

30 hours online short-term course on Basics of Machine Learning and Deep Learning with Hands-on training

(15th September – 1st October, 2026)

Program Coordinator and Instructor:
Dr. Venkateswara Rao Kagita and Dr. M. Sandhya, Department of CSE NIT Warangal

Highlights

- ✓ 15 days course.
- ✓ 2 hours per day.
- ✓ Flexible timings 6:30- 8.30 PM
- ✓ Hands-on experience with Python.
- ✓ Real-world projects.
- ✓ Online mode.
- ✓ No class on special days.
- ✓ Video recordings will be available
- ✓ E-certificate of participation

Contact us @

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Course Content

- **Introduction**
  Introduction to MI, DL , and Python.
- **Regression Analysis**
  Univariate linear regression, Multivariate linear regression, Polynomial Regression, Applications.
- **Classification**
  Logistic regression, SVM, Multi-class SVM, Decision trees.
- **Ensemble Approaches**
  Bagging, Random Forests, Boosting: Adaboost, Gradient boosting, Applications.
- **Optimization**
  Gradient descent, Stochastic gradient descent, Batch gradient descent.
- **Clustering**
  Different clustering approaches and applications.
- **Feature selction and Dimensionality Reduction**
  Feature Scaling, Feature selection approaches, Principal component analysis, Linear discriminative analysis.
- **Reinforcement Learning**
  Markov Decision Process, Planning, Estimation, Control and Applications.
- **ANN Basics**
  Artificial Neuron, Multi-layer perceptron, Forward and backward propagation, applications.
- **Convolutional Neural Networks**
  Convolutions, Pooling, Deconvolutions, Feature extraction, and Classification, Classic CNN Architectures, Advanced CNN Variants, Training and Optimization, Applications.
- **Sequence Modeling**
  Representation Learning, Sequence Data, Vanilla RNN Architecture, Backpropagation Through Time (BPTT), Vanishing and Exploding Gradients, LSTM, Bi-LSTM, GRU, Multi-Head Attention, Large language models (LLMs).
- **Encoder-Decoder Architectures**
  Encoder-Decoder, Auto-Encoders, Variational Auto Encoders, Transformers, Applications.
- **Generative Adversarial Networks (GAN)**
  GAN basics, Concept of Adversarial Training, Variants, Applications.
- **Deep Reinforcement Learning**
  Reinforcement Learning, Deep Q-learning
- **Hands-on to the majority of the topics using Python.**

Projects

- ✓ House price prediction using regression techniques.
- ✓ Customer churn prediction using decision tree & ensemble approaches.
- ✓ Handwriting digit recognition using neural network.
- ✓ Mini-GPT
- ✓ Color compression using K-means clustering
- ✓ Self-Driving Cabs using Q-Learning



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Registration Fee

Category	Amount
Academic	**Rs. 1000/-**
Industry	**Rs. 1500/-**

Account Details

Account Number	**62266262236**
Account Name	**Director Research Account**
Bank Name:	**State Bank of India**
Branch:	**NIT Warangal**
IFSC Code	**SBIN0020149**

Registration link: https://forms.gle/CuA6f7hibb7d3SWV8