



STELLAR  
TECH PRO



# Python

**Sessions: 20**

**Level: Basic | Intermediate | Advanced**

## About Python Programming Course?

The Python Programming Certification Course covers both basic and advanced concepts of Python, such as writing Python scripts, sequence and file operations, object-oriented concepts, and web scraping. During this journey, you will learn many essential and widely used Python libraries such as pandas, NumPy, Matplotlib, among others.

### Why learn Python Programming?

Python is a premier, flexible, and powerful open-source language that is easy to learn, easy to use, and has powerful libraries for data manipulation and analysis. For over a decade, Python has been used in scientific computing and highly quantitative domains such as Finance, Oil and Gas, Physics, and Signal Processing. Today, it is the most preferred language for Artificial Intelligence (AI), Robotics, Web Development, and DevOps.

## What are the objectives of our Python Programming Certification Course?

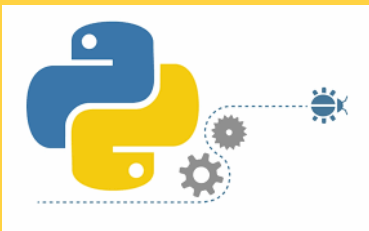
- Upon completing this course, you will be able to:
- Write Python scripts and test code Programmatically download and analyze data
- Use Python notebooks and master the art of presenting step-by-step data analysis

### Python Programming Course Curriculum

#### Introduction to Python

##### Topics:

- Need for Programming Advantages of Programming Overview of Python Organizations using Python
- Python Applications in Various Domains Python Installation
- Variables
- Operands and Expressions Conditional Statements Loops
- Command Line Arguments



#### Hands-On:

- Creating the “Hello World” code Numbers in Python
- Demonstrating Conditional Statements Demonstrating Loops

## Sequences and File Operations

### Topics:

- Python - Files Input/Output Functions
- Lists and Related Operations
- Tuples and Related Operations
- Strings and Related Operations
- Sets and Related Operations
- Dictionaries and Related Operations

### Hands-On:

- File Handling
- Tuple - Properties, Related Operations List - Properties, Related Operations
- Dictionary - Properties, Related Operations Set - Properties, Related Operations
- String – Properties, Related Operations

## Deep Dive – Functions and OOPs

### Topics:

- User-Defined Functions
- Concept of Return Statement
- Function Parameters
- Different Types of Arguments Global Variables
- Global Keyword
- Variable Scope and Returning Values Lambda Functions
- Various Built-In Functions
- Introduction to Object-Oriented Concepts Built-In Class Attributes
- Public, Protected and Private Attributes, and Methods Class Variable and Instance Variable
- Constructor and Destructor Decorator in Python

### Hands-On:

- Functions - Syntax, Arguments, Keyword Arguments, and Return Values
- Lambda - Features, Syntax, Options
- Built-In Functions
- Python Object-Oriented Concepts Applications
- Python Object-Oriented Core Principles and Its Applications
- Inheritance Case Study

## Working with Modules and Handling Exceptions

### Topics:

- Regular Expression
- Exception Handling

### Hands-On:

- Packages and Modules Regular Expression
- Errors and Exceptions - Types of Issues, and Their Remediation

## Introduction to NumPy

### Topics:

- Basics of Data Analysis
- NumPy – Arrays
- Operations on Arrays
- Indexing Slicing and Iterating
- NumPy Array Attributes
- NumPy Functions
- Array Manipulation
- File Handling Using NumPy

### Hands-On:

- Matrix Product and Aggregate Functions using
- Numpy Array Creation and Logic Functions
- File Handling Using Numpy

## Data Manipulation using pandas

### Topics:

- Introduction to pandas
- Data structures in pandas
- Series
- Data Frames
- Importing and Exporting Files in Python
- Exploring Datasets

## Hands-On:

- Functionality of Series
- The Functionality of Data Frame
- Combining Data from Dataset
- Cleaning Data



## Data Visualization using Matplotlib

### Topics:

- Why Data Visualization?
- Matplotlib Library
- Line Plots
- Multiline Plots
- Bar Plot
- Histogram
- Pie Chart
- Scatter Plot
- Grids

### Hands-On:

- Plotting Different Types of Charts
- Customizing Visualizations Using Matplotlib
- Customizing Visualizations and Subplots

# Python