Advanced Project Planning, Scheduling, and Optimization Training Course



16 - 20 Nov 2026

Cape town

4600 € (Per Person)

Ref: #PMP3910_269291

Course Introduction / Overview:

This intensive training course provides a comprehensive framework for mastering the intertwined disciplines of project planning, scheduling, and resource optimization. In today's competitive landscape, simply completing projects is not enough; they must be delivered on time, within budget, and with maximum resource efficiency. This program moves beyond basic project management principles to explore advanced techniques that drive strategic success. Drawing on foundational concepts from acclaimed experts like Harold Kerzner and his seminal work, "Project Management: A Systems Approach to Planning, Scheduling, and Controlling," participants will learn to navigate the complexities of modern projects. The curriculum is designed to build a robust skill set, covering everything from developing a detailed Work Breakdown Structure (WBS) and mastering the Critical Path Method (CPM) to implementing sophisticated resource leveling and smoothing strategies. At BIG BEN Training Center, we believe in empowering professionals with practical, applicable knowledge. This course integrates proven methodologies with forward-thinking approaches, ensuring that participants can immediately apply what they learn to resolve resource conflicts, manage project risks, and deliver superior results that align with organizational goals. It is the definitive training for professionals seeking to elevate their project execution capabilities from operational to strategic.

Target Audience / This training course is suitable for:

- Project Managers and Project Leaders.
- Program Managers and Portfolio Managers.
- Project Planners and Schedulers.
- Project Control Officers and Cost Engineers.
- Operations Managers and Department Heads.
- Team Leaders and Project Supervisors.
- Functional Managers involved in project execution.
- Project Management Office (PMO) staff.
- Consultants and professionals seeking to enhance their project management skills.

Target Sectors and Industries:

- Construction and Engineering.
- Information Technology and Telecommunications.
- Oil and Gas.
- Manufacturing and Industrial.
- Healthcare and Pharmaceuticals.
- Banking and Financial Services.
- Governmental agencies and public sector organizations.
- Aerospace and Defense.
- Consulting and Professional Services.

Target Organizations Departments:

- Project Management Office (PMO).
- Engineering and Development.
- Operations and Production.
- Information Technology (IT).
- Research and Development (R&D).
- Strategic Planning.
- Finance and Controlling.
- Procurement and Supply Chain.
- Quality Assurance.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop a comprehensive and strategic project plan from initiation to closure.
- Master advanced scheduling techniques, including the Critical Path Method (CPM) and PERT.
- Implement effective resource allocation, leveling, and smoothing strategies to optimize utilization.
- Construct and manage a detailed Work Breakdown Structure (WBS) for any project.
- Utilize Earned Value Management (EVM) to monitor and control project performance.
- Apply schedule compression techniques like crashing and fast-tracking without compromising scope.
- Identify, analyze, and formulate response plans for project risks.
- Manage resource conflicts and dependencies in complex, multi-project environments.
- Integrate agile principles into traditional project scheduling for enhanced flexibility.
- Lead project teams with a clear understanding of timelines, resource constraints, and strategic objectives.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, interactive, and highly practical, ensuring that participants not only learn the theory but can also apply it confidently in their professional roles. We move beyond traditional lectures to create a dynamic learning environment built on a foundation of active participation. The course heavily utilizes real-world case studies, allowing participants to analyze complex project scenarios, debate solutions, and understand the practical implications of different planning and optimization techniques. Collaborative group exercises and workshops are a core component, fostering teamwork and enabling participants to learn from the diverse experiences of their peers. Interactive sessions, facilitated by our expert instructors, encourage open discussion, problem-solving, and the sharing of best practices. A significant portion of the training is dedicated to hands-on application, where participants will work on a capstone project to develop a complete project plan. This practical approach is reinforced by continuous feedback and coaching, ensuring a deep and lasting understanding of advanced project management principles. Our goal is to transform knowledge into tangible skills that drive immediate value in the workplace.

Course Agenda (Course Units):

Unit One: Foundations of Strategic Project Planning

- The project management lifecycle and its alignment with organizational strategy.
- Advanced scope definition and requirements gathering techniques.
- Developing a comprehensive Work Breakdown Structure (WBS) and WBS dictionary.
- Stakeholder identification, analysis, and engagement planning.
- Quantitative and qualitative project estimation methods.
- Establishing integrated baselines for scope, schedule, and cost.
- The critical role of the project charter in authorizing and guiding the project.

Unit Two: Advanced Scheduling Methodologies

- Mastering the Critical Path Method (CPM) for determining project duration.
- Applying Program Evaluation and Review Technique (PERT) for managing uncertainty.
- Constructing and interpreting Precedence Diagramming Method (PDM) network diagrams.
- Advanced schedule compression techniques: Crashing and Fast-Tracking.
- Introduction to Critical Chain Project Management (CCPM) and buffer management.
- Managing complex dependencies, leads, and lags effectively.
- Utilizing Gantt charts and milestone charts for powerful visual communication.

Unit Three: Comprehensive Resource Management and Optimization

- Techniques for resource planning and estimating activity resources.
- Developing a detailed resource management plan.
- Strategies for effective resource allocation and assignment.
- Mastering resource leveling to resolve over-allocations and conflicts.
- Applying resource smoothing to optimize resource utilization within float.
- Managing resource pools and capacity planning in a multi-project environment.
- Forecasting future resource needs and addressing potential shortfalls.

Unit Four: Integrated Project Control and Monitoring

- The core principles and application of Earned Value Management (EVM).
- Calculating and interpreting Schedule Variance (SV), Cost Variance (CV), SPI, and CPI.
- Forecasting project outcomes using Estimate at Completion (EAC) and To-Complete Performance Index (TCPI).
- Implementing a robust and formal integrated change control process.
- Proactive risk management: from identification to response implementation.
- Developing and tracking Key Performance Indicators (KPIs) for project health.
- Creating insightful and actionable project performance reports for stakeholders.

Unit Five: Modern Approaches and Capstone Application

- Integrating agile and iterative principles into traditional project plans.
- Exploring hybrid project management models for complex environments.
- The role of technology in modern project planning and control.
- Leadership and communication skills for driving project success.
- Capstone Project: Developing a complete, integrated project plan for a complex scenario.
- Group presentations and defense of the capstone project plan.
- Course wrap-up, key takeaways, and personal action planning for implementation.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

In an increasingly volatile business environment, how can project managers balance the mathematical precision of resource optimization and critical path scheduling with the need for adaptive flexibility and agile responsiveness?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by moving beyond the siloed teaching of individual project management functions to offer a deeply integrated, strategic perspective. While many programs teach planning, scheduling, and resource management as separate topics, our curriculum is built on the principle that these three pillars are inextricably linked and must be managed holistically for true project success. We focus not just on the "what" of techniques like CPM or resource leveling, but on the "why" and "how"—exploring the strategic implications of every decision. The course uniquely blends time-tested, rigorous methodologies with modern, adaptive approaches, preparing participants for the complexities of both traditional and hybrid project environments. Rather than focusing on specific software, we cultivate a deep conceptual understanding that is tool-agnostic and universally applicable. The capstone project is a key differentiator, requiring participants to synthesize all learned concepts into a single, coherent project plan, simulating real-world challenges and solidifying their learning in a practical, high-impact manner. This focus on strategic integration, methodological versatility, and hands-on application provides a richer, more profound learning experience that equips managers to lead, not just administer, complex projects.