

MLOps & AI Deployment

A specialized production engineering course in MLOps, containerizing AI models, CI/CD pipelines, experiment tracking, model registry, monitoring, and cloud deployment.

Duration 4 to 6 Months	Training Mode Offline Classroom Training	Certification Industry Certificate	Practical Labs 100% Hands-on
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Tools & Tech: Python • Linux • Bash • Git • GitHub • Docker • Docker Compose • Kubernetes • FastAPI • Flask • MLflow • DVC • Apache Airflow • Kubeflow • Prefect • GitHub Actions • Jenkins • ONNX • TensorFlow • PyTorch • AWS • Microsoft Azure • Google Cloud Platform (GCP) • REST APIs • Prometheus • Grafana • Nginx • Docker Registry • Model Monitoring • CI/CD • MLOps

Detailed Course Curriculum & Modules

MODULE 01 Introduction to MLOps - MLOps Fundamentals - What is MLOps? - Machine Learning Lifecycle - MLOps vs DevOps vs DataOps - Why MLOps is Important - Challenges in Production AI - End-to-End ML Pipeline - Model Development Lifecycle - Continuous Training Concepts - Continuous Deployment Concepts - Career Opportunities in MLOps	MODULE 02 Linux, Git & Development Environment - Linux Fundamentals - Linux Basics - File System Structure - Shell Commands - File Permissions - Process Management - Environment Variables - Package Management - SSH - Cron Jobs - Bash Scripting Basics - Version Control
MODULE 03 Containerization with Docker - Docker Fundamentals - Introduction to Docker - Containers vs Virtual Machines - Docker Architecture - Docker Installation - Docker CLI - Docker Images - Docker Containers - Docker Registries - Docker Volumes - Docker Networks - Building AI Containers	MODULE 04 Kubernetes for AI Applications - Kubernetes Fundamentals - Introduction to Kubernetes - Kubernetes Architecture - Pods - Deployments - ReplicaSets - Services - ConfigMaps - Secrets - Namespaces - Ingress - AI Workload Management
MODULE 05 Model Packaging & Deployment - Model Deployment - Introduction to Model Deployment - Model Serialization - Pickle - Joblib - ONNX - TensorFlow SavedModel - PyTorch Model Export - Model Versioning - Model Registry Concepts - Deployment Strategies - Serving Machine Learning Models	MODULE 06 ML Pipelines & Workflow Orchestration - Building ML Pipelines - Introduction to ML Pipelines - Data Ingestion - Data Validation - Data Transformation - Feature Engineering Pipelines - Model Training Pipelines - Model Evaluation Pipelines - Pipeline Automation - Pipeline Scheduling - Pipeline Monitoring - Workflow Orchestration

MODULE 07 | Experiment Tracking & Model Management

- ML Experiment Tracking
- Introduction to MLflow
- Experiment Tracking
- Parameter Logging
- Metric Tracking
- Artifact Management
- Model Registry
- Model Comparison
- Model Promotion
- Model Versioning
- Model Lifecycle Management
- Data Versioning

MODULE 08 | CI/CD for Machine Learning

- Continuous Integration
- Introduction to CI/CD
- GitHub Actions
- Jenkins Basics
- Automated Testing
- Code Quality Checks
- Dependency Scanning
- Unit Testing
- Integration Testing
- Build Automation
- Release Pipelines
- Continuous Deployment

MODULE 09 | Monitoring & Model Observability

- Production Monitoring
- Application Monitoring
- Model Monitoring
- Infrastructure Monitoring
- Logging
- Metrics Collection
- Alerting
- Performance Monitoring
- Resource Monitoring
- API Monitoring
- Dashboard Creation
- Model Observability

MODULE 10 | Cloud AI Deployment

- Cloud Platforms
- Introduction to Cloud Computing
- AWS AI Services
- Microsoft Azure AI
- Google Cloud AI
- Cloud Storage
- Object Storage
- Compute Services
- Serverless Computing
- Managed AI Services
- Cloud Security
- Deployment Strategies

MODULE 11 | AI Security & Production Best Practices

- AI Infrastructure Security
- Authentication
- Authorization
- API Security
- Environment Variables
- Secret Management
- Encryption Basics
- Network Security
- Access Control
- Compliance Concepts
- Infrastructure Hardening
- Production Operations

Practical Projects & Industry Capstones

- End-to-End Machine Learning Pipeline
- ML Model Deployment using FastAPI
- Dockerized AI Application
- Kubernetes-Based AI Deployment
- MLflow Model Registry Platform
- AI Model Monitoring Dashboard
- Automated ML Retraining Pipeline
- CI/CD Pipeline for Machine Learning
- Cloud-Based AI Deployment
- Scalable AI Inference API
- Enterprise MLOps Platform
- Production Recommendation System
- AI Infrastructure Monitoring Solution
- End-to-End Production AI System

■ Industry Certification

Authorized certificate verified globally via online portal.

■ 100% Placement Support

Resume review, mock interviews, and recruiter connections.

■ Lab Access & Mentorship

Dedicated workstation lab hours with expert guidance.