



## Highlights

- ✓ Four weeks course.
- ✓ Five days per week.
- ✓ Two hours per day.
- ✓ Flexible timings: 5 PM to 7 PM.
- ✓ World class Instructors.
- ✓ Hands-on experience with Python.
- ✓ Real-world projects.
- ✓ Online certification course.
- ✓ Certificates will be posted to your postal address.

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**Organized by Department of CSE  
 Coordinators:**

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# **Certification Course on Machine Learning for Data Science using Python (July 1<sup>st</sup> – July 28<sup>th</sup>, 2021)**

In association with Center for Continuing  
 Education (CCE), NIT Warangal



## Course Content

### ➤ Introduction

What is Data Science, Real-life examples and Applications, Data Scientist roles, Machine Learning vs. Data Science vs. AI, Machine Learning types, Generics of ML approaches.

### ➤ Python Essentials

Installation, Python Editors & IDE's, Lists, Tuples, Dictionaries, Strings, Data manipulation tools, Importing/exporting data.

### ➤ Probability and Statistics for Data Science

Basic probability theory, Random variables, Probability distributions, Markov models, Bayesian learning, Applications.

### ➤ Regression Analysis

Univariate linear regression, Multivariate linear regression, Polynomial Regression, Applications.

### ➤ Classification

Logistic regression, SVM, Multi-class SVM, Decision trees, K-NN, Applications.

### ➤ 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 Engineering

Feature Scaling, Feature Selection: Filter methods, Wrapper methods, Embedded methods.

### ➤ Dimensionality Reduction

Principal component analysis, Linear discriminative analysis, Multiple discriminant analysis, Independent component analysis.

### ➤ Neural Networks

Introduction to neural networks, Back propagation algorithm and theory behind, Introduction to deep learning, Convolutional neural networks.

### ➤ Reinforcement Learning

Markov Decision Process, Planning, Estimation, Control and Applications.

### ➤ Recommendation Systems

Introduction, Types of recommender systems, Content-based, Collaborative filtering: Matrix factorization based approaches, Knowledge-based, and Hybrid techniques, Times series forecasting, other real time examples.

### ➤ 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 convolutional neural network.

✓ Diabetics prediction using logistic regression.

✓ Color compression using K-means clustering

✓ Solving Puzzles/Games using Q-Learning

Where Technology Meets Innovation



### Registration Fee

Category	Amount
Participants from NIT Warangal	Rs. 6000/-
Participants outside NIT Warangal	Rs. 10000/-



### Account Details

Account Number	62403680215 (Savings Account)
Account Name	Center for Continuing Education NITW
Bank Name:	State Bank of India
Branch:	NIT Warangal
IFSC Code	SBIN0020149

**Registration link:** <https://forms.gle/wITcNGiX2TDiRjCy7>

Note: This Certification Course is not for the award of any Degree. This Certification Course doesn't guarantee any employment.