AI Learning Syllabus

Level 1: Foundations (Weeks 1-4)

- Python, Git, Linear Algebra, Calculus, Probability
- Projects:
  - Calculator with OOP
  - Vector visualization
  - GitHub portfolio setup

Level 2: Machine Learning (Weeks 5-10)

- Supervised/Unsupervised Learning, scikit-learn, Pandas
- Algorithms: Regression, KNN, SVM, Decision Trees
- Projects:
  - Titanic survival prediction
  - House price predictor
  - K-Means clustering

Level 3: Deep Learning (Weeks 11-18)

- Neural Networks, CNNs, RNNs, Transfer Learning
- Tools: TensorFlow, PyTorch
- Projects:
  - MNIST Digit Classifier
  - CNN Dog vs Cat Classifier
  - RNN Time-Series Forecasting

Level 4: Specializations (Weeks 19-28)

A. Computer Vision:

- Object Detection with YOLO
- Real-time Webcam App

B. NLP:

- Sentiment Analysis

- Transformer-based Chatbot

C. Reinforcement Learning:

- CartPole Agent

- Custom Grid Agent

Level 5: AI Engineering & Deployment (Weeks 29-36)

- Flask, Streamlit, Docker, MLOps, GitHub Actions

- Projects:

- Deployed Model API

- Streamlit Classifier App

Level 6: Capstone & Research (Weeks 37-40)

- Fine-tuning, Paper Reading, Open Source Contributions

- Projects:

- Capstone in Chosen Domain

- Model Fine-tuning

- Publish to GitHub + LinkedIn