cycle, Construction project organisations, Project Team and their roles, Relevance of construction management in project success.	4
2	**Introduction to Construction Project Planning:** Project Execution Plan, Projects scope definition, Project Organisation & Responsibility Matrix, Work Breakdown structure (WBS), Planning & Scheduling inputs/data, Tools for project scheduling: Bar charts, Network diagrams, LOB method.	8
3	**Project Scheduling & Monitoring using CPM:** AOA and AON Networks, Event time/Activity time calculations, Critical activities and critical paths, Activity floats, Time grid diagrams & resource allocation, Project updating, Time-cost optimization of networks, Cost control and monitoring using CPM networks, Network based Time & Cost variance analysis/Earned Value Analysis	17
4	**Advanced Networks and Scheduling Concepts/Tools**: PERT Network Analysis, Precedence Network Analysis, Line of Balance Methods	7
5	**Introduction to Software for Project Planning & Scheduling:** MS PROJECT/PRIMAVERA	6
	Total	**42**

Text Book(s)

Sharma, M.R., Fundamnetals of Construction Planning and Management, S.K. Kataria& Son, New Delhi, 2012

Reference Book(s)

1. Seetharaman, S., Construction Engineering & Management, Umesh Publications, 2007.
2. Srinath, L.S., PERT & CPM Principles and Applications, Tata McGraw Hill, New Delhi.
3. Peurifoy, L., Schexnayder, C.J. and Shapira, A., Construction Planning, Equipment and Methods, McGraw Hill, New Delhi, 8th Edition, 2010.
4. Punamia, B.C. and Khandelwal, K.K., Project Planning and Control with PERT and CPM, Laxmi Publications, New Delhi, 2004.
5. Gahlot, P.S. and Dhir, B.M., Construction Planning & Management, New Age International (P) Ltd., New Delhi
6. Chitkara, K. K., Construction Project Management Planning, Scheduling and Controlling, Tata McGraw Hill, New Delhi.

Course Outcomes: After successful completion of the course the students shall be able to:

Sr. No.	CO statement	Marks % weightage
CO-1	Demonstrate an understanding on the planning, scheduling and control processes involved in civil construction projects	20 %
CO-2	Use the tools and methods applied for the planning, scheduling and control of civil construction projects	60 %
CO-3	Prepare time, cost and other resource plans and schedules of civil construction projects using software	20 %

Software based List of Practical

- Work breakdown structure (WBS) & Enterprise Breakdown Structure (EPS), Organizational Breakdown Structure (OBS)
- Development of Activity, logical Relationship
- Advanced Scheduling using Leap & Lag
- Bar charts
- CPM network developments (AOA & AON)
- CPM network analysis (Event times/activity times/floats)
- Create Calendar & Assign it in Project
- Resource Creation & Allocation
- Resource Levelling in Project
- Baseline Schedule in Project
- Project Monitoring & Updating
- Project crashing (time-cost optimization)
- Earned value analysis
- PERT network analysis
- PD network analysis

Suggested Specification table with Marks (Theory):

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Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	**25**	**20**	**20**	**15**	**10**

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above

List of Open Source Software/learning website: www.nptel.iitm.ac.in/courses/