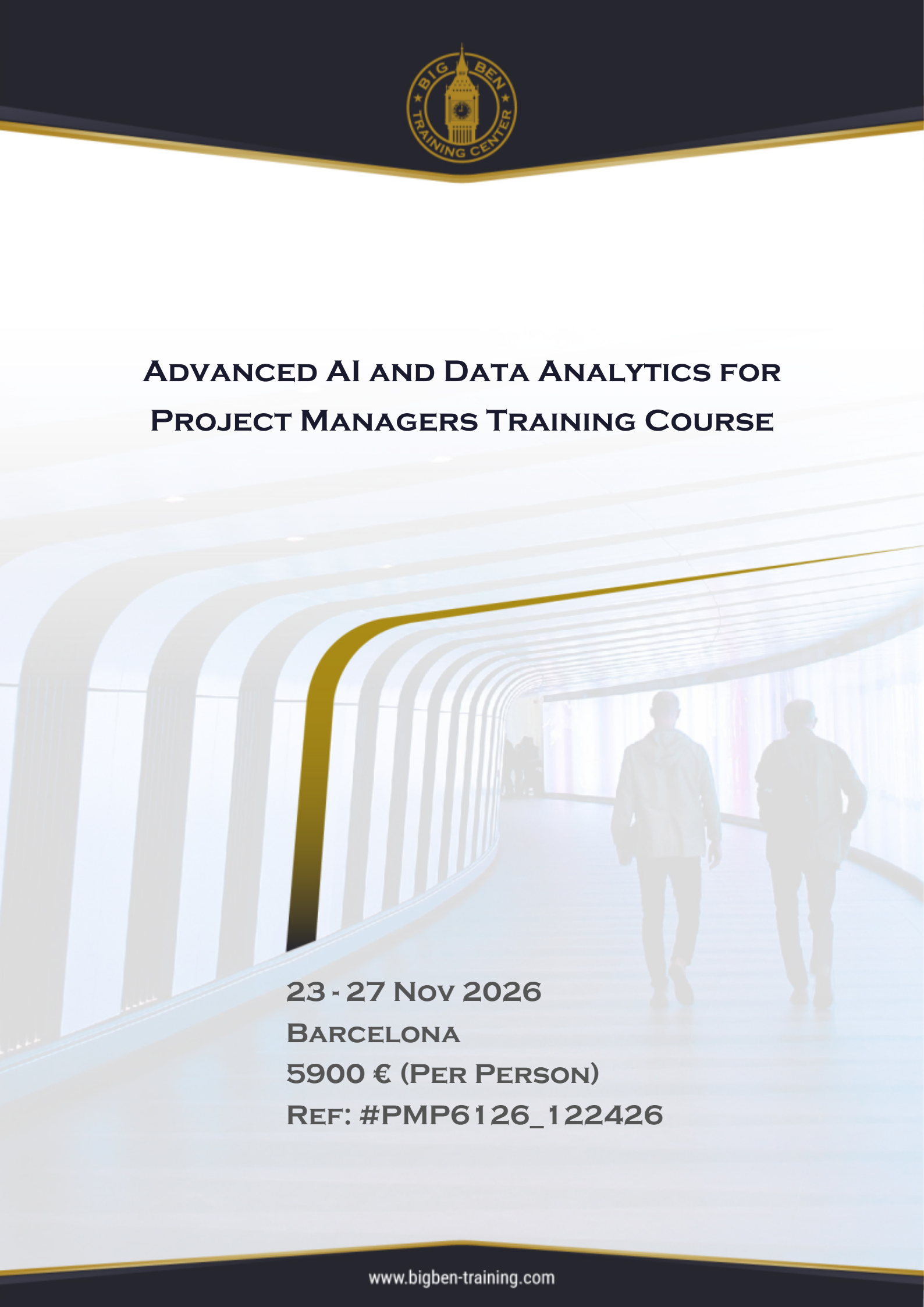
Advanced AI and Data Analytics for Project Managers Training Course



23 - 27 Nov 2026

Barcelona

5900 € (Per Person)

Ref: #PMP6126_122426

Course Introduction / Overview:

The landscape of project management is undergoing a profound transformation, driven by the convergence of Artificial Intelligence (AI) and data analytics. Traditional project management methodologies are being enhanced and, in some cases, replaced by intelligent, data-driven approaches that significantly improve predictability, efficiency, and success rates. This course is meticulously designed to bridge the gap between conventional project management practices and the new frontier of AI-powered execution. As detailed by author Eric Siegel in his influential book "Predictive Analytics", the ability to forecast outcomes is a game-changer, and this principle is now being applied to project timelines, budgets, and risks with remarkable accuracy. This program offered by BIG BEN Training Center provides a comprehensive A-to-Z journey, starting from the fundamental concepts of AI and data science and progressing to the practical application of machine learning models for predictive scheduling, risk mitigation, and resource optimization. Participants will move beyond theoretical knowledge to gain hands-on experience, learning how to leverage data as a strategic asset to steer projects towards successful completion in an increasingly complex and competitive environment. This course empowers professionals to become leaders in the next generation of project management.

Target Audience / This training course is suitable for:

- Project Managers and Senior Project Managers.
- Program and Portfolio Managers.
- Project Management Office (PMO) staff and leaders.
- IT Project Managers and Technical Leads.
- Business Analysts and Systems Analysts.
- Project Coordinators and Project Team Leaders.
- Operations Managers and Functional Managers involved in projects.
- Consultants seeking to integrate AI into their project management services.

Target Sectors and Industries:

- Information Technology and Software Development.
- Construction and Engineering.
- Banking, Financial Services, and Insurance.
- Healthcare and Pharmaceuticals.
- Manufacturing and Supply Chain Logistics.
- Telecommunications.
- Energy and Utilities.
- Government agencies and public sector organizations.

Target Organizations Departments:

- Project Management Office (PMO).
- Information Technology (IT) and Digital Transformation.
- Operations and Production.
- Research and Development (R&D).
- Strategy and Business Planning.
- Engineering Departments.
- Finance and Accounting.
- Data Analytics and Business Intelligence.

Course Offerings:

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

- Integrate AI and data analytics principles into the project management lifecycle.
- Apply predictive analytics models for more accurate project forecasting and estimation.
- Utilize machine learning algorithms for intelligent risk identification and assessment.
- Automate routine project monitoring and reporting tasks using AI-powered tools.
- Optimize project resource allocation and scheduling through data-driven insights.
- Enhance stakeholder communication by presenting complex data in a clear, actionable format.
- Evaluate and select appropriate AI and data analytics tools for specific project needs.
- Develop a strategic roadmap for implementing AI within their organization's project management framework.
- Address the ethical considerations and challenges associated with using AI in project management.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be highly interactive, practical, and immersive, ensuring that participants can immediately apply their new skills in a real-world context. We move beyond traditional lectures to create a dynamic learning environment where knowledge is built through active participation and hands-on experience. The course combines expert-led presentations with in-depth case study analyses of successful AI integration in major projects, allowing participants to understand both the triumphs and the pitfalls of implementation. A significant portion of the training is dedicated to practical workshops and simulation exercises where attendees will work with sample project datasets to build and interpret predictive models. Collaborative group discussions and brainstorming sessions are central to our approach, fostering peer-to-peer learning and enabling participants to share unique challenges and solutions from their own industries. Continuous feedback is provided by the instructor to guide learning and ensure a deep understanding of complex topics. This blended approach guarantees that participants leave not just with theoretical knowledge, but with the confidence and competence to lead data-driven projects.

Course Agenda (Course Units):

Unit One: Foundations of AI and Data in Modern Project Management

- The evolution from traditional to data-driven project management.
- Core concepts of Artificial Intelligence, Machine Learning, and Deep Learning.
- Understanding the project data lifecycle from collection to visualization.
- Identifying key data sources and metrics within a project environment.
- The strategic role of a Data-Driven Project Manager.
- Introduction to descriptive, predictive, and prescriptive analytics.
- Building a business case for AI integration in project management.

Unit Two: AI-Powered Project Planning and Estimation

- Leveraging historical data for accurate project scope definition.
- Predictive models for cost and budget estimation (e.g., regression analysis).
- AI-based techniques for work breakdown structure (WBS) optimization.
- Machine learning algorithms for time and schedule forecasting.
- Advanced resource allocation and optimization using AI.
- Utilizing Natural Language Processing (NLP) to analyze project requirements.
- Simulation and Monte Carlo analysis for planning under uncertainty.

Unit Three: Intelligent Project Execution, Monitoring, and Control

- Automating progress tracking and status reporting with AI tools.
- Using AI for real-time performance monitoring against baselines.
- Sentiment analysis of stakeholder communications and feedback.
- Early warning systems for detecting project deviations and anomalies.
- AI-driven earned value management (EVM) analysis.
- Intelligent document management and knowledge retrieval.
- Chatbots and virtual assistants for project team communication.

Unit Four: Advanced Analytics for Risk and Quality Management

- Applying machine learning for proactive risk identification and classification.
- Predictive modeling for assessing the probability and impact of risks.
- Developing AI-driven risk response and mitigation strategies.
- Automating quality assurance and control processes.
- Using computer vision for quality inspection in physical projects.
- Root cause analysis with machine learning algorithms.
- Predicting potential points of failure in the project lifecycle.

Unit Five: The Future of Project Management, Ethics, and Implementation

- The role of the AI-augmented Project Management Office (PMO).
- An overview of leading AI-powered project management software and platforms.
- Ethical considerations of AI in project management (bias, transparency, and accountability).
- Managing organizational change for AI adoption.
- Developing the skills and competencies for the future project manager.
- Crafting a strategic roadmap for AI integration in your organization.
- Final capstone project: Designing an AI-driven solution for a real-world project scenario.

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:

As AI automates more predictive and administrative project management tasks, what uniquely human skills, such as empathy and ethical judgment, will become most critical for a project manager's success and value?

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

This course distinguishes itself by moving beyond a purely technical or tool-based approach to AI and data analytics. While many programs focus on the "what" the specific algorithms or software our curriculum is built around the "why" and "how". We emphasize developing a strategic mindset, enabling participants to understand which problems are best solved with AI and how to build a compelling business case for its adoption. The curriculum is uniquely structured to mirror the actual project management lifecycle, from initiation to closing, ensuring that every concept is taught within a practical and immediately applicable context. Furthermore, we dedicate a significant unit to the crucial, yet often overlooked, aspects of ethical AI and organizational change management. This holistic perspective prepares participants not just to be users of AI tools, but to be strategic leaders who can guide their teams and organizations through the complex process of digital transformation. The hands-on simulations and case studies are drawn from a diverse range of industries, providing a richer, more versatile learning experience that is directly transferable to any project environment.