CONSTRUCTION PLANNING, SCHEDULING AND MANAGEMENT

Course Code: 15CE2110

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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 (10-Lectures)

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 (10-Lectures)

PLANNING AND SCHEDULING FOR CIVIL ENGINEERING PROJECT: Objectives of planning–its advantage – limitations –stages of planning. 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- resource planning –

resource leveling and its objectives" – Time – cost trade off – crashing – time vs. cost optimization curve – cost slope – its significance in crashing.

UNIT-III (10-Lectures)

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 – slack. Standard deviation, variance.

QUALITY MANAGEMENT AND SAFETY: Importance of quality – elements of quality – quality assurance techniques - importance of safety – causes of accidents – role of various parties in safety management – benefits & approaches.

UNIT-IV (10-Lectures)

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 (10-Lectures)

CONSTRUCTION DISPUTES AND THEIR SETTLEMENT:
Introduction – categories of disputes – modes of settlements.

CONSTRUCTION LABOUR AND LEGISLATION:
Need for legislation – Payment of wages Act – Factories Act – Contract labor- 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.