MERCURY

Advanced-Data Engineering for Data Management Professionals

5 – 9 September 2027
Online



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Advanced-Data Engineering for Data Management Professionals

Ref: 15681_1084632 **Date:** 5 – 9 September 2027 **Location:** Online **Fees:** 1900 Euro

Introduction:

This Advanced-Data Engineering for Data Management Professionals course is designed for professionals working as Data Managers or in related roles who seek to deepen their understanding and skills in advanced data engineering. It will cover advanced topics, including in-depth analysis of engineering data, development of complex data pipelines, design of big data architectures, implementation of data governance, and performance optimization strategies.

Participants with the knowledge and tools to effectively manage and engineer data systems at an enterprise level, using advanced SQL for data engineering and other cutting-edge data engineering solutions. They will receive an Advanced-Data Engineering for Data Management Professionals certification, verifying their professional data management and advanced data engineering skills, laying out a clear path to learn data engineering at a sophisticated level.

In this Advanced-Data Engineering for Data Management Professionals course, participants will get hands-on experience with various data engineering tools essential for professionals in the field. Learning about these tools will enhance participants' data management professional skills, preparing them for complex data engineering challenges.

Targeted Groups:

- Data Managers seek to expand their technical expertise in advanced data engineering projects.
- Senior Data Engineers aiming to refine and enhance their advanced engineering data analysis skills.
- IT professionals are transitioning into professional data management roles.
- Data Architects and Database Administrators looking to broaden their scope of knowledge in advanced data engineering.
- Technical leaders responsible for data strategy and infrastructure must understand data engineering in-depth.

Course Objectives:

At the end of this Advanced-Data Engineering for Data Management Professionals course, participants will be able to:

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- Design and implement robust data pipelines for complex data environments.
- Optimize data architectures for scalability and performance using advanced data engineering tools.
- Apply best practices in data governance and compliance that data management professional organizations inform.
- Utilize advanced tools and techniques for data processing and storage, including advanced engineering data analysis.
- Leading advanced data engineering projects within their organizations confidently backed by a deep understanding of data engineering concepts.

Targeted Competencies:

By the end of this Advanced-Data Engineering for Data Management Professionals training, participants competencies will:

- Advanced data pipeline design and implementation.
- Mastery of big data technologies and frameworks for advanced analysis of engineering data.
- Expertise in data governance and security practices advocated by data management professional organizations.
- Proficiency in performance tuning and system optimization for advanced data engineering solutions.
- Leadership in data engineering and project management with a clear understanding of the data engineering process and principles.

Course Content:

Unit 1: Advanced-Data Pipeline Design:

- Explore the architecture and components of advanced data engineering pipelines, including sources, transformations, and destinations.
- Delve into the differences, benefits, and challenges of batch and real-time data processing.
- Compare and contrast the Extract, Transform, Load ETL and Extract, Load, Transform ELT approaches and their applications in advanced data engineering projects.
- Study tools like Apache Airflow for orchestrating complex data workflows in professional data management contexts.
- Implement strategies for error handling and ensuring data quality within pipelines.

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Unit 2: Big Data Architectures:

- Understand big data's characteristics, challenges, and opportunities in the context of advanced engineering data analysis.
- Learn about distributed data processing frameworks like Apache Hadoop for handling large datasets in advanced data engineering.
- Explore data storage solutions tailored for scalability and performance in professional petroleum data management and other industries.
- Analyze strategies for scaling big data solutions and optimizing performance.
- Dive into tools for processing streaming data applicable in advanced data engineering contexts.

Unit 3: Data Governance and Compliance:

- Define data governance and its critical importance in ensuring data integrity, security, and compliance, especially for professional data management.
- Study key regulations and implement compliant data practices.
- In advanced data engineering projects, learn to maintain a comprehensive data catalog and track data lineage.
- Implement robust access control mechanisms to safeguard sensitive data.
- Understand the role of data stewards in advanced data engineering environments.

Unit 4: Performance Optimization and Tuning:

- Explore advanced techniques for optimizing databases, which is a core component of data management professional skills.
- Learn how to analyze and optimize SQL queries, a crucial skill in advanced SQL for data engineering.
- Study various indexing techniques to enhance data retrieval speeds and optimize advanced data engineering solutions.
- Manage computational resources effectively in big data environments.
- Implement monitoring tools to proactively identify and resolve performance issues, maintaining efficiency in complex data engineering processes.

Unit 5: Leadership in Data Engineering:

- Apply project management principles to lead data engineering initiatives successfully.
- Foster effective communication and collaboration within data engineering teams.
- Develop and execute a comprehensive data strategy that incorporates advanced data engineering principles.
- Manage change within data projects, including stakeholder engagement and risk management.
- Stay updated on the latest trends, tools, and technologies shaping the future of advanced data engineering.