CONSTRUCTION PLANNING, SCHEDULING AND MANAGEMENT

Course Code: 13CE2110

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Course Outcomes:
At the end of the course, the student will be able to:

CO1 : Outline the knowledge of construction contracts, tenders and deposits.
CO2 : Plan construction organization, construction planning and scheduling for projects.
CO3 : Infer the knowledge of networks PERT, CPM and crashing.
CO4 : Estimate different types of resources and their optimization in projects.
CO5 : Explain about quality management, safety, construction disputes and legislation.

UNIT-I

CONTRACT MANAGEMENT : Introduction and types of contract – Contract documents – possible contractual obligations – meaning of specification – tender notice – types – tender documents – earnest money deposit (EMD) and security deposits (SD) – scrutiny and acceptance of a tender – contract agreement – contractual changes and termination of contract – subcontract – rights and duties of sub contractor.

UNIT-II

PLANNING AND SCHEDULING FOR CIVIL ENGINEERING PROJECT: Objectives of planning – its advantage to client and engineer – limitations –stages of planning by owner & contractor. Scheduling – definition – its preparation – uses and advantages – classification – methods of scheduling – bar chart – job layout – Gantt chart – work breakdown chart (WBC)

RESOURCE MANAGEMENT : Definition – need for resource management – optimum utilization of resources- finance, materials, machinery, human resources – resources planning – resource leveling and its objectives" – Time – cost trade off – crashing – need for crashing an activity – methods & tips for crashing – time vs. cost optimization curve – cost slope – its significance in crashing.

UNIT-III

PROJECT MANAGEMENT THROUGH NETWORKS: Activity – Event – Dummies – basic assumptions in creating a network – rules for drawing networks – Fulkerson's rule for numbering the events, PERT – time estimates – earliest expected time – latest allowable occurrence time – slack. Standard deviation, variance.

QUALITY MANAGEMENT AND SAFETY: Importance of quality – elements of quality – quality assurance techniques (inspection, testing, and sampling) importance of safety – causes of accidents – role of various parties (designer / employer / worker) in safety management – benefits – approaches to move safety in construction.

UNIT-IV

PRECEDENCE NETWORKS: Creating network logic, Relationship Types – Finish to Start, Start to Start, Finish to Finish, Start to Finish, critical path method – ES, EF, LS, LF, Floats – significance of critical path.

UNIT-V

CONSTRUCTION DISPUTES AND THEIR SETTLEMENT: Introduction – development in disputes – categories of disputes – modes of settlements –Arbitration

CONSTRUCTION LABOUR AND LEGISLATION: Need for legislation – Payment of wages Act – Factories Act – Contract labour (Regulation and abolition Act – Employees Provident Fund (EPF) Act.

TEXTBOOKS

1. Sengupta.B, & H.Guha., *"Construction Management and Planning"*, 1st edition, Tata Mc. Graw Hill Publishing Company Ltd., New Delhi, 2004.
2. Seetharaman. S, *"Construction Engineering & Management"*, 2nd Edition, Umesh Publications, Nai Sarak, New Delhi, 2006.

REFERENCES

1. Rangwala.S.C., *"Construction of Structures and Management of Works"*, 3rd edition Charotar Publishing House, , 2000.
2. Mincks and Johnston, *"Construction Jobsite Management"*, 4th edition, Narosa Publications, Delmar, 1998.