

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	BTech in Civil Engineering
Course Code:	3CL207CC24
Course Title:	Construction Project Management
Course Type:	Core
Year of Introduction:	2024-25

L	T	Practical Component				C
		LPW	PW	W	S	
3	-	2	-	-	-	4

Course Learning Outcomes (CLOs):

At the end of the course, the student will be able to –

1. explain the need of management and feasibility study for construction projects (BL2)
2. analyse the construction project and develop the network (BL4)
3. organise site and resources for construction project (BL3)
4. recommend monitoring and controlling techniques for construction projects. (BL5)

Unit	Contents	Teaching hours (Total 45)
Unit-I	Introduction Introduction to construction industries, concepts and need of management in construction, project life cycle, feasibility study, appraisal.	05
Unit-II	Network Analysis Project planning, work breakdown structure, bar chart, Network analysis: basic terminology, logical relationship between activities, preparation of CPM networks: computation of various float values, critical path. Assumptions for PERT analysis, determining three-time estimates, analysis, slack computations, and calculation of the probability of completion of the project. Application of software in Construction Project Management.	16
Unit-III	Construction Site and Resource Organization Site organization: construction site layout including enabling structures and services, types of organization for the construction project; Manpower: planning, organizing, staffing, motivation; Material Management: Scope, importance, objectives, functions, classification and codification, inventory management; Equipment: classification, selection, plants and equipment acquisition, depreciation, evaluating replacement alternatives; Resource allocation: need, resource levelling and smoothing.	14



Unit-IV **Project Monitoring and Control**

10

Supervision, record keeping, common causes of time and cost overruns and corrective measures, updating network, time-cost trade-off, Quality control: concept of quality, quality control & quality assurance, use of manuals and checklists for quality control; Safety, Health and Environment on project sites: accidents & their causes, effects and preventive measures, costs of accidents, occupational health problems in construction, impact of construction activities on environment.

Self-Study: The self-study contents will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study contents.

- Suggested Readings/References:**
- Jha, K. N., *Construction and Project Management*, Pearson.
 - Gahlot, P. S. & Dhir, B. M., *Construction Planning and Management*, New Age International Ltd.
 - Peurifoy. R. L., *Construction Planning, equipment and methods*, McGraw-Hill.
 - Punmia, B. C. & Khandelwal, K. K., *Project Planning with PERT and CPM*, Laxmi Publications.
 - Chitkara, K. K., *Construction Project Management: Planning, Scheduling and Controlling*, Tata McGraw-Hill Publishing Company Ltd.
 - Hendrickson C. & Au, T., *Project Management for Construction - Fundamental Concepts for Owners, Engineers, Architects and Builders*, Prentice Hall.
 - Willis, E. M., *Scheduling Construction Projects*, John Wiley & Sons.
 - Mubarak, S., *Project Scheduling and Control*, Wiley.
 - Schexnayder, K. & Mayo, F., *Construction Management Fundamentals*, McGraw-Hill Publishing.

Laboratory work: Laboratory work will be based on the above syllabus with minimum 08 exercises to be incorporated.

Suggested List of Experiments:

Sr. No.	Name of Experiment/Exercise	Hours
1.	Prepare work break down structure for construction project	06
2.	Develop the network	04
3.	Network analysis, calculate floats and identify the critical path	04
4.	Optimizing time-cost of the project	02
5.	Updating the network	02
6.	Resource allocation	04
7.	Organizing construction site layout and organizational structure	04
8.	Use of planning and scheduling software	04