

PROJECT PLANNING & MANAGEMENT

CIV 411 – OE-III

Instruction : 3 Lectures & 1 Tutorial / week

End Exam : 3 Hours

Credits: 3

Sessional Marks: 40

End Exam Marks: 60

Course Objectives:

From this course students will learn the

1. Role and responsibilities of a project manager
2. Importance of project management in civil engineering projects
3. Management of resources in construction project
4. Understand labor problems and legislation in India

Course Outcomes:

At the end of the course, the students will be able to:

1. Prepare the schedule of activities and Estimate Project completion time by conventional techniques in a construction project.
2. Estimate project completion time using various network techniques namely CPM and PERT
3. Analyze the project network for Optimization of cost, crash duration and assess for updating by considering project delays.
4. Classify different types of contracts and be able to identify the prerequisite of tendering process.
5. Identify scientific management techniques and fundamentals of labor management

Mapping of course outcomes with program outcomes:

| | | PO | | | | | | | | | | | | PSO | | | |
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| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | |
| CO | 1 | 3 | 3 | | | | | | | | | | 3 | | 3 | | |
| | 2 | 3 | 3 | 2 | | 3 | | | | | | | 3 | | 3 | | |
| | 3 | 3 | 3 | 2 | | 3 | | | | | | | 3 | | 3 | | |
| | 4 | 3 | | | | | 2 | | | | | | 3 | | 2 | | |
| | 5 | 3 | | | | | | | | | | | 2 | | 2 | | |

SYLLABUS

UNIT – I

12 Periods

Planning and Scheduling: Introduction, Project management, Steps involved in planning; Objectives; Principles; Advantages; Limitations; Stages of planning; Scheduling, Preparation of construction schedules; Methods of scheduling; Bar charts; Milestone charts; Controlling; Job layout; Factors affecting job layout; Project work break down; Activities involved; Assessing activity duration.

Project Management Through Networks: Objectives of network techniques; Fundamentals of network analysis; Events; Activities; Dummies; Types of networks; Choice of network type; Advantages of network techniques over conventional techniques.

UNIT – II

12 Periods

Program Evaluation and Review Technique (PERT): Introduction; Time estimates; Earliest expected time; Latest allowable occurrence time; Slack; Critical path; Probability of completion time for a project.

Critical Path Method (CPM): Introduction; Difference between CPM and PERT; Earliest event time; Latest event time; Activity time; Float; Critical activities and critical path.

UNIT – III

10 Periods

Cost analysis: Direct and indirect costs, operation time, Normal and crash points, optimizing project cost, crash limit, Free float limit, Optimization.

Updating – Process of updating, when to update

Resource scheduling – Resource smoothing, Resource levelling, circle notation and arrow notation.

UNIT – IV

10 Periods

Contracts: Definition, Conditions of contract, Contract document, Piece work Agreement form, work order; Types of contracts – Lumpsum contract; schedule contract, Item rate contract, sub-contracts, joint ventures. Contract system with tenders – Definitions – Contractor, Quotation, Earnest money, Security money, Tender, Tender notice, Tender form.

UNIT – V

12 Periods

Management – Scope of the Construction Management, Significance of Construction management, Concept of Scientific Management, Qualities of Manager.

Organisation – Authority, Policy, Recruitment process and Training Development of Personnel Department, Labour problems, Labour legislation in India.

TEXT BOOKS

1. Punmia. B.C. and Khandelwal, K.K. (2017) “Project Planning and Control with PERT and CPM “, Laxmi Publications Ltd., New Delhi, 4th Edition.
2. Sengupta. B, Guha. H (2004), “Construction Management and Planning”; Tata Mc Graw Hill Publishing Company Ltd., New Delhi. 4th Edition

REFERENCE BOOKS

1. Srinath, L.S,(2001) “PERT & CPM Principles and Applications”;Affiliated East West Press, 3rd Edition.
2. Dutta, B.N.(2016), “Estimating and Costing in Civil Engineering”, Charator Publishing House 28th Edition.
3. Relevant NPTEL Courses.