PYTHON COURSE SYLLABUS

Python programming course with hands-on practical. Trainer is a working professional with 7 years of experience as Python developer.

Introduction to Python

- Why Python, its Unique Feature and where to use it
- Python and environment setup
- Discuss about IDEs like IDLE, PyCharm, Spyder
- Start programming on interactive shell
- Setting up IDE with the Python installation
- Python Identifiers and Keywords
- All about pip (operations) and about installed modules and packages
- Access Command line arguments within programs

Python Conditional Statements, Loops and File Handling

- Python Data Types and Variable
- Condition and Loops in Python
- Strings and String Wrangling
- Python Files and Directories manipulations
- Use various files and directory functions for OS operations

Python: Core Objects and Advanced Data Structures; Functions and Lambdas

- Built in modules (Library Functions)
- Numeric types and the Math Module
- Dealing with Lists, Dictionaries and Tuples
- Complex Data structures in Python
- Python built in function(s)
- Python user defined functions
- Decorators
- Python packages and functions
- The anonymous Functions – Lambda Functions

Python: The Object Oriented Side of it

- OOP S Concepts
- Object, Classes and Destroying Objects
- Accessing attributes, Built-In Class Attributes
- Inheritance and Polymorphism
- Overriding Methods; Concept and implementing Data Hiding

- Overloading Operators

Python: Exception Handling

- Exceptions Handling
- Handling various exceptions using try, except and else
- Try-finally clause
- Argument of an Exception and create self exception class
- Python Standard Exceptions
- Raising an exception, User-Defined Exceptions

Python: Debugging

- Debug Python programs using pdb debugger
- Assert for debugging
- Testing with Python using Unit Test
- Iterable and generator in Python
- Yielding from the generators
- Standard project setup in Python

Python: Regular Expression

- What are Regular Expressions
- Hands on with RegEx using text editor(s)
- Staring with Python RegEx: the match and search Function
- Python RegEx: Compile and matching
- Python RegEx: Matching and Searching
- Search and Replace feature using RE
- Extended Regular Expressions
- Wildcard characters and work with them

Python: Multithreading Paradigms

- Understanding the requirement for Multi Threading
- Understanding Tasks, Processes and Threads
- Multithreading with Python
- Spinning a New Thread and accessing its characteristics
- The Threading Module
- Killing Threads
- Synchronizing Threads and observed issues
- Concept of Thread Pooling and related observations
- Implementing Thread Pooling in Python with real life example utilities

Python: All operations in JSON Files and Windows Spreadsheet

- JSON Files parsing with Python
- Windows Spreadsheets parsing with Python
- Create XLS reports with Python

Python: Database Handling

- Why Databases and their requirements
- Concepts behind different types of databases
- Hands on with MySQL database
- Establishing Database Connection with Python
- DML and DDL Operations with Databases
- Performing Database Transactions
- Handling Database Errors
- Disconnecting from a Database

Python: GUI Programming

- Overview of TkInter Framework
- Developing GUI using TKinter with Python
- TKinter Widgets
- Quick GUI development with a 3rd party package: Gooey

Dealing in REST APIs: The Flask Framework

- Introduction to REST Protocol
- HTTP Response Codes
- APIs: REST based and the concept behind their working
- Overview of Flask Framework
- Creating a minimum and fully operational Flask Application
- Interacting with JSON, CSV and Database data via Flask Applications