

Microsoft Certified Machine Learning Operations Engineer Associate Certification (Exam AI-300)

COURSE CONTENT

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About Multisoft

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About Course

Microsoft Certified: Machine Learning Operations Engineer Associate Certification (Exam AI-300) Training is designed to help professionals implement, automate, deploy, and manage machine learning solutions using Azure Machine Learning and modern MLOps practices. The course covers model development, deployment, monitoring, governance, CI/CD, security, Responsible AI, and lifecycle management, enabling participants to build scalable and production-ready AI solutions while preparing for the AI-300 certification.

Module 1: Introduction to Machine Learning Operations

- ✓ AI-300 Certification Overview
- ✓ MLOps Fundamentals
- ✓ Azure AI Ecosystem
- ✓ Azure Machine Learning Overview
- ✓ Machine Learning Lifecycle
- ✓ Enterprise AI Operations

Module 2: Azure Machine Learning Workspace

- ✓ Creating Azure ML Workspaces
- ✓ Compute Instances
- ✓ Compute Clusters
- ✓ Environment Management
- ✓ Datastores
- ✓ Data Assets
- ✓ Workspace Administration
- ✓ Resource Configuration

Module 3: Data Management and Experiment Tracking

- ✓ Data Preparation
- ✓ Data Versioning
- ✓ Dataset Management
- ✓ Experiment Tracking
- ✓ MLflow Integration

- ✓ Metadata Management
- ✓ Feature Engineering
- ✓ Data Validation

Module 4: Model Development and Training

- ✓ Model Training
- ✓ Automated Machine Learning (AutoML)
- ✓ Custom Training Jobs
- ✓ Hyperparameter Optimization
- ✓ Model Evaluation
- ✓ Model Explainability
- ✓ Model Registration
- ✓ Model Versioning

Module 5: Machine Learning Pipelines

- ✓ Pipeline Design
- ✓ Pipeline Components
- ✓ Pipeline Scheduling
- ✓ Workflow Automation
- ✓ Pipeline Reusability
- ✓ Parallel Execution
- ✓ Pipeline Monitoring
- ✓ Pipeline Optimization

Module 6: Model Deployment

- ✓ Deployment Strategies
- ✓ Managed Online Endpoints
- ✓ Batch Endpoints
- ✓ Kubernetes Deployment
- ✓ Containerization
- ✓ Blue-Green Deployment
- ✓ Model Version Control
- ✓ Endpoint Security
- ✓ Deployment Validation

Module 7: CI/CD and DevOps for Machine Learning

- ✓ Azure DevOps
- ✓ GitHub Actions
- ✓ Continuous Integration
- ✓ Continuous Deployment
- ✓ Infrastructure as Code
- ✓ Release Pipelines
- ✓ Automated Testing
- ✓ MLOps Best Practices

Module 8: Monitoring and Model Operations

- ✓ Model Monitoring
- ✓ Data Drift Detection

- ✓ Model Drift Detection
- ✓ Performance Monitoring
- ✓ Logging
- ✓ Diagnostics
- ✓ Alert Configuration
- ✓ Retraining Strategies
- ✓ Operational Metrics

Module 9: Security and Responsible AI

- ✓ Azure Identity
- ✓ Authentication
- ✓ Authorization
- ✓ Azure Key Vault
- ✓ Responsible AI
- ✓ Fairness
- ✓ Explainable AI
- ✓ Governance
- ✓ Compliance
- ✓ Security Best Practices

Module 10: Infrastructure and Resource Optimization

- ✓ Compute Optimization
- ✓ GPU and CPU Management
- ✓ Scaling AI Workloads
- ✓ Cost Optimization

- ✓ Resource Monitoring
- ✓ Capacity Planning
- ✓ Infrastructure Maintenance
- ✓ Performance Optimization

Module 11: Enterprise MLOps Implementation

- ✓ Enterprise AI Architecture
- ✓ Azure Service Integration
- ✓ Production AI Pipelines
- ✓ AI Governance
- ✓ Collaboration Workflows
- ✓ Operational Excellence
- ✓ Enterprise Best Practices
- ✓ AI Solution Lifecycle

Module 12: Real-World MLOps Projects

- ✓ End-to-End MLOps Implementation
- ✓ Model Deployment Project
- ✓ Monitoring and Retraining Project
- ✓ Enterprise AI Operations
- ✓ CI/CD Pipeline Project
- ✓ AI-300 Certification Practice Labs
- ✓ Performance Optimization Project
- ✓ Capstone MLOps Solution