

## Python Basics

**Duration – 2 Days / 16 Hours**

### Program Description

This program provides a comprehensive introduction to Python, focusing on fundamental programming concepts and core syntax. Ideal for beginners, it covers key areas such as conditionals, loops, data structures, functions, and modules.

The course also introduces error handling and file operations, laying the foundation for more advanced Python topics.

### Learning Goals

- ❖ Understand Python's basic syntax and programming principles.
- ❖ Learn python operators, variables and string fundamentals.
- ❖ Learn how to implement conditional logic and loops to control program flow.
- ❖ Explore data structures like lists, dictionaries, and sets for efficient data management.
- ❖ Understand how to write reusable code using functions and modules.
- ❖ Gain skills in file handling and managing errors through exception handling.

### Course Topics

- ❖ Python fundamentals and syntax.
- ❖ Conditional statements (if-else, nested if else) and loops (for, while).
- ❖ Data structures: strings, lists, dictionaries, sets, tuples.
- ❖ Creating and using functions and working with Python modules.
- ❖ File handling operations and exception handling.

## Python Intermediate

**Duration – 3 Days / 24 Hours**

### Program Description

This course introduces Python programming in the context of data science. Participants will learn how to work with popular Python libraries like NumPy, Matplotlib and Pandas to perform data manipulation and analysis.

The course also covers functional and object-oriented programming techniques that are crucial for efficient data processing.

### Learning Goals

- ❖ Learn the fundamentals of Python with a focus on data science applications.
- ❖ Understand and manipulate data structures for efficient data handling.
- ❖ Use NumPy for numerical computations and data processing.
- ❖ Explore visualization libraries including Matplotlib
- ❖ Explore the Pandas library for data manipulation and Exploratory data analysis.
- ❖ Develop object-oriented and functional programming skills tailored for data science.

### Course Topics

- ❖ Basics of Python programming for data science.
- ❖ Working with Python data structures (lists, tuples, sets, dictionaries).
- ❖ Object-Oriented and functional programming with Python.
- ❖ Using the NumPy package for numerical analysis.
- ❖ Data manipulation and exploration with Pandas.
- ❖ Data visualization using Matplotlib.

## Python Advance

**Duration – 4 Days / 32 Hours**

### Program Description

The Advanced Python program is designed for experienced developers looking to deepen their understanding of Python.

The course covers advanced topics such as object-oriented programming (OOP), regular expressions, data manipulation using Pandas, data visualization with Seaborn, Plotly, and web automation with Selenium. Additionally, it explores Webs scraping concepts, APIs, making HTTP requests, and using Python for in-depth data analysis.

### Learning Goals

- ❖ Master advanced object-oriented programming techniques in Python.
- ❖ Learn to use regular expressions for pattern matching and text processing.
- ❖ Use NumPy and Pandas for advanced data manipulation and analysis.
- ❖ Create data visualizations using Seaborn and Plotly for insights.
- ❖ Gain proficiency in automating tasks using Selenium and making API calls.
- ❖ Develop skills to perform complex data analysis using Python.
- ❖ Learn to scrape data from the internet using Beautiful Soup.
- ❖ Conduct Exploratory Data Analysis (EDA) to uncover patterns, trends, and insights from datasets.

### Course Topics

- ❖ Advanced Object-Oriented Programming (OOP) in Python.
- ❖ Using regular expressions for pattern matching.
- ❖ NumPy for advanced numerical computations.
- ❖ Data manipulation and analysis with Pandas.
- ❖ Data visualization with Seaborn & Plotly.
- ❖ API calls and handling HTTP requests.
- ❖ Web automation with Selenium and scarping using BS4.
- ❖ Exploratory Data Analysis (EDA)