CONSTRUCTION PLANNING, SCHEDULING AND MANAGEMENT

Course Code: 13CE2110

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Course Educational Objectives:

1. To impart knowledge about construction process and management.
2. To familiarize students with the knowledge of planning, scheduling and resource management for civil engineering projects

Course Outcomes:

1. Students should be capable of preparing CPM and PERT network for construction projects.
2. Student will demonstrate basic knowledge about resolving construction disputes and their settlement.
3. To impart the students, with the knowledge of planning and scheduling for civil engineering projects.

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.