

# Advanced Technical Project Management: Tools, Methods & Execution (2 Weeks)

21 November – 2 December 2027
Chicago

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**Ref:** 103600371_101556 **Date:** 21 November – 2 December 2027 **Location:** Chicago **Fees:** 16000 Euro

## Course Overview:

The Technical Project Management Training Course: Tools, Methods & Execution is a comprehensive, hands-on corporate training program designed to equip professionals with the strategic, technical, and managerial skills required to manage complex engineering and IT projects. Drawing upon globally recognized standards such as PMBOK, systems engineering frameworks, and hybrid project management approaches, this course empowers participants to integrate technical project management principles with real-world execution.

Participants will gain expertise in using Agile and Waterfall methodologies, understanding predictive vs. adaptive planning, applying the Work Breakdown Structure WBS, mastering tools like OpenProject and GanttProject, and effectively handling technical performance analysis, earned value management, and risk mitigation in engineering projects. Emphasis is placed on stakeholder analysis, change control, design thinking, and optimization within complex technical environments.

## Target Audience:

- Technical Project Managers
- Engineering Managers
- IT Project Leads
- Systems Engineers
- Project Management Professionals PMP candidates
- Software Development Team Leaders

## Targeted Organizational Departments:

- Project Management Office PMO
- Engineering & R&D
- IT & Software Development
- Product Development
- Quality Assurance
- Operations & Technical Support

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## Targeted Industries:

- Information Technology IT
- Engineering & Construction
- Aerospace & Defense
- Telecommunications
- Manufacturing
- Oil & Gas
- Smart Infrastructure & Energy

## Course Offerings:

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

- Apply technical project lifecycle concepts using predictive and adaptive models
- Manage stakeholder requirements and technical specifications
- Develop WBS, CPM, and project schedules using industry-standard tools
- Evaluate performance using Earned Value Management for engineers
- Identify, assess, and manage technical and project risks
- Integrate PMBOK tools with systems engineering processes
- Lead hybrid Agile-Waterfall project teams effectively
- Conduct technical performance analysis and drive project optimization
- Utilize OpenProject or GanttProject for schedule and resource planning
- Communicate effectively with technical teams and project stakeholders

## Training Methodology:

This course blends theoretical depth with practical application. Participants will engage in:

- Interactive workshops focused on Agile and Waterfall case simulations
- Hands-on software labs using OpenProject and GanttProject
- Stakeholder requirement elicitation and WBS structuring exercises
- Real-world case studies from engineering and IT projects
- Role-play scenarios for stakeholder communication and change control
- Performance evaluation drills using EVM and risk matrices
- Reflective review sessions to anchor learning outcomes

## Course Toolbox:

- Training slides and participant workbook
- WBS templates and CPM diagrams
- Risk management checklists
- Change control templates
- Software demos: OpenProject, GanttProject

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# Course Agenda:

## Day 1: Foundations of Technical Project Management

- **Topic 1:** Introduction to Technical Project Management & Hybrid Approaches
- **Topic 2:** Overview of Systems Engineering and Project Management Integration
- **Topic 3:** Technical Project Lifecycle and Stakeholder Roles
- **Topic 4:** Predictive vs. Adaptive Project Planning Models
- **Topic 5:** Introduction to Project Scheduling Tools OpenProject, GanttProject
- **Topic 6:** Strategic Roles of Technical Project Managers in Modern Enterprises
- **Reflection & Review:** Lessons from Systems Engineering & PMBOK alignment

## Day 2: Planning and Estimating in Technical Projects

- **Topic 1:** Stakeholder Requirements Analysis and Technical Definition
- **Topic 2:** Creating Effective WBS and Critical Path Diagrams
- **Topic 3:** Time and Cost Estimation Techniques for Tech Projects
- **Topic 4:** Integrating Risk Management in Engineering Projects
- **Topic 5:** Communication Management in Technical Teams
- **Topic 6:** Cost-Benefit and Feasibility Analysis in Engineering Projects
- **Reflection & Review:** Mapping PMBOK tools to project lifecycle phases

## Day 3: Executing and Controlling Technical Projects

- **Topic 1:** Earned Value Management EVM for Engineers
- **Topic 2:** Using Software Tools for Tracking and Performance Measurement
- **Topic 3:** Change Control Management and Configuration
- **Topic 4:** Leadership and Trust in Technical Teams
- **Topic 5:** Performance Optimization Techniques
- **Topic 6:** Engineering Constraints and Technical Quality Control
- **Reflection & Review:** Case analysis of airport and aerospace projects

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## Day 4: Agile, Waterfall, and Hybrid Approaches in Practice

- **Topic 1:** Agile Technical Project Management Essentials
- **Topic 2:** Waterfall Project Management in Tech Contexts
- **Topic 3:** Hybrid Implementation Models: Sequential & Parallel
- **Topic 4:** Managing Complex Projects: Systems & Socio-Political Dimensions
- **Topic 5:** Scenario-Based Planning and Decision Making
- **Topic 6:** Systems Engineering Methods for Integration and Testing
- **Reflection & Review:** Evaluating Project Complexity and Strategic Fit

## Day 5: Final Integration and Handover

- **Topic 1:** Validation, Verification, and Transition Processes
- **Topic 2:** Design Thinking for Project Innovation
- **Topic 3:** Optimization & Value Management in Technical Projects
- **Topic 4:** Closing Projects and Managing Knowledge Transfer
- **Topic 5:** Lessons Learned and Post-Implementation Review
- **Topic 6:** Tailoring Processes for Technical Project Environments
- **Reflection & Review:** Final handover and documentation wrap-up

## Day 6: Certification and Strategic Execution

- **Topic 1:** Preparing for Technical Project Manager Certification PMP, CAPM, PgMP
- **Topic 2:** Certification Exam Content and Strategies
- **Topic 3:** Building a Personal Learning and Career Development Plan
- **Topic 4:** Strategic Portfolio Management in Engineering Organizations
- **Topic 5:** KPI and Metric Design for Technical Projects
- **Topic 6:** Audit and Compliance Considerations in Technical Environments
- **Reflection & Review:** Certification readiness Q&A and wrap-up activities

## Day 7: Case Studies, Simulations, and Presentations

- **Topic 1:** Team-Based Simulation: Full Lifecycle Project Execution
- **Topic 2:** Role-Based Exercises: Stakeholder Engagement and Conflict Resolution
- **Topic 3:** Advanced Project Scenario Deconstruction
- **Topic 4:** Group Presentations and Peer Feedback
- **Topic 5:** Expert Review of Project Strategies and Outcomes
- **Topic 6:** Final Wrap-Up and Reflection Activities
- **Reflection & Review:** Debrief, feedback, and certificates of completion

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## Day 8: Advanced Systems Integration and Architecture

- **Topic 1:** Technical Architecture Design Patterns for Project Managers
- **Topic 2:** System Integration Lifecycle and Interface Management
- **Topic 3:** Interoperability, Standards, and Technical Debt Reduction
- **Topic 4:** Verification & Validation for Complex System-of-Systems
- **Topic 5:** Architecture Tradeoff Analysis Method ATAM
- **Topic 6:** Academic Case Study: Failures in Systems Integration
- **Reflection & Review:** Academic insights into integration missteps and solutions

## Day 9: AI, Data-Driven Decision Making & Automation in Tech Projects

- **Topic 1:** Using AI and ML for Project Forecasting and Planning
- **Topic 2:** Automating Technical Project Tasks with AI Tools
- **Topic 3:** Data Visualization and Predictive Analytics in Engineering Projects
- **Topic 4:** Digital Twin and Smart Project Monitoring Techniques
- **Topic 5:** Ethical Implications and Bias in AI-Based Decisions
- **Topic 6:** Advanced Lab: Integrating Data-Driven Dashboards with Project KPIs
- **Reflection & Review:** Data maturity and readiness for AI adoption in TPM

## Day 10: Governance, Ethics, and Innovation in Technical Program Management

- **Topic 1:** Technical Governance Structures and Decision Gate Reviews
- **Topic 2:** Ethics and Compliance in Complex Project Environments
- **Topic 3:** Innovation Frameworks and Disruptive Thinking in TPM
- **Topic 4:** IP, Standards, and Technical Contract Management
- **Topic 5:** Systems Thinking and Sustainability in Project Execution
- **Topic 6:** PhD-Level Research Trends in Technical Project Management
- **Reflection & Review:** Policy alignment, innovation case studies, and ethical reviews

# FAQ:

### What specific qualifications or prerequisites are needed for participants before enrolling in the course?

A background in engineering, IT, or project environments is recommended. Prior exposure to project coordination or stakeholder engagement is helpful but not required.

### How long is each day's session, and is there a total number of hours required for the entire course?

Each day's session is generally structured to last around 4-5 hours, with breaks and interactive activities included. The total course duration spans  seven days, approximately 28-35 hours of instruction.

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## What's the difference between a technical project manager and a traditional project manager?

A traditional project manager focuses on time, budget, and scope. A technical project manager also dives into systems engineering, technical feasibility, stakeholder requirements analysis, and tool-based execution.

## How This Course is Different from Other Technical Project Management Courses:

Unlike generic project management training, this course uniquely blends systems engineering principles with PMBOK methodologies to address the complex demands of technical environments. It provides hands-on exposure to both predictive and adaptive models, enabling participants to navigate between Agile, Waterfall, and hybrid project delivery approaches.

Case studies from aerospace, construction, and IT infrastructure projects ground the learning in real-world applications. We also integrate tools like OpenProject and GanttProject, and cover Earned Value Management, technical performance analysis, and stakeholder-driven planning.

This course provides unmatched depth, relevance, and professional application. No software is provided, but participants will receive templates, examples, and tool walkthroughs to apply post-training.

This makes it ideal for professionals targeting Technical Project Manager Certification, a PMP for engineers, or aiming to enhance their technical execution leadership skills.