

NIELIT Virtual Academy

COURSE PROSPECTUS

Name of the Course: *Certificate Course in Basic Python[Self-Paced]*

Course Code: SP38

Mode of Conduction: *Self-Paced*

Duration:60 Hrs

Objective of the Course

The objective of Certificate Course in Basic Python is to provide participants with a solid foundation in Python programming. The Course is open for everyone having 09th pass or higher qualification. Specially it will be very useful for students who has just passed 09th Board. Overall, the course aims to equip participants with the skills necessary to write basic Python programs and to prepare them for more advanced topics or specialized applications of Python.

Outcome of the Course:

Upon completion of the course, participants can expect to achieve:

- ✓ **Proficiency in Python Basics:** Ability to write, debug, and execute basic Python programs.
- ✓ **Understanding of Core Concepts:** A solid understanding of Python syntax, data types, control structures, functions, and modules.
 - ❖ **Data Handling Skills**-in data structures.
 - ❖ **File Operations:** Proficiency in reading from and writing to files using Python.
 - ❖ **Problem-Solving:** Enhanced problem-solving skills through the application of Python programming to various scenarios.
 - ❖ **Error Handling:** Knowledge of how to handle errors and exceptions to make programs more robust.
 - ❖ **Introductory Data Manipulation:** Basic familiarity with libraries such as NumPy and Pandas for data manipulation and analysis. : Capability to work with Python's built
 - ❖ **Project Experience:** Practical experience through projects or assignments that simulate real-world programming challenges.



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- ❖ Preparedness for Advanced Learning: A strong foundation that prepares participants for more advanced courses in Python or specialized areas such as web development, data science, or machine learning.
- ❖ Certification: A certificate that validates their knowledge and skills in basic Python programming, which can be used to enhance their resume and career prospects.

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

Eligibility

Eligibility: 09th Pass and above.

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:

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Course Structure:

Module No	Module Title	Duration (Hours)
1	Introduction to Python	10
2	Control Flow Structure	
3	Data Structures in Python	10
4	File Handling	05
5	Introduction to OOPs Concept	15
6	Error Handling & Debugging	10
7	Libraries & API & Project	10
	Test	02
	Total Duration	60



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Module 1: Introduction to Python

- Algorithms and Flowcharts with examples.
- Introduction to Python and its applications
- Setting up Python environment (Anaconda, Jupyter Notebook)
- Basic syntax and data types (integers, floats, strings, booleans)
- Using variables and basic operations

Module 2: Control Flow and Functions

- Conditional statements (if, elif, else)
- Loops (for, while)
- Introduction to functions
- Writing and calling functions
- Practice exercises

Module 3: Data Structures in Python

- Lists: creation, indexing, slicing, methods
- Tuples: creation, accessing elements, immutability
- Dictionaries: creation, accessing elements, methods
- Sets: creation, methods, set operations
- Introduction to comprehensions (list comprehensions, dictionary comprehensions)
- Review and quiz
- Practice exercises

Module 4: File Handling

- Reading from and writing to files
- Introduction to modules and packages
- Importing modules and using functions from them
- Creating and using custom modules
- Practice exercises with file handling and modules

Module 5: Object-Oriented Programming (OOP) Basics

- Introduction to OOP concepts (classes, objects, attributes, methods)
- Defining classes and creating objects
- Instance and class variables
- Inheritance and method overriding
- Practice exercises with OOP

Module 6: Error Handling and Debugging

- Understanding exceptions and errors
- Using try-except blocks for error handling



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Raising exceptions
Debugging techniques and tools
Practice exercises with error handling and debugging

Module 7: Introduction to Libraries and APIs

Overview of popular Python libraries Django, NumPy, Pandas
Basics of working with data using Pandas
Introduction to APIs and making API requests with requests library
Practice exercises with libraries and APIs
Mini Project

Examination & Certification:

Theory	Practical	Project		Total
No. of Papers:01	No. of Papers:01	Project	Presentation	
20	40	20	20	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 fulfill the minimum academic requirements	N	Participation