Apache Airflow for Business Intelligence Training Course

Professional Development Training Course Outline

Category	Business Intelligence	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Apache Airflow is an open-source workflow orchestration platform designed to automate, schedule, and monitor complex data pipelines efficiently. In the context of Business Intelligence (BI), Airflow empowers organizations to streamline data ingestion, transformation, and analytics processes, ensuring timely and accurate reporting. Apache Airflow for Business Intelligence Training Course provides practical, hands-on training, enabling participants to design, deploy, and optimize workflows that drive actionable insights and enhance BI decision-making.

The training emphasizes real-world applications, industry-standard best practices, and scalable solutions for modern BI ecosystems. Participants will gain in-depth knowledge of Airflow architecture, DAG creation, task scheduling, and integration with data warehouses, ensuring robust automation for data-driven organizations.

Programme Curriculum

Apache Airflow for BI Training Course

Introduction

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Course Objectives

1. Understand Apache Airflow architecture and core components for BI pipelines.
2. Master Directed Acyclic Graphs (DAGs) design and scheduling strategies.
3. Learn task dependencies, triggers, and workflow orchestration.
4. Implement advanced operators, sensors, and hooks for automation.
5. Integrate Airflow with popular BI tools and data warehouses.
6. Apply data quality checks and monitoring for reliable pipelines.
7. Automate ETL processes and optimize BI workflows.
8. Configure Airflow for scalability and high availability.
9. Manage Airflow security, user roles, and permissions.
10. Debug, test, and troubleshoot workflow errors effectively.
11. Employ logging and alert mechanisms for real-time monitoring.
12. Explore Airflow plugins and custom operator development.
13. Analyze case studies of Airflow implementations in BI projects.

Organizational Benefits

- Streamlined data pipeline automation across teams
- Improved decision-making through timely and accurate reports
- Reduced manual intervention in ETL and data integration processes
- Enhanced data quality and governance
- Scalable workflow management for large BI environments
- Increased operational efficiency with real-time monitoring
- Cost optimization via optimized scheduling and resource allocation
- Standardized BI processes with reusable workflows
- Strong compliance adherence with audit-ready workflows
- Empowered teams with Airflow skillsets for data engineering projects

Target Audiences

- Data Engineers
- Business Intelligence Analysts
- Data Analysts
- ETL Developers
- Data Architects
- BI Managers
- Analytics Consultants
- IT Professionals involved in data operations

Course Duration: 5 days

Course Modules

Module 1: Introduction to Apache Airflow

- Airflow overview and ecosystem

- Architecture and components (Scheduler, Webserver, Workers)
- DAGs, tasks, and operators overview
- Use cases in BI pipelines
- Hands-on lab: Setting up Airflow environment
- Case Study: Airflow deployment in a retail BI scenario

Module 2: Directed Acyclic Graphs (DAGs) Design

- DAG creation and scheduling
- Defining task dependencies
- Parameterizing DAGs
- Implementing retries and catchups
- Best practices for DAG design
- Case Study: DAG design for multi-source ETL in finance

Module 3: Task Orchestration and Workflow Automation

- Operators, sensors, and hooks explained
- Task execution and triggers
- Branching and conditional workflows
- Automating ETL pipelines
- Handling failures and alerts
- Case Study: Automating daily sales report workflows

Module 4: Airflow Integration with BI Tools

- Connecting to databases and warehouses
- Integration with Tableau, Power BI, and Looker
- Extracting data from APIs
- Loading data into BI tools
- Real-time pipeline updates
- Case Study: Airflow-Tableau integration for retail insights

Module 5: Monitoring and Logging

- Airflow logging and tracking task progress
- Setting up alerts and notifications
- Monitoring SLA and workflow performance
- Debugging task failures
- Using metrics and dashboards
- Case Study: Monitoring BI ETL pipeline for telecom data

Module 6: Advanced Airflow Features

- Dynamic DAGs and templating
- Custom operators and plugins
- Parallel execution and concurrency management
- Pools and resource management
- Airflow CLI usage and automation scripts
- Case Study: Scaling Airflow for e-commerce ETL

Module 7: Security and Governance

- User roles, authentication, and permissions
- Secrets management and encryption
- Data access control
- Auditing and compliance in Airflow
- Workflow governance best practices
- Case Study: Airflow security implementation in healthcare BI

Module 8: Performance Optimization and Troubleshooting

- Optimizing DAG execution time
- Efficient task retries and resource allocation
- Debugging workflow failures
- Best practices for high availability
- Scaling Airflow horizontally
- Case Study: Optimizing high-volume ETL pipelines for analytics

Training Methodology

- Instructor-led sessions with practical demonstrations
- Hands-on labs and exercises in real Airflow environments
- Group discussions and knowledge sharing sessions
- Case studies for real-world BI applications
- Quizzes and assessments for concept reinforcement
- Mentoring for DAG design and workflow optimization

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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