

NIELIT Virtual Academy

COURSE PROSPECTUS

Name of the Course: *Certificate Course in Artificial Intelligence and Machine Learning using Python*

Course Code: SP33

Mode of Conduction: Online[Self-Paced]

Duration: 30 Hours

Objective of the Course

A Certificate Course in Artificial Intelligence and Machine Learning (AIML) using Python typically aims to provide participants with a solid foundation and practical skills in these rapidly advancing fields. Participants will get hands-on experience through practical projects, coding exercises, and case studies to reinforce learning and build proficiency in implementing AI and ML algorithms. Participant will get a certificate upon successful completion of the course, validating the participant's proficiency in artificial intelligence and machine learning concepts and applications.

Outcome of the Course:

Participants will develop theoretical & practical skills in implementing AI and ML algorithms to solve real-world problems, including data collection, preprocessing, feature engineering, model building, and evaluation.

Course Fee: Rs: 600/- (inclusive of GST)

Eligibility: +2 with Programming Knowledge

Methodology:

- ✓ Teaching Mode: Self-Pace
- ✓ Access from anywhere anytime
- ✓ Content Access through e-learning portal
- ✓ Doubt Clearing Session
- ✓ Practical Oriented

Registration Link: <http://nva.nielit.gov.in>

Contact Details:

- Course coordinator Name: Ms. Maithreyee S.
- Email: trng.chennai@nielit.gov.in
- Mobile number: 07598730125

Contents:

Module 1. Introduction to Machine Learning & Data pre-processing

- ❖ Objectives, Applications and types of Machine Learning
- ❖ Python libraries suitable for Machine Learning
- ❖ Dimensionality reduction-Principal Components Analysis
- ❖ Practical Implementation using Python
- ❖ Assignment-1

Module 2. Machine Learning I

- ❖ Building linear regression & KNN classifier
- ❖ Support Vector Machines
- ❖ Decision Tree
- ❖ Practical Implementation using Python
- ❖ Assignment-2

Module 3. Machine Learning II

- ❖ Unsupervised Learning – Introduction, K-Means Algorithm
- ❖ Fuzzy clustering
- ❖ Density Based Clustering
- ❖ Practical Implementation using Python
- ❖ Assignment-3

Module 4. Artificial Neural Network

- ❖ Introduction- Building Neural Network, Activation functions and Loss functions
- ❖ Training a single perceptron
- ❖ Back Propagation Algorithm
- ❖ Practical Implementation using Python
- ❖ Assignment - 4

Module 5. Deep Learning

- ❖ Introduction, CNN with Deep learning
- ❖ RNN- Architecture and Training
- ❖ LSTM and its application
- ❖ Practical Implementation using Python
- ❖ Assignment-5

Module 6. Project

- ❖ Capstone project
- ❖ Project Report Submission

Examination & Certification

Category	Theory	Project		Total
		Paper Name	No. of Papers:01	
Marks	40	30	30	100

After successful completion of the course, candidate will get an online certificate with the following Grading Scheme:

Marks Range	Grade	Certificate Type
85% and above	S	Graded
75-84%	A	Graded
65-74%	B	Graded
55-64%	C	Graded
50-54%	D	Graded
<50%	F	Participation
Attended the Course but not appeared in Examination	N	Participation