

Artificial Intelligence, Data Management and Business Analytics for Operations

Duration: 5 Days

Module 1: Introduction to Artificial Intelligence

- Fundamentals, evolution, and types of AI
- Understanding AI, Machine Learning, Deep Learning, and Generative AI
- Capabilities, limitations, and common misconceptions about AI
- Role of AI in improving operational efficiency and productivity

Module 2: Prompt Engineering for Business and Operations

- Fundamentals of prompts and effective AI instructions
- Prompt components: role, context, task, and expected output
- Prompting techniques for summarization, classification, extraction, and analysis
- Using AI prompts for operational reports, email communication, and process documentation

Module 3: Language Models and Generative AI

- Understanding Large Language Models (LLMs) and how they generate responses
- Overview of open-source language models and their capabilities
- AI-powered summarization, translation, information extraction, and content generation
- Limitations of AI-generated information, hallucinations, and output validation

Module 4: Machine Learning Fundamentals for Operations

- Understanding Machine Learning without programming
- Supervised, unsupervised, and reinforcement learning
- Classification, clustering, forecasting, and anomaly detection
- Operational applications: demand prediction, identifying trends, and process optimization

Module 5: AI for Data Management and Organization

- Fundamentals of data management and data quality
- Using AI to categorize, filter, sort, and organize information
- Identifying duplicate records, missing values, inconsistencies, and data quality issues

- Using AI for data extraction, standardization, summarization, and metadata classification
- Data privacy, confidentiality, and responsible handling of operational information

Module 6: Microsoft Excel for Operational Data Analysis

- Understanding worksheets, datasets, tables, and data types
- Data cleaning, sorting, filtering, and organizing operational records
- Formulas, functions, PivotTables, and charts for summarizing data
- Using AI assistance conceptually to interpret data, identify trends, and generate insights

Module 7: Power BI for Operational Reporting and Business Intelligence

- Introduction to Business Intelligence and Power BI Desktop
- Understanding data sources, data models, and data visualization
- Reports, dashboards, KPIs, filters, and performance monitoring
- Using visual insights to identify operational bottlenecks and support decision-making
- Overview of AI capabilities in analytics and their role in interpreting business information

Module 8: Python Fundamentals and the Open-Source AI Ecosystem

- Introduction to Python and its role in AI and data management
- Understanding variables, data types, functions, and libraries conceptually
- Overview of Python libraries for data analysis and Machine Learning
- Introduction to free and open-source tools: Jupyter, pandas, and scikit-learn

Python is covered for awareness and understanding only. No coding or programming exercises.

Module 9: Applications of AI Across Industries and Business Functions

- Operations and supply chain: inventory management, forecasting, and process improvement
- Customer service and service operations: query classification, response assistance, and service analytics
- Finance and banking: fraud detection, reporting, and risk identification
- Healthcare, manufacturing, retail, education, and human resources: common AI use cases
- Identifying suitable opportunities for AI adoption in everyday operational workflows

Module 10: Responsible AI and the Future of Intelligent Operations

- Responsible AI, fairness, bias, and transparency
- Data security, privacy, and organizational AI usage policies
- Human review and validation of AI-generated data and reports
- Emerging trends in AI agents, intelligent automation, and AI-enabled operations

