

Artificial Intelligence & Deep Learning Internship

(15 Days | Practical-Oriented | Industry Ready)

INTERNSHIP SYLLABUS

Internship Objectives

- Understand AI, ML & Deep Learning fundamentals
- Gain **hands-on experience** with Python, ML & DL models
- Build confidence to **develop AI projects independently**
- Learn **real-world problem solving** using neural networks

DAY 1 – Introduction to AI & Python Setup

- What is AI, ML, DL – real-world applications
- AI vs ML vs DL
- Python installation & environment setup
- Hands-on: Python basics for AI

Practical:

Python syntax, variables, loops
Simple AI use-case discussion

DAY 2 – Data Handling & Visualization

- NumPy & Pandas basics
- Data loading & preprocessing
- Data cleaning techniques
- Introduction to Matplotlib & Seaborn

Practical:

Load datasets
Data cleaning & visualization

DAY 3 – Mathematics for AI

- Linear algebra basics
- Statistics & probability concepts
- Loss functions & optimization idea

Practical:

Implement basic math ops using Python

DAY 4 – Machine Learning Overview

- Types of ML: Supervised, Unsupervised, Reinforcement
- ML workflow
- Model training & evaluation

Practical:

Simple ML pipeline demo

DAY 5 – Supervised Learning Algorithms

- Linear Regression
- Logistic Regression
- KNN & Decision Trees

Practical:

Build a prediction model
Accuracy & evaluation metrics

DAY 6 – Unsupervised Learning

- Clustering techniques
- K-Means algorithm
- Dimensionality reduction (PCA)

Practical:

Customer/data clustering project

DAY 7 – Model Evaluation & Optimization

- Overfitting & underfitting
- Cross-validation
- Hyperparameter tuning

Practical:

Improve ML model performance

DAY 8 – Introduction to Deep Learning

- Neural Networks basics
- Perceptron & activation functions
- Forward & backward propagation

Practical:

Build simple neural network

DAY 9 – Deep Learning with TensorFlow / PyTorch

- DL frameworks overview
- Model architecture
- Training deep models

Practical:

Create DL model using TensorFlow/PyTorch

DAY 10 – Convolutional Neural Networks (CNN)

- CNN architecture
- Image classification
- Feature extraction

Practical:

Image classification project (CNN)

DAY 11 – Recurrent Neural Networks (RNN)

- Sequence models
- LSTM & GRU
- Time-series & text data

Practical:

Sentiment analysis / prediction model

DAY 12 – AI Project Design

- Problem identification
- Dataset selection
- Model selection strategy

- Project architecture

Practical:

Project planning & design document

DAY 13 – Mini Project Development

- Model building
- Training & testing
- Error handling & improvements

Practical:

AI Mini Project implementation

DAY 14 – Deployment & Ethics

- AI model deployment basics
- Introduction to Flask/FastAPI
- AI ethics & responsible AI

Practical:

Simple AI web app demo

DAY 15 – Project Presentation & Assessment

- Project demonstration
- Code walkthrough
- Viva & technical evaluation
- Feedback & improvement tips

Tools & Technologies

- Python
- NumPy, Pandas, Matplotlib
- Scikit-learn
- TensorFlow / PyTorch
- Jupyter Notebook