

#### Introduction:

Late delivery of projects has become a significant challenge for project professionals across the globe. Numerous projects in both the private and public sectors experience delays, cost overruns, and often fail to meet the organization's strategic and financial objectives. These delays result in substantial financial losses and may compromise the quality of the project's outcomes.

This course is designed to address the root causes of project delays and failures by equipping participants with essential project planning, scheduling, and control skills. Many project professionals struggle to apply modern project management tools and techniques effectively, which often leads to failure in meeting deadlines, budget constraints, and quality expectations.

By enhancing scheduling skills, this training aims to help project managers plan and execute projects more efficiently, delivering them on time and within budget while meeting quality standards.

#### Enhancing Project Management through Scheduling Skills:

Effective scheduling is critical for ensuring that projects are completed on time and within budget. This course covers the core principles of project scheduling, planning, and control, and is a valuable stepping stone for obtaining project scheduler certification. Participants will gain practical experience in scheduling, planning, and controlling project timelines, costs, and resources, with a focus on real-world applications.

The course is designed to help participants improve their project management scheduling acumen and prepare them for professional certification in project planning and scheduling. Key topics covered include project network diagrams, critical path method (CPM), resource leveling, time-cost trade-offs, and risk management.

#### Targeted Groups:

- Project Managers
- Cost Estimators
- Project Schedulers
- Project Designers
- Project Planners
- Senior Managers seeking knowledge on best project management practices

#### Course Objectives:

By the end of the course, participants will be able to:

- Understand and apply techniques used in resource planning and control.

- Comprehend time-cost trade-offs and their impact on project schedules.
- Identify and mitigate project risks to maintain momentum.
- Administer project documentation and reporting systems.
- Develop and implement performance monitoring and control systems.
- Integrate scope, time, resources, and costs into a dynamic, manageable project plan.
- Create project network diagrams for CPM and advanced PERT calculations to identify schedule and cost risks.
- Accurately estimate and allocate project costs and resources.
- Use earned value techniques to forecast and control project performance.
- Manage project acceleration techniques and resolve scheduling challenges.
- Develop project recovery plans for schedule and budget overruns.
- Produce clear and concise project progress reports.

#### Targeted Competencies:

- Ability to deliver projects on time and within budget
  - Proactive identification of project needs and requirements
  - Effective planning and control of projects, avoiding common pitfalls
  - Understanding and practicing effective project management techniques
  - Skill to manage and execute projects successfully from start to finish
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#### Course Content:

##### Unit 1: Project Scope Planning and Definition (Fundamentals)

- Scope planning and Work Breakdown Structures (WBS)
- Work packages and Statement of Work (SOW)
- Scope execution plan and triple constraints (time, cost, scope)
- Project quality issues and risk analysis
- Identifying project deliverables and resource requirements

##### Unit 2: Project Schedule Planning and Critical Path Method

- Precedence network diagramming and job logic relationship charts
- Critical path analysis and project float analysis
- Lead and lag scheduling

- Activity duration estimation and milestone charts
- Gantt charts and schedule baselines
- Project estimating processes and production planning
- Resource and cost allocation

### Unit 3: Resource Allocation and Resource Levelling

- Managing limited resources and prioritization algorithms
- Resource contention solutions and leveling techniques
- Resource leveling when project duration is fixed
- Brooks method and scheduling overtime
- Managing interruptions to the schedule
- Increasing workforce to meet deadlines

### Unit 4: Accelerating the Project Schedule

- Identifying circumstances that require project acceleration
- Time-cost-scope trade-offs and options for schedule acceleration
- Crashing the schedule and developing a crash cost table
- Pre-accelerated and accelerated schedule development
- Optimal acceleration point and network activity risk profiles
- Reducing project costs through acceleration

### Unit 5: Project Contingency Planning

- PERT (Program Evaluation and Review Technique) analysis
- Path convergence analysis and risk profiles
- Normal distribution, probability, and standard deviation formulae
- Estimating project duration using PERT
- Z-values and calculating the probability of project completion

### Unit 6: Line of Balance Scheduling - The Planning of Recurring Activities

- Preparing a line of balance schedule and velocity diagrams
- Calculating production rate for linear scheduling
- Balancing the schedule for recurring activities
- Target units per week and determining crew size
- Measuring planned progress and expected conditions

- Comparison of unbalanced and balanced schedules

#### Unit 7: Project Execution Management, Control, and Reporting

- Progress tracking and project cost management
- Earned value control process and schedule variances
- Forecasting schedule and cost variances
- Trend analysis and progress control charts
- Labor and materials management for cost control
- Earned value reporting and analysis

#### Unit 8: Project Recovery Plan Development

- Project variance analysis and quantification
- Schedule Performance Index (SPI) and Cost Performance Index (CPI)
- Setting schedule and cost control limits
- Schedule and cost recovery data assessment
- Developing recovery plans for budget and schedule overruns

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This comprehensive course equips participants with the necessary skills to plan, schedule, and control projects effectively. By mastering scheduling techniques, participants will be better prepared to manage complex projects, minimize risks, and ensure timely delivery within budget.