

(CE511) CONSTRUCTION PLANNING AND PROJECT MANAGEMENT

Objective of the Course:

At the end of this course the student is expected to have learnt how to plan construction projects, schedule the activities using network diagrams, determine the cost of the project, control the cost of the project by creating cash flows and budgeting and how to use the project information and decision making tool.

UNIT-I

Construction Planning

Basic concepts in the development of construction plans-choice of Technology and construction method-Defining Work Tasks-Precedence relationships among activities-Estimating Activity Durations-Estimating Resource Requirements for work activities-coding system.

UNIT-II

Scheduling Procedures and Techniques

Relevance of construction schedules-Bar charts-The critical path method-Calculations for critical path scheduling. Activity float and schedules-Presenting project schedules-Critical path scheduling for Activity-on –node and with leads, Lags and Windows. Calculations for scheduling with leads, Lags and Windows-Resource oriented scheduling-Scheduling with resource constraints and precedences- Use of Advanced Scheduling Techniques-Scheduling with uncertain durations-Crashing and time/cost trade offs-Improving the Scheduling process.

UNIT-III

Cost Control Monitoring and Accounting

The cost control problem-The project Budget-Forecasting for Activity cost control-Financial accounting systems and cost accounts-Control of project cash flows-Schedule and Budget updates-Relating cost and schedule information.

UNIT-IV

Quality Control Monitoring and accounting

Quality and safety concerns in Construction-Organizing for Quality and safety-Work and Material Specifications. Total Quality control- Quality control by statistical methods-Statistical Quality control with sampling by Attributes-Statistical Quality control by Sampling and Variables-Safety.

UNIT-V

Construction Methods and Equipment

Factors affecting selection of equipment - technical and economic, construction engineering fundamentals, Analysis of production outputs and costs, Characteristics and performances of equipment for Earth moving, Erection, Material transport, Pile driving, Dewatering, Concrete construction (including batching, mixing, transport, and placement) and Tunneling.

.TEXT BOOKS:

1. Chitkara,K.K. “Construction Project Management Planning”, Scheduling and Control, Tata McGraw-Hill Publishing Co., New Delhi, 1998.
2. Srinath,L.S., “PERT and CPM Principles and Applications”, Affiliated East West Press, 2001.
3. Sharma S.C.. Construction Equipment and Management, Khanna Publishers, New Delhi,2011.

REFERENCE BOOKS:

1. Chris Hendrickson and Tung Au, “Project management for Construction-Fundamentals Concepts for Owners”, Engineers, Architects and Builders, Prentice Hall,Pittsburgh,2000.
2. Moder.J., C.Phillips and Davis, “Project management with CPM”, PERT and Precedence Diagramming, Van Nostrand Reinhold Co., Third Edition, 1983.
3. Peurifoy, R.L., Ledbetter, W.B. and Schexnayder, C, Construction Planning Equip