National Institute of Electronics and Information Technology, Chennai

COURSE PROSPECTUS

Name of the Group:	VLSI & ES
Name of the Course:	**Online** Certificate course on **Python programming**
Course Code:	ST201
Starting Date:	20th August 2020
Duration:	2 weeks
Course Coordinator:	Karthick Rajan N
Last date of Registration:	14th August 2020

Preamble:

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Python's elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

Python offers much more error checking than C, and, being a very-high-level language, it has high-level data types built in, such as List,Tuples and Dictionaries. Because of its more general data types,Python is applicable to a much larger problem domain than Awk or even Perl, yet many things are possible in Python.

Python allows you to split your program into modules that can be reused in other Python programs. It comes with a large collection of standard modules like file I/O, system calls, sockets, and even interfaces to graphical user interface toolkits like Tk. Python has been used in a lot of places like in creating games, for statistical data and visualization, speech and face recognition.

Python is an interpreted language, which can save our time during program development because no compilation and linking is necessary. The interpreter can be used interactively, which makes it easy to experiment with features of the language, to write throw-away programs, or to test functions during program development.

Python emerged as a leading programming language used in the Booming areas like Artificial Intelligence (AI), Internet of Things (IoT) and Data analytics. Currently available academic curriculum is not much enough to fulfil the requirement of Skills needed to program in Python language. Because of lack of hands-on experience among professionals, there is a huge demand in providing skill-based training in Python language which will bridge the skill-gap of the engineering graduates.

Objective of the Course:

To develop and skill the engineering graduates in acquiring Problem Solving abilities in Python Programming Language and make the students to become master in writing Python scripts.

Outcome of the Course: After successful completion of this Course, students can able to:

1. Able to write simple Python programs for Real-time problems.
2. Develop problem solving capability using python scripts.
3. Get exposed to Advanced Python Programming in creating GUI based applications.
4. Gained Hands on experience to design object-oriented programs with python classes.

Course Structure:

S. No	Topics	Duration (in weeks) via online mode
1	Introduction to Python Language and Pycharm IDE	**2 weeks**
2	Basic Syntax	
3	Data types	
4	Operators	
5	Flow Control in Python	
6	Functions, Modules	
7	File I/O	
8	Exception Handling	
9	Classes	
10	GUI Programming & Mini Project	

Other Details:

Course Fees: Rs. 500/- (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.

Payment schedule: The Fee is to paid in one instalment as given below.

Instalment No.	Last Date for Payment	Amount (in Rs.)
1.	14-08-2020	Rs.500/-

Prerequisite/ Eligibility: Knowledge in basic Mathematics

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How to apply:

Candidates can apply online in our website https://reg.nielitchennai.edu.in/. Payment towards Course fee can be paid through any one of the following modes:

- Online transaction: Beneficiary Name: NIELIT CHENNAI, Account No: 31185720641, Branch: Kottur (Chennai), IFSC Code: SBIN0001669.
- Pay through Unified Payment Interface (UPI) payment methods eg: Google Pay, Paytm, BHIM, Phone Pe
- DD drawn from a nationalized bank (preferably SBI) in favor 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: 14th August 2020

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

Admission Procedure:

All interested candidates are required to fill the Registration form with the fees (Registration and Course fees) before 14th August 2020 with all the necessary following documents.

- One passport size photograph and one stamp size photograph for identity card.
- Self-attested copy of Govt. issued photo ID card
- Candidates may also submit the certificate of their highest qualification

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: 1 hour (11am to 12 pm) online from Monday to Friday

Mode of Training: Online

Certification: After Successful completion of the course, Certificate will be issued.

Location: NIELIT Chennai is located at Gandhi Mandapam Raod, Kotturpuram, Chennai (Landmark: Opp. To Anna Centenary Library)

National Institute of Electronics and Information Technology, Chennai

Address: National Institute of Electronics and Information Technology Chennai Centre,
ISTE Complex, No. 25, Gandhi Mandapam Road,Chennai – 600025
E-mail: training.chennai@nielit.gov.in / Phone: 044-24421445
Contact Person: Karthick Rajan. N, Mobile: 9940569468

Annexure

Detailed Syllabus of the Course

1. Introduction to Python Language and Pycharm IDE:

- ✓ About Python Language
- ✓ Companies using Python
- ✓ Features of Python
- ✓ Getting Started with Pycharm IDE

2. Basic Syntax:

- ✓ First Python Program
- ✓ Identifiers
- ✓ Reserved Words
- ✓ Lines and Indentation
- ✓ Multi-Line Statements
- ✓ Quotation&Comments
- ✓ Command Line Arguments

3. Data types:

- ✓ Variables
- ✓ Numbers
- ✓ String
- ✓ Lists
- ✓ Dictionaries
- ✓ Tuple
- ✓ Set

4.Operators:

- ✓ Operator & its Types
  - Arithmetic Operators
  - Comparison (Relational) Operators
  - Assignment Operators
  - Logical Operators
  - Bitwise Operators
  - Membership Operators
  - Identity Operators

5. Flow Control in Python:

- ✓ Decision Making statements & Types
  - IF Statement
  - IF... ELSE… Statements
  - If…elif Statement
- ✓ Loop statements & Types
  - while loop statements
  - for loop statements
  - break statement
  - continue statement

6.Functions, Modules:

- ✓ Function definition and call
- ✓ Function Scope
- ✓ Arguments
- ✓ Pass by Reference
- ✓ Anonymous Functions
- ✓ The import Statement
- ✓ The from...import Statement
- ✓ Executing Modules as Scripts
- ✓ Locating Modules

7. File I/O:

- ✓ Printing to the Screen
- ✓ Reading Keyboard Input
- ✓ Opening and Closing Files
- ✓ Reading and Writing Files
- ✓ Renaming and Deleting Files

8. Exception Handling:

- ✓ Standard Exceptions
- ✓ Assertions in Python
- ✓ What is Exception?
- ✓ Handling an Exception
- ✓ Argument of an Exception
- ✓ Raising an Exception

9. Classes:

- ✓ Overview of OOP Terminology
- ✓ Creating Classes
- ✓ Creating Instance Objects
- ✓ Accessing Attributes
- ✓ Built-In Class Attributes
- ✓ Destroying Objects (Garbage Collection)
- ✓ Class Inheritance
- ✓ Overriding Methods

10. GUI Programming:

- ✓ Introduction
- ✓ Tkinter Programming
- ✓ Terminologies Used In Tkinter
- ✓ Steps To Be Followed To Create AGui Application Using Tkinter
- ✓ Tkinter Widgets
- ✓ Frame Widget
- ✓ Label Widget
- ✓ Button Widget
- ✓ Pack Layout Widget
- ✓ Fitting Widget In Pack Layout
- ✓ Grid Layout Widget
- ✓ Entry Widget
- ✓ Checkbutton Widget
- ✓ Menubutton Widget
- ✓ Menu Widget