

Kaushalya Technical Training and Consultancy Services
No. 1094, Indushankara, MCECHS Layout,
23 Cross, Dr. Shivarama Karanth Nagara, Bengaluru - 560077
www.kaushalya.tech

Python, Artificial Intelligence and Deep Learning
with
TensorFlow

Raghu Prasad K S

B.E, MS (Software Systems)

CEO

Kaushalya Technical Training and Consultancy Services
#1094, Indushankara, 23 Cross, MCECHS Layout,
Dr. Shivarama Karanth Nagar, Bangalore 560 077

+91 – 9845547471 www.kaushalya.tech
raghuprasadkonandur@kaushalya.tech

Course Details:

Name	Artificial Intelligence and Deep Learning with Python and TensorFlow
Course Duration	75 hours

Artificial Intelligence with python has become the hot skill in the industry. It is essential for the graduates and professionals to learn and master these skills. One has to be well versed with python, statistics, mathematics and algorithm to become a data scientist.

Objectives of Training

- Provide minds-on and hands-on training
- Understand Python and its applications
- Understand fundamentals of machine learning
- Understand deep learning and how it solves problems which cannot be solved by machine learning
- Build sample AI project to solve real life problems

Outcome of Training

- Trainees are expected to be well versed with python and its libraries to solve few use cases of deep learning
- Trainees should be able to independently identify deep learning problem and build model to solve the problem
- To develop ability to convert algorithm to deep learning code
- Training on deep learning should enable trainees to solve objective and programming type questions. This would help them to prepare for placements/switch career.

Syllabus

Module	Topics
Module 1 – Introduction to AI	<ul style="list-style-type: none"> ✓ Deep Learning: A revolution in Artificial Intelligence ✓ What is Machine Learning ? ✓ Limitations of Machine Learning ✓ What is Deep Learning? ✓ Advantage of Deep Learning over Machine learning ✓ Reasons to go for Deep Learning ✓ Real-Life use cases of Deep Learning
Module 2 – Review of Python Programming	<ul style="list-style-type: none"> ✓ Introduction to Python and its usage in the industry ✓ Introduction to Anaconda ✓ Installation of Anaconda Python Distribution ✓ Jupyter Notebook Installation ✓ Jupyter Notebook Introduction ✓ Variable Assignment ✓ Basic Data Types: Integer, Float, String, None, and Boolean; Typecasting ✓ Creating, accessing, and slicing tuples ✓ Creating, accessing, and slicing lists ✓ Creating, viewing, accessing, and modifying dicts ✓ Creating and using operations on sets ✓ Basic Operators: 'in', '+', '*' ✓ Functions ✓ Lambda functions ✓ Object Oriented Programming ✓ Regular expression ✓ Database programming ✓ Sample programs and assignment
Modules 3 – Review of Machine Learning	<ul style="list-style-type: none"> ✓ Review of Machine Learning: ✓ Pandas, Matplotlib, Numpy ✓ Regression, ✓ Classification, ✓ Clustering, ✓ Reinforcement Learning, ✓ Underfitting and Overfitting ✓ Optimization

<p>Module 4 – Understanding Neural Networks with TensorFlow</p>	<ul style="list-style-type: none"> ✓ How Deep Learning Works? ✓ Activation Functions ✓ Illustrate Perceptron ✓ Training a Perceptron ✓ Important Parameters of Perceptron ✓ What is TensorFlow? ✓ TensorFlow code-basics ✓ Graph Visualization ✓ Constants, Placeholders, Variables ✓ Creating a Model ✓ Step by Step - Use-Case Implementation
<p>Module 5 – Master Deep Networks</p>	<ul style="list-style-type: none"> ✓ Why Deep Networks ✓ Why Deep Networks give better accuracy? ✓ Use-Case Implementation on SONAR dataset ✓ Understand How Deep Network Works? ✓ How Backpropagation Works? ✓ Illustrate Forward pass, Backward pass ✓ Different variants of Gradient Descent ✓ Types of Deep Networks
<p>Module 6 – Convolutional Neural Networks (CNN)</p>	<ul style="list-style-type: none"> ✓ Introduction to CNNs ✓ CNNs Application ✓ Architecture of a CNN ✓ Convolution and Pooling layers in a CNN ✓ Understanding and Visualizing a CNN
<p>Module 7 – Recurrent Neural Networks (RNN)</p>	<ul style="list-style-type: none"> ✓ Introduction to RNN Model ✓ Application use cases of RNN ✓ Modelling sequences ✓ Training RNNs with Backpropagation ✓ Long Short-Term memory (LSTM)

	<ul style="list-style-type: none"> ✓ Recursive Neural Tensor Network Theory ✓ Recurrent Neural Network Model
Module 8 – Restricted Boltzmann Machine (RBM) and Autoencoders	<ul style="list-style-type: none"> ✓ Restricted Boltzmann Machine ✓ Applications of RBM ✓ Collaborative Filtering with RBM ✓ Introduction to Autoencoders ✓ Autoencoders applications ✓ Understanding Autoencoders
Module 9 –Keras API	<ul style="list-style-type: none"> ✓ Define Keras ✓ How to compose Models in Keras ✓ Sequential Composition ✓ Functional Composition ✓ Predefined Neural Network Layers ✓ What is Batch Normalization ✓ Saving and Loading a model with Keras ✓ Customizing the Training Process ✓ Using TensorBoard with Keras ✓ Use-Case Implementation with Keras
Module 10 –TFLearn API	<ul style="list-style-type: none"> ✓ Define TFLearn ✓ Composing Models in TFLearn ✓ Sequential Composition ✓ Functional Composition ✓ Predefined Neural Network Layers ✓ What is Batch Normalization ✓ Saving and Loading a model with TFLearn ✓ Customizing the Training Process ✓ Using TensorBoard with TFLearn ✓ Use-Case Implementation with TFLearn
Module 11 – Project	<ul style="list-style-type: none"> ✓ Sample project on deep learning ✓ Assessment