Strategic AI and Big Data Analytics Integration Training Course

02 - 06 Nov 2026

Rome

5800 € (Per Person)

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Course Introduction / Overview:

This course delves into the powerful synergy between Big Data Analytics and Artificial Intelligence, a combination that is reshaping industries and defining the future of business intelligence. In an era where data is the most valuable asset, the ability to not only manage vast datasets but also to extract predictive, actionable insights using AI is paramount for sustainable growth and competitive advantage. This program is meticulously designed to bridge the gap between data engineering and strategic AI implementation. As discussed by renowned AI expert Andrew Ng, the successful application of AI is not just about complex algorithms but about a clear strategy and high-quality data. This course echoes that sentiment, providing a comprehensive roadmap from foundational concepts to advanced integration techniques. Participants will explore the principles outlined in seminal works like "Data Science for Business," learning to build and deploy machine learning models on big data platforms. BIG BEN Training Center has developed this curriculum to empower professionals to lead data-driven transformations, ensuring they can harness the full potential of AI and big data to solve complex business challenges, optimize operations, and innovate with confidence.

Target Audience / This training course is suitable for:

- Data Scientists and Analysts.
- Business Intelligence Professionals.
- IT Managers and Project Managers.
- AI and Machine Learning Engineers.
- Software Developers and Architects.
- Marketing and Financial Analysts.
- Business Executives and Strategists.
- Product Managers seeking to leverage AI.
- Consultants in technology and business strategy.

Target Sectors and Industries:

- Financial Services and Banking.
- Healthcare and Life Sciences.
- Retail and E-commerce.
- Telecommunications and Media.
- Manufacturing and Supply Chain.
- Energy and Utilities.
- Government and Public Sector Agencies.
- Technology and Software Development.
- Transportation and Logistics.

Target Organizations Departments:

- Information Technology and Data Management.
- Research and Development (R&D).
- Marketing and Sales.
- Finance and Accounting.
- Operations and Logistics.
- Business Strategy and Corporate Planning.
- Customer Insights and Analytics.
- Human Resources.
- Product Development.

Course Offerings:

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

- Develop a strategic framework for integrating AI and big data within an organization.
- Master the fundamentals of big data technologies like Hadoop and Spark.
- Apply various machine learning algorithms to large-scale datasets for predictive modeling.
- Design and manage robust data pipelines for real-time analytics and AI applications.
- Utilize Natural Language Processing (NLP) to extract insights from unstructured text data.
- Understand the principles of deep learning and neural networks for complex pattern recognition.
- Evaluate and implement cloud-based solutions for big data storage and computation.
- Address the ethical considerations and governance challenges in AI and data analytics.
- Create compelling data visualizations to communicate analytical findings to stakeholders.
- Lead data-driven decision-making processes to enhance business performance.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to be immersive, practical, and highly interactive, ensuring that participants not only learn the theory but can also apply it directly to real-world scenarios. This course moves beyond traditional lectures by incorporating a blended learning approach. Each session combines expert-led instruction with hands-on labs, collaborative group projects, and in-depth case study analysis of successful AI and big data implementations across various industries. We believe in learning by doing; therefore, participants will engage in practical exercises that simulate the challenges of managing and analyzing large datasets. Interactive workshops will facilitate brainstorming and problem-solving, allowing attendees to share insights and learn from the diverse experiences of their peers. Our instructors foster a dynamic learning environment where questions are encouraged and complex topics are broken down into understandable components. Continuous feedback is provided throughout the course to guide participant progress, culminating in a capstone project where they will design a complete AI and big data integration strategy for a hypothetical business case, solidifying their skills and confidence.

Course Agenda (Course Units):

Unit One: Foundations of Big Data and AI Synergy

- The Digital Transformation Landscape.
- Defining Big Data: Volume, Velocity, Variety, and Veracity.
- Introduction to Artificial Intelligence, Machine Learning, and Deep Learning.
- The Strategic Importance of Integrating AI and Big Data.
- The Data Science Lifecycle in a Business Context.
- Exploring Key Use Cases Across Industries.
- Data Governance and Quality Management Principles.

Unit Two: Big Data Technologies and Architectures

- Introduction to the Hadoop Ecosystem: HDFS and MapReduce.
- Advanced Data Processing with Apache Spark.
- NoSQL Databases vs. Traditional Relational Databases.
- Data Warehousing and Data Lakes: Concepts and Comparison.
- Cloud Computing Platforms for Big Data (AWS, Azure, GCP).
- Data Ingestion and ETL (Extract, Transform, Load) Processes.
- Architecting a Scalable Big Data Infrastructure.

Unit Three: Core Machine Learning Algorithms

- Supervised Learning: Regression and Classification Models.
- Unsupervised Learning: Clustering and Association Rules.
- Introduction to Reinforcement Learning Concepts.
- Feature Engineering and Data Preprocessing Techniques.
- Model Training, Validation, and Performance Evaluation.
- Understanding Key Algorithms: Decision Trees, SVM, and K-Means.
- Introduction to Neural Networks and Deep Learning.

Unit Four: Advanced AI Integration and Application

- Building Machine Learning Pipelines with Big Data.
- Real-Time Data Streaming and Analytics.
- Natural Language Processing (NLP) for Text Analysis.
- Introduction to Computer Vision and Image Recognition.
- Deploying Machine Learning Models into Production (MLOps).
- AI-Powered Automation and Process Optimization.
- Developing Recommendation Engines and Personalization Systems.

Unit Five: Strategy, Ethics, and Future Trends

- Developing a Data-Driven Organizational Culture.
- Crafting a Comprehensive AI and Big Data Strategy.
- Ethical Considerations: Bias, Fairness, and Transparency in AI.
- Data Privacy and Security in the Age of Big Data.
- The Future of AI: Emerging Trends and Technologies.
- Capstone Project: Designing an End-to-End Integration Solution.
- Presenting Analytical Findings to Executive Leadership.

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 models become more integrated with vast datasets, how can organizations balance the drive for predictive accuracy with the ethical imperative of data privacy and algorithmic fairness?

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

This course distinguishes itself by focusing on the strategic integration of AI and Big Data, rather than treating them as isolated technical disciplines. While many programs concentrate solely on coding or specific software tools, our curriculum emphasizes the business acumen required to lead successful data-driven initiatives. We bridge the critical gap between the data scientist's lab and the executive boardroom. The content is uniquely structured to build a holistic understanding, starting from foundational data architecture and moving through machine learning application to high-level strategy, ethics, and governance. Participants will not just learn how to build a model; they will learn how to identify the right business problems to solve, design a scalable and ethical solution, and communicate its value effectively to stakeholders. The inclusion of a comprehensive module on AI ethics, fairness, and transparency prepares professionals for the complex regulatory and social challenges of modern data analytics. This strategic, business-oriented perspective, combined with practical case studies and a forward-looking curriculum, equips participants with the leadership skills to drive genuine transformation within their organizations.