Training Course on Artificial Intelligence (AI) and Machine Learning (ML)

Professional Development Training Course Outline

Category	Artificial Intelligence And Block Chain	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Artificial Intelligence (AI) and Machine Learning (ML) are transforming industries, revolutionizing decision-making, and enabling smarter business processes. Training Course on Artificial Intelligence (AI) and Machine Learning (ML) equips participants with in-depth knowledge of the core principles, tools, and applications of artificial intelligence and machine learning. Whether you're a data professional, software developer, analyst, or business leader, this course offers hands-on experience in building, training, and deploying machine learning models in real-world scenarios.

The course is designed to demystify AI and ML for professionals across various sectors—finance, healthcare, agriculture, manufacturing, education, and more—by providing foundational theory combined with practical applications. Participants will explore supervised and unsupervised learning, natural language processing (NLP), neural networks, computer vision, and deep learning frameworks. The curriculum is highly interactive, using tools such as Python, TensorFlow, and Scikit-learn to solve actual business problems using AI and ML.

In today’s competitive and data-driven world, the ability to extract insights from large datasets and automate decision-making through AI and ML is a game-changer. This course empowers organizations to stay ahead of technological trends, improve operational efficiency, and innovate product and service offerings. It also addresses ethical considerations, bias in AI systems, and best practices for AI governance and deployment at scale.

Upon completion, participants will have the confidence and competence to apply AI and ML strategies to business operations, research, or product development. The training also fosters innovation by exploring use cases such as predictive analytics, fraud detection, recommendation systems, autonomous systems, and more. It’s a must-attend course for individuals and teams looking to drive digital transformation with cutting-edge technologies.

Programme Curriculum

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Course Duration:

10 Days

Course Objectives

- Understand the fundamentals of Artificial Intelligence and Machine Learning.
- Gain hands-on experience with ML algorithms and AI frameworks.
- Learn how to collect, clean, and prepare data for machine learning.
- Explore supervised, unsupervised, and reinforcement learning techniques.
- Master tools and languages like Python, Scikit-learn, TensorFlow, and Keras.
- Apply AI/ML models to solve real-life problems across industries.
- Learn about deep learning, neural networks, and computer vision.
- Understand ethical considerations, bias mitigation, and AI accountability.

Gain skills in deploying, monitoring, and scaling ML models.
Analyze case studies of successful AI/ML implementation.

Organizational Benefits

1. Accelerate digital transformation through AI-driven decision-making.
2. Improve efficiency with predictive analytics and automation.
3. Enhance product innovation using intelligent algorithms.
4. Gain competitive advantage through data-based insights.
5. Build internal capacity for AI/ML model development and deployment.
6. Reduce operational costs through smart systems and process automation.
7. Improve customer engagement via personalized AI-driven experiences.
8. Enhance cybersecurity with anomaly detection models.
9. Support data governance and compliance through AI auditability.
10. Increase employee skillsets and team productivity through AI adoption.

Target Participants

- Data scientists and data analysts
- IT and software development professionals
- Business intelligence and digital transformation teams
- AI/ML researchers and engineers
- Statisticians and quantitative analysts
- Project managers in tech-driven sectors
- University lecturers and students in computer science
- Government and policy professionals exploring AI applications
- Professionals in healthcare, finance, agriculture, and logistics
- Startups and entrepreneurs focused on innovation and tech solutions

Course Outline

Module 1: Introduction to Artificial Intelligence and Machine Learning

1. Definition and evolution of AI and ML
2. Key differences: AI vs ML vs Deep Learning
3. AI/ML applications across industries
4. Introduction to data science and big data
5. Case study: AI for healthcare diagnostics

Module 2: Data Preprocessing and Exploration

1. Importance of clean and structured data
2. Handling missing values and outliers
3. Feature engineering and selection

4. Data normalization and scaling
5. Case study: Data cleaning for a sales prediction model

Module 3: Python for AI and ML

1. Introduction to Python for data science
2. Key libraries: NumPy, Pandas, Matplotlib
3. Data visualization and EDA (Exploratory Data Analysis)
4. Writing custom functions for ML workflows
5. Case study: Building a data pipeline with Python

Module 4: Supervised Learning Techniques

1. Linear regression and logistic regression
2. Decision trees and random forests
3. Support vector machines (SVMs)
4. Model evaluation and metrics (accuracy, precision, recall)
5. Case study: Predicting customer churn in telecom

Module 5: Unsupervised Learning Techniques

1. K-means and hierarchical clustering
2. Principal Component Analysis (PCA)
3. Association rule learning
4. Applications in market segmentation
5. Case study: Clustering customers for targeted marketing

Module 6: Neural Networks and Deep Learning

1. Basics of artificial neural networks
2. Activation functions and backpropagation
3. Introduction to deep learning and deep neural networks
4. Using Keras and TensorFlow for model building
5. Case study: Image classification with CNN

Module 7: Natural Language Processing (NLP)

1. Text preprocessing and tokenization
2. Sentiment analysis and topic modeling
3. Named Entity Recognition (NER)
4. Language models and BERT
5. Case study: Social media sentiment analysis

Module 8: Computer Vision

1. Image processing basics
2. Object detection and face recognition
3. Convolutional Neural Networks (CNNs)
4. Transfer learning for vision models
5. Case study: AI for agricultural crop disease detection

Module 9: Time Series Analysis and Forecasting

1. Introduction to time series data
2. ARIMA and exponential smoothing methods
3. Seasonality and trend detection
4. LSTM for sequential data
5. Case study: Stock price forecasting

Module 10: Reinforcement Learning

1. Understanding agents, states, and rewards
2. Q-learning and policy gradients
3. Applications in robotics and gaming
4. Model-free vs model-based learning
5. Case study: AI in warehouse automation

Module 11: Model Evaluation and Optimization

1. Train-test split and cross-validation
2. Overfitting and underfitting issues
3. Hyperparameter tuning using GridSearchCV
4. ROC curves, confusion matrix, and F1 score
5. Case study: Fraud detection in banking

Module 12: Deploying ML Models

1. Model saving and serialization (Pickle, Joblib)
2. Introduction to REST APIs and Flask
3. Cloud deployment: AWS, Google Cloud, Azure
4. Continuous integration and model monitoring
5. Case study: Deploying a recommendation engine

Module 13: Ethics and Responsible AI

1. Bias and fairness in AI systems
2. Explainability and transparency
3. Regulatory considerations (GDPR, AI Act)

4. Building trust in AI
5. Case study: Mitigating bias in hiring algorithms

Module 14: Industry Applications of AI/ML

1. AI in healthcare diagnostics and personalized treatment
2. AI in fintech: fraud detection and risk modeling
3. AI in agriculture: crop yield prediction
4. AI in retail: personalized recommendations
5. Case study: AI transformation in logistics

Module 15: Capstone Project and Case Presentations

1. Selecting a real-world problem
2. End-to-end model development
3. Documentation and presentation
4. Peer review and feedback
5. Final project showcase: Solving real business challenges

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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

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