2-Weeks Online Live

FDP | Internship Training | Industrial Training

on

**AI Deep Learning, Computer Vision,
NLP & Chat GPT)**

Training Duration:

Duration	Training Hours per day	Total Training Hours
2-Weeks	3-hours (Mon-Friday)	30 Hours

Training Highlights:

5+ AI Projects
will be covered during the training.

Total 30+ Hours (2-weeks)
online Live Training.

Training includes: Assignments, Projects with Code, Training PPT's & Recording.

The **certificate of completion** will be provided to each participant by Eduxlabs in asscoaition with Mechanica IIT Madras

Certifications:

We offer following type of training certificates

- 2 Weeks Training **Completion** Certificate from Eduxlabs in association with Mechanica IIT-M

- 2 Weeks **FDP** Certificate of Completion from Eduxlabs association with Mechanica IIT-M

- 2 Weeks **Industrial** Certificate of Completion from Eduxlabs association with Mechanica IIT-M

- 2 Weeks **Internship** Completion Letter from Eduxlabs (Only for Internship Participants)

2 -WEEKS TRAINING PROGRAM:

2-WEEKS	MODULE	HOURS
1ST WEEK	• Machine Learning Advance • Recommendation Systems • Deep Learning Foundation • Deep Learning Advanced	15-HRS
2ND - WEEK	• Computer Vision • Natural language processing (NLP) • Chat Bots • Time Series	15-HRS

2-WEEKS - TRAINING PROJECTS COVERED

2-weeks **DEEP LEARNING PROJECTS**	**Project 1:** Bike Sharing Predication of bike rental count hourly or daily based on the environmental and seasonal settings. **Project 2:** Time Series Forecasting (LSTM) and Prediction Curve-Global **Project 3:** ECG Heart Beat Analysis, Visualization and Heart Beat Classification using ANN Classification **Project 4:** Classification of Devanagari Handwritten Characters Classify handwritten Devanagari characters using Neural Network.
COMPUTER VISION PROJECTS **+** **DEEP LEARNING PROJECTS**	**Project 1:** Face and Eye Detection – Using Haar Cascade and Cascade Classifier **Project 2:** Face Recognition using Computer Vision and Deep Learning **Project 3:** Time Series on Flights Passengers Forecasting.
NLP PROJECT **+** **CHABOT PROJECT**	**Project 1:** Amazon Product Reviews Sentiment Analysis **Project 2:** Zomato Restaurant Reviews Sentiment Analysis using LSTM Algorithm **Project 3:** Conventional Chatbot using Open AI, GPT. (Built your ChatBot with OpenAI GPT3)

2-WEEKS COURSE CONTENT
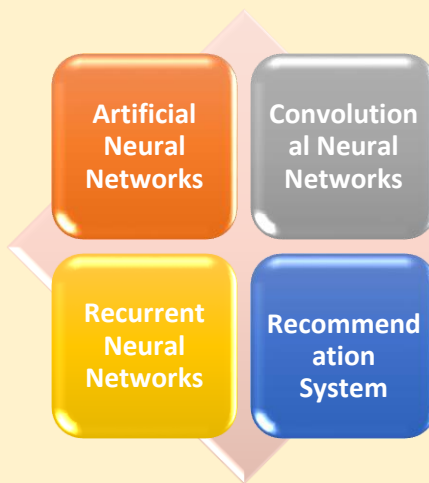# ON
AI & Deep Learning, Computer Vison ,NLP & Chabot

2-Weeks	MODULES
1st – Week: **MACHINE LEARNING INTERMEDIATE** Naïve Bayes Classifier · K-Means Clustering · Support vector machines · Time series Forecasting	**Module 1: Naïve Bayes Classifier** • Bayesian Classification • How Naive Bayes algorithm works? • Naive Bayes Application – Binary Class & Multi-Class Classification • Gaussian Naive Bayes • Multinomial Naive Bayes **Module 2: CLUSTERING – K-MEANS and Hierarchical** • Unsupervised Learning • Clustering Introduction • K-Means Clustering • Handling K-Means Clustering • Maths behind KMeans Clustering – Centroids • Mean shift Introduction • Elbow Method – Picking K in K-Means • Hierarchical Clustering • Types – Agglomerative and Divisive • Dendrogram **Module 3: Support vector machines (S V M)** • Concept and Working Principle • Mathematical Modelling • Linear Support Vector Machine • Hyperplanes • Optimal separating hyperplane • Drawing Margins • Optimization Function Formation • The Kernel Method and Nonlinear Hyperplanes
MACHINE LEARNING ADVANCE	**Module 1: Time series Forecasting** • Time Series - Introduction • Techniques and applications • Components of Time Series Forecasting • Moving average, Smoothing • ARIMA Model • Seasonality in Time Series • Prophet Model **Module 2: Recommendation System** • Association Rule Learning

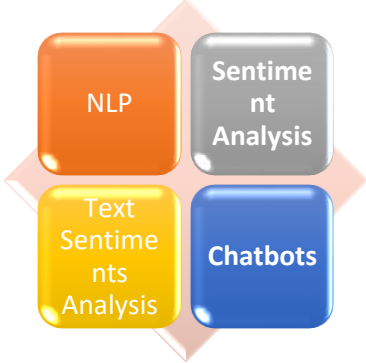|	• Components of Apriori algorithm: Support, Confidence, Lift • Market Basket Analysis • Collaborative Filtering **Module 3. Advanced Ensemble Learning** • Random Forest • Bagging • Boosting • Adaboost • XGboost
Artificial Intelligence Foundation Artificial Neural Networks Convolutional Neural Networks Recurrent Neural Networks Recommendation System	**Module 1: Artificial Neural Networks** • MP Neuron • Perceptron • Logic gates • ANN & Working • Single Layer Perceptron Model • Multilayer Neural Network • Feed Forward Neural Network • Cost Function Formation • Activation Function • Cost Function • Applying Gradient Descent Algorithm • Stochastic Gradient Descent • XOR Logic using MLP **Module 2: TensorFlow** • TensorFlow library for AI • Keras – High Level TensorFlow API • Getting started with TensorFlow • Installation & Setting up TensorFlow • TensorFlow Data Structures • Tensor board – Visualization **Module 3: Regression with ANN** • Learning Algorithm • Linear Regression – Theory • Feature selection - Correlation • Input Matrix & Output Labels • Activation Function • Training A single perceptron • Model Optimizers - Parameters and Hyperparameters • Multiple Linear Regression **Module 4: Classification with ANN** • Logistic Regression – Theory • Classification Problems • Training the model • Binary Class and Multi-Class Classification • Hypothesis, Parameters & Hyperparameters, Cost Function, Model Optimization – Optimizers • Activation Function

2nd – Week **Deep Learning**	**Module 1: CNNs (Convolutional Neural Networks)** • Convolutional Neural Network • Understanding the architecture and use-cases of CNN • Pooling Layer • How to visualize using CNN • How to fine-tune a convolutional neural network • What is transfer learning • Kernel filter, Feature maps, and pooling • Deploying convolutional neural networks in TensorFlow **Module 2: RNNs (Recurrent Neural Networks)** • Introduction to the RNN model • Modelling sequences • Unfolded RNN • Types of RNN & Use Case • Training RNNs with back propagation • Backward Propagation • Problems in Traditional RNN • Long short-term memory (LSTM) • Forget Gate, Input Gate, Output Gate
COMPUTER VISION Computer Vision • OpenCV • Cascade Classifier • Haar Cascade	**Module 1: Introduction to OpenCV** • Introduction to OpenCV • Image Processing • Working & implementation with Image • Edge Detection & smoothing of image • Working with resolution • Colour filtering on Image • Image Contour • Feature Extraction • Reading Video using Computer Vision • Implementation of color filter on video • Modifying Video resolution • OpenCV gradients **Module 2: Cascade Classifier and HaarCascade** • Cascade Classifiers • Haar Cascades • Detect Multiscale • Frontal Face & Eye Detection using CV2 (Computer Vision) and Haar Cascade •
NLP-I	**Module 1: Introduction to NLP & Word Vectors** • NLP • NLTK Package • Tokenization • Lemmatization and Stemming • Stop Words • Regex

	• Bag-of-Words • TF-IDF **Module 2: NLP - Sentiment Analysis** • NLP Text Analysis • Frequency Distribution • Text Sentiments Analysis
Chatbots and OpenAI	**Module 1: Chatbots** • Chatbot Introduction • Chatbot Flow and Architecture • OpenAI Introduction • GPT3 • Built your ChatBot with OpenAI GPT3

Participant Eligibility & Prerequisite:

- The program is open to the Faculty/ Research Scholars/ Students of science & Engineering institutes and working IT professionals are also, eligible.
- prerequisites: Basic knowledge of python programming

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