



Technical Guftgu

(Established by Ministry of Micro, Small and Medium Enterprises, Govt. of India)

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- ✓ Certificate provided
- ✓ Recordings Provided
- ✓ Training In Hindi/Urdu
- ✓ Expert Trainers

Artificial Intelligence (AI) & Machine Learning (ML)

Course Curriculum –

Introduction - This **AI/ML course** covers the fundamentals of **Artificial Intelligence** and **Machine Learning**, equipping learners with essential skills in data processing, model building, and deep learning techniques. Participants will explore key concepts such as **supervised and unsupervised learning, neural networks, and AI applications**. Hands-on projects with **Python, TensorFlow, and Scikit-Learn** ensure practical understanding.

Module 1: Introduction to AI & ML Fundamentals

1. Course Overview
2. Introduction to AI & ML
3. Evolution of AI
4. Types of AI (Narrow AI, General AI, Super AI)
5. Introduction to Machine Learning
6. Machine Learning Lifecycle
7. Types of Machine Learning
8. Supervised Learning Basics
9. Unsupervised Learning Basics
10. Reinforcement Learning Basics

Module 2: Python for AI/ML & Data Preprocessing

1. AI vs ML vs DL vs Data Science
2. Python for AI/ML
3. Setting Up the Environment
4. Data Preprocessing (Handling Missing Values, Feature Engineering)
5. Data Normalization & Standardization
6. Exploratory Data Analysis (EDA)
7. Introduction to Model Training
8. Splitting Data (Train-Test Split, Cross-Validation)
9. Evaluating Model Performance
10. Case Study - Predicting House Prices

Module 3: Supervised Learning Algorithms

1. Introduction to Supervised Learning
2. Linear & Multiple Regression
3. Logistic Regression for Classification
4. Decision Trees & Random Forest
5. Support Vector Machines (SVM)
6. Naïve Bayes Classifier
7. Gradient Boosting (XGBoost, AdaBoost, LightGBM)
8. Model Evaluation Metrics
9. Hyperparameter Tuning (Grid Search, Random Search)
10. Hands-on Implementation in Python

Module 4: Unsupervised Learning Algorithms & Model Deployment

1. Introduction to Unsupervised Learning
2. K-Means Clustering
3. Hierarchical Clustering
4. DBSCAN Algorithm
5. Principal Component Analysis (PCA)
6. Association Rule Learning (Apriori, FP-Growth)
7. Autoencoders for Anomaly Detection
8. Evaluation of Clustering Performance
9. Introduction to Model Deployment
10. Saving & Loading ML Models

Module 5: Deep Learning Fundamentals

1. Introduction to Deep Learning
2. Difference Between ML & Deep Learning
3. Overview of Neural Networks
4. Activation Functions (ReLU, Sigmoid, Tanh, Softmax)
5. Backpropagation & Gradient Descent
6. Optimization Algorithms (SGD, Adam, RMSprop)
7. Hands-on Neural Networks with TensorFlow & PyTorch

Module 6: Advanced Deep Learning – CNNs & NLP

1. Introduction to Computer Vision & CNNs
2. Understanding CNN Architecture
3. Convolution & Pooling Layers
4. Transfer Learning & Fine-Tuning Pretrained Models
5. Object Detection (YOLO, Faster R-CNN, SSD)
6. Introduction to NLP & Text Processing

7. Word Embeddings (Word2Vec, GloVe, FastText, BERT)
8. Text Classification (Naïve Bayes, LSTMs, Transformers)
9. Named Entity Recognition & Sentiment Analysis
10. Hands-on with NLP & Computer Vision

Module 7: Reinforcement Learning & AI Ethics

1. Introduction to Reinforcement Learning
2. Markov Decision Process (MDP)
3. Exploration vs Exploitation Trade-off
4. Q-Learning & Deep Q Networks (DQN)
5. Policy Gradient Methods
6. AI Ethics & Bias
7. Explainable AI (XAI) Techniques
8. AI Governance & Compliance (GDPR, HIPAA)
9. Case Studies on Ethical AI

Module 8 : MLOps, Real-World AI & Capstone Project

1. Introduction to MLOps
2. CI/CD for Machine Learning Pipelines
3. Model Versioning & Experiment Tracking
4. Deploying AI Models on Cloud
5. AI in Healthcare, Finance, Retail, Cybersecurity
6. Generative AI & Large Language Models
7. Capstone Project Overview & Implementation
8. Final Project Presentation & Review
9. Course Recap & AI/ML Career Guidance

KEY HIGHLIGHTS OF THIS TRAINING PROGRAM:

- ✓ *Entire training programme is in Hindi Language for Better understanding.*
- ✓ *Special focus on Non technical and Fresher candidates.*
- ✓ *Resume Preparation for Fresher's and Experienced Both.*
- ✓ *Provides Recording of each live session which you can access from anywhere anytime for One year.*
- ✓ *Interview Cracking tips during live sessions.*
- ✓ *Provide complete notes and e-books for preparation.*
