Python Course Content

PART 1: INTRODUCTION

- What is Python?
- Why Python?
- Who Uses Python?
- Characteristics of Python
- History of Python
- What is PSF?
- Python Versions
- How to Download Python
- How to Install Python
- Install Python with Diff IDEs
- Features of Python
- Limitations of Python

PART 2: COMPILER VS INTERPRETER

- How Python Runs Programs
- Creating Your First Python Program
- Printing to the Screen
- Reading Keyboard Input
- Using Command Prompt and GUI or IDE
- Python Distributions
- Execute the Script
- Interactive Mode
- Indentation
- Script Mode
- Python File Extensions
- setting path in Windows
- Clear screen inside python
- Learn Python Main Function
- Python Comments
- Assessment I

PART 3: DATA TYPES

- Numbers in Python

- Reference Types
- Strings
- Lists
- Dictionaries
- Tuples
- General Object Properties
- Assessment 2

PART 4: BASIC STATEMENTS AND LOOPS

- “if condition” in conditional structures
- Simple if statement
- if .. else statement
- if .. elif .. else statement
- When “else condition” does not work
- How to use “elif” condition
- How to execute conditional statement with minimal code
- “While Loop”
- “For Loop”
- How to use For Loop with different data types
- Pass, Break Continue statements in Loops.
- Assessment 3

PART 5: FUNCTIONS

- What is a function?
- Define and call a function in Python
- Types of Functions
- Significance of Indentation (Space) in Python
- How Function Return Value?
- Types of Arguments in Functions
- Non-keyword Arguments
- Arbitrary Arguments
- Rules to define a function in Python
- Various Forms of Function Arguments
- Scope and Lifetime of variables
- Nested Functions
- Anonymous Functions/Lambda functions
- Passing functions to function
- Assessment 4

PART 6: MODULES

- What is a Module?
- Types of Modules
- The import Statement
- The from…import Statement
- import * Statement
- Underscores in Python
- The dir( ) Function
- Creating User defined Modules
- Command line Arguments
- Python Module Search Path
- Assessment 5

PART 7: CLASSES

- Introduction to OOPs
- Basic Concepts of OOPs
- OOPS Principles
- Define Classes and Creating Objects
- Class variables and Instance Variables Constructors
- Basic concept of Object and Classes
- Access Modifiers
- How to define Python classes
- Self-variable in python
- Garbage Collection
- What is Inheritance? Types of Inheritance?
- How Inheritance works?
- Python Multiple Inheritance
- Method Over Riding
- Polymorphism
- Abstraction
- Encapsulation
- Built-In Class Attributes
- Assessment 6

PART 8: EXCEPTIONS

- Exception Basics
- Python Errors
- Common Runtime Errors in PYTHON
- Abnormal termination
- Chain of importance Of Exception

- Exception Handling
- Try … Except
- Try ... Except ... else
- Try … finally
- Try … Except … else…finally
- Argument of an Exception
- Python Custom Exceptions
- Ignore Errors
- Assertion Statements
- How to use Assertions Effectively?
- Assessment 7

PART 9: GUI PROGRAMMING

- Introduction
- Components and Events
- Adding Controls
- Entry Widget, Text Widget, Radio Button, Check Button
- List Boxes, Menus, Combo Box
- Summary: Python Tool-Set Layers
- Assessment 8

PART 10: SYSTEM MODULES

- System Modules Overview
- Running Shell Commands
- Arguments, Streams, Shell Variables
- File Tools
- Directory Tools
- Forking Processes
- Thread Modules And Queues
- The Subprocess And Multiprocessing Modules
- Ipc Tools: Pipes, Sockets, Signals
- Fork Versis Spawnv
- Larger Examples
- Assessment 9

PART 11: GUI PROGRAMMING

- Python Gui Options
- The Tkinter ‘Hello World’ Program
- Adding Buttons, Frames, And Callbacks
- Getting Input From A User

- Assorted Tkinter Details
- Building Guis By Subclassing Frames
- Reusing Guis By Subclassing And Attaching
- Advanced Widgets: Images, Grids, And More
- Larger Examples
- Assessment 10

PART 12: DATABASES AND PERSISTENCE

- Databases and Persistence
- Object Persistence: Shelves
- Storing Class Instances
- Pickling Objects Without Shelves
- Using Simple Dbm Files
- Shelve Gotchas
- pyodbc Object-Oriented Database
- Python Sql Database Api
- Assessment 11

PART 13: TEXT PROCESSING

- String Objects: Review
- Splitting And Joining Strings
- Regular Expressions
- Parsing Languages
- Xml Parsing: Regex, Sax, Dom, And Etree
- Assessment 12

PART 14: INTERNET SCRIPTING

- Using Sockets In Python
- The Ftp Module
- Email Processing
- Other Client-Side Tools
- Building Web Sites With Python
- Writing Server-Side Cgi Scripts
- Jython: Python For Java Systems
- Active Scripting And Com
- Other Internet-Related Tools
- Assessment 13

PART 15: DJANGO FRAMEWORK

- Introduction to DJANGO Web Development with Python

- Creating the first App
- Modelling and Templates
- HTML,CSS, Bootstrap
- Passing Variable from python to Html
- Blogs
- Blog View and Templates
- Database & Migrations
- Admin- Web Development
- Single Blog Pages
- Publishing to a webserver
- SSL for HTTPS with nginx
- Assessment 14

PART 16:AWS WITH PYTHON

- Introduction –AWS with Python
- Getting Configured
- AWS CLI Tool and Boto3
- Scripting Ec2
- Scripting S3
- Scripting RDS

PART 17: PYTHON FOR DATA SCIENCE

- NumPy
- NumPy Arrays
- Basic statistics with NumPy
- Graphical data analysis with Python
- Cumulative distribution function
- Plotting data with Python
- Plotting histogram with Python
- Data Analysis and Statistical thinking in Python
- Scrapping the web
- HTTP Request for importing files and flat files from the web
- Importing data in python
- Importing flat files using pandas
- Importing flat files using NumPy
- Importance of flat files in data science
- Python Data Science ToolBox
- Customizing plots with Matplotlib
- Histogram with Matplotlib
- Basics plots with Matplotlib