NIRMA UNIVERSITY

Institute of Technology

School of Engineering

Bachelor of Technology - Civil Engineering

Semester – VI

L	T	P	C
3	0	2	4

Course Code	2CL602
Course Title	Construction Project Management

Course Outcomes:

After successful completion of the course, student will be able to –

1. implement modern techniques for construction project
2. develop and analyze project network
3. organize site and resources for construction project
4. appraise quality and safety management practices
5. propose monitoring and controlling techniques for construction project.

Syllabus: Teaching hours: 45

Unit 1: Introduction Hours: 05

Introduction to construction industries, concepts and need of management in construction, project life cycle, feasibility study, appraisal.

Unit 2: Network Analysis Hours: 12

Project planning, work break down structure, bar chart, Network analysis: basic terminology, types of precedence relationships, preparation of CPM networks: computation of float values, critical path, PERT: assumptions for PERT analysis, determining three time estimates, analysis, slack computations, calculation of probability of completion.

Unit 3: Construction Project Site Organization Hours: 14

Site: layout including enabling structures and services, types of organization for construction project, documentation at site, 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, sensitivity and breakeven analysis, Funds: histograms and S-Curves. Earned Value, Resource Scheduling: Bar chart, line of balance technique, resource constraints and conflicts; resource aggregation, allocation, smoothening and leveling.

Unit 4: Project Monitoring and Control **Hours: 10**

Supervision, record keeping, periodic progress reports, periodical progress meetings, common causes of time and cost overruns and corrective measures, updating network, time-cost trade off, Quality control: concept of quality, quality of constructed structure, use of manuals and checklists for quality control, role of inspection, basics of statistical quality control. Safety, Health and Environment on project sites: accidents; their causes, effects and preventive measures, costs of accidents, occupational health problems in construction, organizing for safety and health.

Unit 5: Modern Project Management System **Hours: 04**

Use of software in managing construction projects, introduction to Building Information Modelling (BIM), lean construction and integrated project management system.

Self-Study:

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

Laboratory Work:

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

Suggested Readings:

1. Gahlot P.S. & Dhir B.M, *Construction Planning and Management*, New Age International Ltd.
2. Jha, K.N., *Construction and Project Management*, Pearson
3. Peurifoy R.L., *Construction Planning, equipment and methods*, McGraw-Hill
4. Punmia, B.C., Khandelwal, K.K., Project Planning with PERT and CPM, Laxmi Publications
5. Chitkara K. K., *Construction Project Management: Planning, Scheduling and Controlling*, Tata McGraw-Hill Publishing Company Ltd.

L= Lecture, T= Tutorial, P= Practical, C= Credit

w.e.f. academic year 2020-21 and onwards