

## Deep Learning with TensorFlow & PyTorch

**Duration:** 2 Months (Mon–Fri, ~90 Hours)

**Mode:** Live Online / Classroom

**Tools & Technologies:** TensorFlow, PyTorch, Keras, Jupyter Notebook, GPU

### Syllabus

#### Week 1

- Introduction to Neural Networks
- Perceptrons, forward & backward propagation
- Assignment at end of week

#### Week 2

- ANN (Artificial Neural Networks)
- Hands-on with TensorFlow & PyTorch
- Assignment at end of week

#### Week 3

- CNN (Convolutional Neural Networks)
- Image classification basics
- Assignment at end of week

#### Week 4

- Advanced CNNs (ResNet, Inception)
- Transfer learning
- Assignment at end of week
- Mock Interview 1

#### Week 5

- RNN (Recurrent Neural Networks)
- LSTMs and GRUs
- Assignment at end of week

#### Week 6

- Natural Language Deep Learning basics
- Assignment at end of week

#### Week 7

- Optimization & regularization in DL
- Dropout, batch normalization
- Assignment at end of week

### **Week 8**

- Project: Deep Learning case study
- Final presentation
- Mock Interview 2
- Assignment at end of week

## **Learning Outcomes**

- Understand deep learning fundamentals
- Build ANN, CNN, and RNN models
- Work with TensorFlow and PyTorch
- Apply transfer learning and optimization techniques
- Deploy a deep learning project