Project Planning & Control

Lesson 6
Course Conclusion

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Outline

- Summary of Course Highlights
- Emerging Trends/Tools in Project Planning
- Industry Perspective – Prof. N. Raghavan
- Exam Pattern
- Acknowledgements

Week 1 – Introduction, Course context, Construction Project Management
Management & Project Management

- *What is Project Management? Is Project Management an Art/ Science?*
- *Objectives of a Project, Scientific Way of Managing of Objectives*
- *Construction Industry and National Growth*
- *Project Stakeholders, Project Phases, Project Organization*
- *Project Scheduling Levels (Scheduling Engineer Responsibilities)*

Week 2 – Time Management, WBS, Gantt Chart

- *Time Management, Work Breakdown Structure (WBS), Gantt Charts*
- *Basics of Work Breakdown Structure (WBS)*
- *Tools for Time Management*
- *Gantt / Bar Chart - History, Representation, Progress Monitoring, Uses, Steps to draw a Bar Chart*
- *Bar Charts for Resource Usage, Pros and Cons*

Week 3 – Duration Estimation, Network Representation & Analysis - 1

- *Factors influencing Productivity, Example for Ideal Productivity, Factored Productivity and Working Time Factor*
- *Piling Activity Example, Applicability of different methods to Estimate Activity Duration*
- *Types of Networks*
- *Networks - Introduction, Techniques*
- *Representing Results in a Bar Chart, AON Examples*

Week 4 – Network Representation & Analysis-2, Two-Span Bridge

- *Network Representation & Analysis -2; Two-Span Bridge: Scheduling, Network Analysis and Application*
- *Example 4, Usage of Floats for Project Decisions*
- *Two-Span Bridge: Activity Identification and Duration Estimation (Cont.,)*
- *Two-Span Bridge: Activity Identification and Duration Estimation*
- *Two-Span Bridge: Activity- Duration- Predecessors*
- *Review Network Analysis Concepts, Apply Network Analysis to Two-Span Bridge*
- *Two-Span Bridge: Network Analysis*
- *Two-Span Bridge: Resource Constraints in Network Logic*

Week 5 – Time-Cost Trade-off (Crashing)

- *Time-Cost Trade-off (Crashing)*
- *Time-Cost trade-off: ABCD Example Project, Steps for Crashing*
- *Time-Cost trade-off: Class Exercises*
- *Time-Cost trade-off: Problem- 3, Tabulation Approach*
- *Incorporating Factors such as Bonus and Penalty; Problem- 4*

Week 6 – Resource Scheduling

- *Resource Scheduling*
- *Projects & Resources, Example of Two Resources, Exercise, Two-Span Bridge Example*
- *Review Problem -1; Problem -2 (Cash Resource); Resolving Over-Allocation*
- *Problem 1- Two Resources; Resolving Resource Allocation Problems*
- *Resource Profile Requirements*
- *Resource Levelling – Example Network*
- *Minimum Moment Concept*
- *Applying Improvement Factor - Illustration*

Week 7 – PDM , Project Monitoring & Control Basics

- *Introduction to Precedence Diagramming method (PDM)*
- *PDM Network representation and its issues, network calculation*
- *PDM- Problem #1*
- *Issues in PDM, Negative lags, Problem #2 Solution*
- *PDM – Analysis with non-continuous duration, floats*
- *Defining Relationship (Based on Construction Method) – Simple Shed*
- *Project Monitoring & Control – Typical Project Time Monitoring Process, Levels and Frequency of updates*
- *Project control process, daily progress report, macro level update-data needed, Standard Progress Reports*
- *Application: Two Span Bridge – ES Schedule % Complete measurement*

Week 8 – Project Monitoring & Control EV Concepts, Probabilistic Scheduling PERT

- *Earned Value Analysis (EVA) –*
- *% Complete of the Project;*
- *Cost & Schedule Performance – CPI ; SPI*
- *Forecasts*
- *EVA Examples*

- *Uncertainty in Project Schedules*
  - *PERT Background & Assumptions*
  - *PERT – Stepwise Procedure*
  - *PERT Examples*

- *Course Summary Conclusion*