

नेशनल इंस्टीट्यूट ऑफ इलेक्ट्रॉनिक्स एंड इंफॉर्मेशन टेक्नोलॉजी, चेन्नई

National Institute of Electronics and Information Technology, Chennai

Autonomous Scientific Society of Ministry of Electronics & Information Technology (MeitY), Govt. of India

ISTE Complex, 25, Gandhi Mandapam Road, Chennai - 600025

Course Prospectus

Online Certificate Course in Python for Data Structures and Machine Learning



Index

Topic	Page No.
Objective of the Course.....	3
Outcome of the Course.....	4
Course structure.....	4
Course fees	4
Eligibility.....	5
How to Apply	5
Admission procedure.....	6
Selection Criteria of candidates.....	6
Discontinuing the course.....	6
Course timings	6
Course contents.....	7-8
Location and how to reach.....	9

Course Prospectus

Name of the Group	: Data Science
Course Name	: Online Certificate Course in Python for Data Structure and Machine Learning.
Duration	: 4 weeks - 60 Hours (3 Hour per Day)
Course Coordinator	: Sanjeev Kumar Jha, Mobile: 7765803105
Start Date	: 04- 01 - 2021
Last Date of Registration	: 30 - 12 - 2020
No. of Seats	: 60

Objective of the Course:

The Cloud based **Live Instructor Led-Online Certificate Course in Data Structure and Machine Learning using Python** 4 Weeks program offered by NIELIT Chennai is an excellent blend of knowledge and practice in the field of Machine Learning and its industrial applications. The course progresses from the scratch to a pro-level for achieving the goal of solving critical business problems. The course has been designed after proper industry survey and consultation with multiple industry leaders to ensure that participants learn exactly what employers need.

The objective of this program is to make the participants well versed in programming in Python. Machine Learning, is the next big development powering the business world (Raconteur, 2015). Various businesses are developing strategies for technology adoption and already realizing genuine return on investment (ROI) (Insights, 2017). These ML strategies can be performed using an open source software called as **Python**. So, it is quite obvious that existing resources along with new candidates who are interested in perusing career in this field needs to be trained. Our objective is to create a pool of talent who can meet this demand.

Expected Job Roles

- Machine Learning Expert/Software Engineer in ML/Applied ML Engineer.

Outcome of the Course: On completion of this course the students can use Python for performing Data Structure and Machine Learning which is the need of the hour for the current market.

Requirements

- ✓ You will need access to a PC/Laptop with an Internet connection.
- ✓ You must have at least 4GB of free RAM on your system.
- ✓ Basic Programming knowledge
- ✓ Enthusiasm to learn new things.

Course Structure

Module No.	Module Title	Duration (Hrs.)		Total Duration (In Hrs.)
		Theory	Lab	
1	Introduction to Python Programming.	9	3	12 (4/5 Week)
2	Data Handling and Preprocessing	10	5	15 (1 Week)
3	OOP'S In Python	8	4	12 (4/5 Week)
4	Visualization	3	3	6 (2/5 Week)
5	Machine Learning and its application	8	3	11 (3/4 Week)
6	Case Study	2	2	4 (1/4 Week)
Total		40	20	60 (4 Week)

Other Details:

Course Fees: Rs. 1500/- (Including GST) (Non-Refundable)

However, the above Training fee shall be refunded on few special cases as given below:

1. If course postponed and new date is not convenient for the student.
2. If course cancelled

Online Theory / Practical Class Delivery Mode: NIELIT Chennai eLearning Server (URL: elearn.nielitchennai.edu.in)

Note: E-Contents, Presentations, Assignments, programs etc will be shared on this server.

Payment Schedule

The Fee has to be paid in one instalment as given below.

Installment No	Last Date of Payment	Amount (in Rs.)
1	30-12-2020	Rs.1,500/-

Eligibility

- ✓ B.E./B.Tech/B.C.A./M.C.A./A Level/Any Graduate having knowledge of Mathematics/Statistics/College going Students

How to Apply

Candidates can apply online in our **website:** <https://www.nielitchennai.edu.in/reg>

Payment be paid through any of the following modes:

- ✓ Online transaction: Account No: 31185720641 Branch: Kottur (Chennai), IFS Code: SBIN0001669.
- ✓ Pay through Nationalized Bank Debit Card (Service charges applicable)
- ✓ DD drawn from a nationalized bank (preferably SBI) in favour of “NIELIT Chennai” payable at Chennai.

Note: *The Institute will not be responsible for any mistakes done by either the bank concerned or by the depositor while remitting the amount into our account*

Last date of Registration: 30 - 12 - 2020

Selection Criteria of candidates

Selection is based on the first come basis (subject to fulfilling the eligibility criteria)

Admission Procedure

All interested candidates are required to upload following documents on or before 30 - 12 - 2020.

- Original and self-attested Copies of Proof of Age, Qualifying Degree (Consolidated Mark sheet & Degree Certificate/Course Completion Certificate), etc.
- One passport size photograph and one stamp size photograph for identity card.
- Self-attested copy of Govt. issued photo ID card

Note: Working days are from Monday to Friday.

Discontinuing the course: No fees under any circumstances shall be refunded in case of a student discontinuing the course. No certificate shall be issued if discontinued.

Course Timings: 3 hours online daily (Theory and Practical) (from Monday to Friday) during working hours

Mode of Training: Live Instructor-led Online



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Course Contents:

Module 1: Introduction to Python Programming (12 Hrs.)

Course Outline

Introduction to Machine Learning and Python, Python Basics, Control Structure, Collections, Functions

Learning Outcome:

After completion of this module, the candidate will be able to

- ✓ Install python software and IDEs.
- ✓ Use various data types like Sets, List, Tuple, and Dictionary etc.
- ✓ Use various loops and conditional statements.
- ✓ Understand concept of Functions
- ✓ File Handling.

Module 2: Data Handling and Preprocessing (15 Hrs.)

Course Outline

Numpy, Pandas, Data Frames, Slicing, Group by, Cleaning the dataset, Array, Matrix

Learning Outcome:

After completion of this module, the candidate will be able to do

- ✓ Data Manipulation using
 - Numpy and Pandas
- ✓ Pre-processing of Data

Module 3: OOP'S In Python (12 Hrs.)

Learning Outcome:

OOP's Concept in Python

Learning Outcome:

After completion of this module, the candidate will be able to do

- ✓ Class and Object
- ✓ Constructor
- ✓ Encapsulation and Abstraction

- ✓ Inheritance
- ✓ Polymorphism

Module 4: Graphical User Interface and Visualization (6 Hrs.)

Course Outline

Tkinter package, Matplotlib.

Learning Outcome:

After completion of this module, the candidate will be able to represent GUI Program Visualization and data graphically.

Module 5: Machine Learning (11 Hrs.)

Course Outline

Scikit-learn Package, Machine Learning Algorithms – Unsupervised Learning, Supervised Learning, Reinforcement learning etc.

Learning Outcome:

After completion of this module, the candidate will be able to do

- ✓ Implement various machine learning algorithms and
- ✓ Evaluation of various machine learning algorithm

Module 6: Case Study (4 Hrs.)

Case Study 1: Kaggle's Titanic Survival

Case Study 2: House Sale Prediction

Address:

National of Electronics and Information Technology
ISTE Complex, No. 25, Gandhi Mandapam Road, Chennai – 600025
E-mail: trng.chennai@nielit.gov.in/Phone: 044-24421445

Contact Person :

1. **Saran S, Mobile :9445936103**
2. **Dr. Sanjeev Kumar Jha, Mobile : 7765803105**

Course enquiries

Students can enquire about the various courses either on telephone or by personal contact between 9.15 A.M. to 5.15 P.M. (Lunch time 1.00 pm to 2.00 pm) Monday to Friday.



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