Deep Learning
Basic

Duration – 3 Days / 24 Hours

Program Description

This course introduces deep learning, covering theoretical foundations and practical implementations. Participants will explore neural network architecture, activation functions, and backpropagation. The course introduces TensorFlow and Keras, enabling learners to build and train deep learning models. Optimization techniques, such as gradient descent and regularization, will be covered to improve model performance. By the end of this module, participants will have hands-on experience in building basic neural networks.

Learning Goals

- Understand the fundamentals of deep learning and neural networks
- Learn mathematical concepts like activation functions and gradient descent
- Build feedforward neural networks using TensorFlow and Keras
- Train and evaluate deep learning models
- Implement regularization techniques to prevent overfitting

Course Topics

- Introduction to Deep Learning & Neural Networks
- Mathematical Foundations of Neural Networks
- Understanding Activation Functions
- Building Feedforward Neural Networks
- Backpropagation & Gradient Descent
- Introduction to TensorFlow & Keras

Deep Learning
Advanced

Duration – 5 Days / 40 Hours

Program Description

This advanced deep learning course focuses on cutting-edge neural network architectures used in real-world AI applications. Learners will explore CNNs for image processing, RNNs & LSTMs for sequential data, and transformers for NLP tasks. The course covers hyperparameter tuning, transfer learning, and model deployment for scalable AI solutions. Additionally, participants will be introduced to GANs for generative AI applications. By the end of this module, learners will have experience in building and deploying deep learning models in real-world scenarios.

Learning Goals

- Master advanced deep learning architectures (CNNs, RNNs, LSTM, Transformers & Attention Mechanisms
- Implement Time Series Forecasting using LSTMs to capture sequential dependencies.
- Encoders & Decoders in Deep Learning
- Apply deep learning to image processing and NLP tasks
- Optimize models using hyperparameter tuning and transfer learning

Course Topics

- Convolutional Neural Networks (CNNs) for Image Processing
- Recurrent Neural Networks (RNNs) & Long Short-Term Memory (LSTM)
- Transformers & Attention Mechanisms
- Time Series Forecasting with LSTMs for capturing sequential dependencies for predictive analytics
- Hyperparameter Tuning & Model Optimization
- Transfer Learning & Pre-trained Models
- Deploying Deep Learning Models in Production
- Generative Adversarial Networks (GANs)