Python Syllabus Duration 45 Days

Chapter 1: Introduction to Python

- What is Python and history of Python?
- Unique features of Python
- Python-2 and Python-3 differences
- Install Python and Environment Setup
- First Python Program
- Python Identifiers, Keywords and Indentation
- Comments and document interlude in Python
- Command line arguments
- Getting User Input
- Python Data Types
- What are variables?
- Python Core objects and Functions
- Number and Maths
- Week 1 Assignments

Chapter 2: Control Statements

- if-else
- if-elif-else
- while loop
- for loop
- break
- continue
- assert
- pass
- return

Chapter 3: List, Ranges & Tuples in Python

- Introduction
- Lists in Python
- More about Lists
- Understanding Iterators
- Generators, Comprehensions and Lambda Expressions
    - Introduction
    - Generators and Yield
    - Next and Ranges
- Understanding and using Ranges
- More About Ranges
- Ordered Sets with tuples

Chapter 4: Python Dictionaries and Sets

- Introduction to the section
- Python Dictionaries
- More on Dictionaries
- Sets
- Python Sets Examples

Chapter 5: Input and Output in Python

- Reading and writing text files
- writing Text Files
- Appending to Files and Challenge
- Writing Binary Files Manually
- Using Pickle to Write Binary Files

Chapter 6: Python built in function

- Python user defined functions
- Python packages functions
- Defining and calling Function
- The anonymous Functions
- Loops and statement in Python
- Python Modules & Packages

Chapter 7: Python Object Oriented

- Overview of OOP
- The self variable
- Constructor
- Types Of Variables
- Namespaces
- Creating Classes and Objects
- Inheritance
- Types of Methods
    - Instance Methods
    - Static Methods
    - Class Methods
- Accessing attributes
- Built-In Class Attributes
- Destroying Objects
- Abstract classes and Interfaces
- Abstract Methods and Abstract class
- Interface in Python
- Abstract classes and Interfaces

Chapter 8: Exceptions

- Errors in Python
- Compile-Time Errors
- Runtime Errors
- Logical Errors
- What is Exception?
- Handling an exception
- try….except…else
- try-finally clause
- Argument of an Exception
- Python Standard Exceptions
- Raising an exceptions
- User-Defined Exceptions

Chapter 9: Python Regular Expressions

- What are regular expressions?
- The match Function
- The search Function
- Matching vs searching
- Search and Replace
- Extended Regular Expressions
- Wildcard

Chapter 10: Python Multithreaded Programming

- What is multithreading?
- Difference between a Process and Thread
- Concurrent Programming and GIL
- Uses of Thread
- Starting a New Thread
- The Threading Module
- Thread Synchronization
    - Locks
    - Semaphore
- Deadlock of Threads
- Avoiding Deadlocks
- Daemon Threads

Chapter 11: Using Databases in Python

- Python MySQL Database Access
- Install the MySQLdb and other Packages
- Create Database Connection
- CREATE, INSERT, READ Operation
- DML and DDL Oepration with Databases

Web Scraping in Python

Chapter 14: Data Science Using Python

- Numpy:
    - Introduction to numpy
    - Creating arrays
    - Indexing Arrays
    - Array Transposition
    - Universal Array Function
    - Array Processing
    - Array Input and Output

Pandas:

- What are pandas?
- Where it is used?
- Series in pandas
- Index objects
- Reindex
- Drop Entry
- Selecting Entries
- Data Alignment
- Rank and Sort
- Summary Statics
- Index Hierarchy
- Matplotlib: Data Visualization
- Python for Data Visualization
- Welcome to the Data Visualization Section
- Introduction to Matplotlib

Chapter 15: Graphical User Interface

- GUI in Python
- Button Widget
- Label Widget
- Text Widget

Chapter 16: Django Web Framework in Python

- Introduction to MVC and MVT architecture in Web development
- Django folder structure and flow of control