

# Deploying Machine Learning Models Training Course

Professional Development Training Course Outline

|          |              |               |                         |
|----------|--------------|---------------|-------------------------|
| Category | Data Science | Duration      | 5 Days                  |
| Base Fee | \$1,500 USD  | Delivery Mode | Online / On-site Hybrid |

## Course Introduction

In today's rapidly evolving technological landscape, the ability to effectively transition machine learning models from research environments to real-world applications is a critical skill. This intensive training course on **Deploying Machine Learning Models** addresses this crucial gap by providing participants with a thorough understanding of the end-to-end deployment lifecycle. Participants will gain practical experience in leveraging cutting-edge tools and methodologies to streamline the **MLOps pipeline**, ensuring scalability, reliability, and efficient management of their machine learning solutions. This course emphasizes hands-on learning and real-world case studies, empowering individuals and organizations to unlock the full potential of their **artificial intelligence initiatives** and achieve tangible business value through robust and well-governed **model deployment strategies**.

This program is meticulously designed to equip learners with the necessary expertise to navigate the complexities of **productionizing machine learning models**. From understanding different deployment environments and infrastructure considerations to implementing robust monitoring and continuous integration/continuous delivery (**CI/CD for ML**) practices, this course covers the essential knowledge and skills required for successful deployment. By focusing on industry best practices and incorporating the latest advancements in **cloud-based ML deployment**, **edge AI deployment**, and **serverless machine learning**, participants will be well-prepared to tackle the challenges of deploying sophisticated models in diverse operational settings. The curriculum also highlights the importance of **model governance**, **security in ML deployment**, and **performance optimization** to ensure long-term success and responsible AI implementation.

## Programme Curriculum

### Deploying Machine Learning Models Training Course

#### Introduction

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### Course Duration

5 days

### Course Objectives

Upon completion of this training course, participants will be able to:

1. Understand the complete **machine learning deployment lifecycle** and its key stages.
2. Identify and evaluate various **deployment environments** such as cloud, on-premise, and edge.
3. Implement **containerization strategies** using Docker and Kubernetes for scalable deployments.
4. Design and build robust **CI/CD pipelines for machine learning models**.
5. Apply different **model serving techniques** including REST APIs and batch processing.
6. Monitor **model performance and drift** using appropriate metrics and tools.
7. Implement effective **data management strategies** for deployed models.
8. Ensure **security and compliance** in machine learning deployment workflows.
9. Optimize **model inference speed and resource utilization** for cost-efficiency.
10. Troubleshoot common issues and challenges in **machine learning deployment**.
11. Leverage **cloud-specific ML deployment services** offered by major providers.
12. Implement strategies for **version control and rollback** of deployed models.
13. Understand the principles of **model governance and ethical considerations** in deployment.

### Organizational Benefits

Organizations that invest in this training course can expect to realize several key benefits:

- **Accelerated time-to-market** for machine learning applications.
- **Improved efficiency** in the machine learning operations process.
- **Reduced deployment costs** through optimized resource utilization.
- **Enhanced reliability and stability** of deployed models.

- **Better governance and compliance** with industry standards.
- **Increased innovation** by enabling faster experimentation and deployment cycles.
- **Improved collaboration** between data science and engineering teams.
- **Greater return on investment** from machine learning initiatives.

## Target Audience

This training course is ideal for:

1. Data Scientists
2. Machine Learning Engineers
3. Software Engineers
4. AI/ML Team Leads
5. DevOps Engineers
6. IT Professionals
7. Cloud Architects
8. Technical Managers

## Course Outline

### Module 1: Introduction to Machine Learning Deployment

- Understanding the ML lifecycle and the deployment phase.
- Key challenges and considerations in deploying ML models.
- Overview of different deployment architectures and strategies.
- The role of MLOps in streamlining the deployment process.
- Introduction to essential tools and technologies for deployment.

### Module 2: Deployment Environments and Infrastructure

- Exploring cloud-based deployment options (AWS, Azure, GCP).
- On-premise deployment considerations and best practices.
- Deploying models on edge devices and IoT platforms.
- Choosing the right infrastructure for different use cases.
- Managing infrastructure costs and scalability.

### Module 3: Containerization with Docker and Kubernetes

- Introduction to Docker and containerization principles.
- Building and managing Docker images for ML applications.
- Orchestration with Kubernetes: concepts and architecture.
- Deploying and scaling ML models using Kubernetes.
- Best practices for containerizing ML workloads.

### Module 4: Building CI/CD Pipelines for Machine Learning

- Understanding the principles of Continuous Integration and Continuous Delivery.
- Designing CI/CD pipelines for the ML lifecycle.
- Automating model building, testing, and deployment.
- Integrating version control and rollback mechanisms.
- Utilizing CI/CD tools for MLOps (e.g., Jenkins, GitLab CI).

### Module 5: Model Serving Techniques

- Implementing RESTful APIs for real-time model inference.
- Batch processing for large-scale predictions.
- Utilizing model serving frameworks (e.g., TensorFlow Serving, TorchServe).
- Choosing the appropriate serving technique for different applications.
- Load balancing and scaling model serving infrastructure.

### **Module 6: Monitoring and Maintaining Deployed Models**

- Defining key performance indicators (KPIs) for deployed models.
- Implementing model performance monitoring and alerting systems.
- Detecting and addressing model drift and concept drift.
- Logging and auditing deployed model activity.
- Strategies for model retraining and updates in production.

### **Module 7: Data Management for Deployed Models**

- Handling data pipelines for model input and output.
- Ensuring data quality and consistency in production.
- Implementing data versioning and lineage tracking.
- Addressing data privacy and security concerns.
- Integrating with data lakes and data warehouses.

### **Module 8: Security, Governance, and Optimization**

- Implementing security best practices for deployed ML models.
- Addressing ethical considerations and bias in AI deployment.
- Establishing model governance frameworks and compliance.
- Techniques for optimizing model inference speed and resource usage.
- Cost management and resource allocation in production environments.

### **Training Methodology**

This training course will employ a blended learning approach, incorporating:

- **Interactive lectures** with real-world examples and case studies.
- **Hands-on lab sessions** using industry-standard tools and platforms.
- **Group discussions** and knowledge sharing among participants.
- **Practical assignments** to reinforce learning and skill development.
- **A capstone project** where participants deploy a machine learning model.

### **Register as a group from 3 participants for a Discount**

Send us an email: [info@fineskilltrainingcenter.com](mailto:info@fineskilltrainingcenter.com) 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   |
|-------------|-------------|----------|---------|
| 07 Sep 2026 | 11 Sep 2026 | Physical | \$1,500 |
| 14 Sep 2026 | 18 Sep 2026 | Physical | \$1,500 |
| 21 Sep 2026 | 25 Sep 2026 | Physical | \$1,500 |
| 28 Sep 2026 | 02 Oct 2026 | Physical | \$1,500 |
| 05 Oct 2026 | 09 Oct 2026 | Physical | \$1,500 |
| 12 Oct 2026 | 16 Oct 2026 | Physical | \$1,500 |
| 19 Oct 2026 | 23 Oct 2026 | Physical | \$1,500 |
| 26 Oct 2026 | 30 Oct 2026 | Physical | \$1,500 |

Ready to enroll or request a customized program? Book online or contact us:

**Register Online Now**

