

Course No. 1265

Data Engineering for AI Training Course

DATA SCIENCE & AI ANALYTICS
ARTIFICIAL INTELLIGENCE & APPLICATIONS

DURATION

5 Days

DELIVERY

Classroom



Course Overview

The Data Engineering for AI Training Course is designed to equip professionals, engineers, IT specialists, and business leaders with the knowledge and practical skills required to build, manage, and optimize modern data infrastructures that power Artificial Intelligence (AI) solutions. As organizations accelerate their digital transformation initiatives, the quality, availability, and scalability of enterprise data have become fundamental to the successful deployment of AI, Machine Learning, predictive analytics, and intelligent automation. This course provides a comprehensive understanding of data engineering principles, architectures, and technologies that enable organizations to transform raw data into reliable, AI-ready assets capable of supporting enterprise innovation and strategic decision-making.

Artificial Intelligence systems rely on high-quality, well-governed, and efficiently managed data pipelines to deliver accurate predictions and business insights. Throughout the Data Engineering for AI Training Course, participants will explore the complete data engineering lifecycle, including data acquisition, ingestion, integration, transformation, storage, orchestration, processing, governance, and monitoring. The course examines modern data architectures such as data lakes, data warehouses, lakehouses, streaming platforms, cloud-based data ecosystems, and scalable AI data pipelines that support real-time analytics and enterprise AI applications.

The course combines internationally recognized data engineering best practices with practical AI implementation strategies applicable across government entities, ministries, public sector organizations, financial institutions, oil and gas companies, healthcare providers, manufacturing organizations, telecommunications companies, logistics providers, utilities, and multinational enterprises. Participants will learn how to design robust data pipelines, optimize ETL and ELT processes, manage structured and unstructured data, integrate multiple enterprise data sources, ensure data quality, and prepare datasets for Machine Learning and AI models. The program also addresses enterprise data governance, metadata management, cybersecurity, privacy protection, regulatory compliance, cloud data platforms, and responsible data management to ensure secure, scalable, and reliable AI ecosystems.

Combining strategic concepts with practical implementation, this course enables participants to develop enterprise data engineering capabilities that accelerate AI adoption and improve organizational performance. Through practical workshops, architecture design exercises, real-world case studies, and implementation projects, participants will gain the competencies required to build scalable AI-ready data infrastructures, improve enterprise analytics, strengthen business

intelligence, support advanced AI initiatives, and establish a sustainable data-driven foundation for digital transformation.

Objectives

- Analyze enterprise data environments to identify requirements for AI-ready data engineering architectures.
- Develop a comprehensive understanding of modern data engineering principles, technologies, and AI data ecosystems.
- Evaluate enterprise data sources, storage solutions, and processing frameworks that support Artificial Intelligence initiatives.
- Apply data engineering methodologies to design scalable ETL, ELT, and AI data pipelines.
- Design modern enterprise data architectures, including data lakes, data warehouses, and lakehouse environments.
- Improve enterprise data quality, integration, reliability, and accessibility for AI and Machine Learning applications.
- Strengthen enterprise data governance, metadata management, cybersecurity, privacy protection, and regulatory compliance.
- Implement scalable cloud-based data engineering solutions that support advanced analytics and Artificial Intelligence workloads.
- Assess organizational readiness for enterprise AI data engineering transformation.
- Align data engineering initiatives with digital transformation strategies, AI adoption, operational excellence, and long-term business objectives.

Who Should Attend

The Data Engineering for AI Training Course is designed for data engineers, data architects, database administrators, cloud engineers, AI engineers, Machine Learning engineers, software developers, data scientists, Business Intelligence professionals, analytics specialists, IT managers, digital transformation leaders, enterprise architects, and technology professionals responsible for building and managing enterprise data platforms.

The course is particularly valuable for professionals working in government entities, ministries, public sector organizations, central banks, commercial banks, financial institutions, insurance

companies, oil and gas organizations, healthcare providers, manufacturing companies, telecommunications providers, logistics organizations, utilities, educational institutions, and multinational corporations implementing enterprise AI, cloud computing, and advanced analytics initiatives.

It is also suitable for CIOs, CTOs, IT directors, enterprise data governance professionals, DevOps engineers, cloud solution architects, ERP specialists, cybersecurity professionals, innovation managers, digital transformation teams, consultants, and decision-makers responsible for modernizing enterprise data infrastructure to support Artificial Intelligence.

Learning Outcomes

- By the end of the Data Engineering for AI Training Course, participants will be able to:
- Explain the strategic role of data engineering in successful Artificial Intelligence implementation.
- Design scalable enterprise data architectures that support AI, Machine Learning, and advanced analytics.
- Build efficient ETL and ELT pipelines for enterprise data integration and transformation.
- Prepare high-quality datasets suitable for AI model development and deployment.
- Implement enterprise data governance, metadata management, data quality, and master data management best practices.
- Integrate cloud-based data platforms, streaming technologies, and modern storage architectures into AI ecosystems.
- Apply cybersecurity, privacy protection, regulatory compliance, and responsible data management principles within enterprise data platforms.
- Optimize enterprise data pipelines for performance, scalability, reliability, and operational efficiency.
- Develop implementation roadmaps for enterprise AI data engineering initiatives.
- Lead enterprise data engineering transformation projects that strengthen AI capabilities, business intelligence, digital transformation, and organizational performance.

Course Outline

DAY 01

Foundations of Data Engineering for Artificial Intelligence

- Introduction to data engineering and AI ecosystems
- The role of data engineering in enterprise AI success
- Enterprise data architecture fundamentals
- Structured, semi-structured, and unstructured data management

PRACTICAL WORKSHOP

Assessing enterprise data readiness for AI implementation

DAY 02

Enterprise Data Pipelines and Modern Data Platforms

- Data ingestion and enterprise data integration
- ETL and ELT design methodologies
- Data lakes, data warehouses, and lakehouse architectures
- Cloud-native data engineering platforms

PRACTICAL WORKSHOP

Designing scalable enterprise data pipelines

DAY 03

Preparing Data for AI and Machine Learning

- Data transformation and feature engineering fundamentals
- Data quality management and validation techniques
- AI-ready dataset preparation
- Data orchestration, automation, and workflow optimization

DAY 03 — CONTINUED

PRACTICAL WORKSHOP

Building AI-ready enterprise data pipelines

DAY 04

Governance, Security, and Enterprise Data Management

- Enterprise data governance frameworks
- Metadata management and master data management
- Cybersecurity, privacy protection, and regulatory compliance
- Monitoring, observability, and operational excellence for data platforms

PRACTICAL WORKSHOP

Developing governance and monitoring frameworks for AI data environments

DAY 05

Enterprise AI Data Engineering Strategy

- Planning enterprise AI data engineering initiatives
- Building scalable cloud-based AI data ecosystems
- Future trends in data engineering, Artificial Intelligence, cloud computing, and intelligent analytics
- Measuring business value and return on investment from enterprise data engineering initiatives

FINAL WORKSHOP

Developing a comprehensive Data Engineering for AI implementation roadmap, including enterprise data architecture, AI-ready data pipeline strategy, cloud data platform design, governance framework, metadata strategy, security model, implementation roadmap, stakeholder engagement plan, and organizational action plan to strengthen enterprise AI capabilities, improve data quality, accelerate digital transformation, optimize business intelligence, and achieve sustainable operational excellence.



Register or Request More Information

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