Syllabus for Python Programming

Module 1: Introduction to Python

- Why Python
- Python and other programming languages comparison
- Install Python

Module 2: Beginning Python Basics

- The print statement
- Comments
- Python data structures and data types
- String operations in Python
- Simple input and output
- Simple output formatting
- Operators in Python

Module 3: Python Program Flow

- Indentation
- The if statement and its related statement
- The while loop
- The for loop
- The range statement
- Break and Continue
- Assert
- Examples of looping

Module 4: Functions and Modules

- Create your own functions
- Function parameters
- Variable arguments

- Scope of a function
- Function Documentations
- Lambda functions and map
- n Exercise with functions
- Create a module
- Standard modules

Module 5: Exceptions Handling

- Errors
- Exception handling with try
- Handling multiple exceptions
- Writing your own exception

Module 6: File Handling

- File handling modes
- Reading files
- Writing and appending to files
- Handling file exceptions
- The with statement

Module 7: Classes in Python

- New style classes
- Creating classes
- Instance methods
- Inheritance
- Polymorphism
- Exception classes and custom exceptions

Module 8: Generators and iterators

- Iterators
- Generators
- Data compression

Module 9: Data Structures

- List comprehensions
- Nested list comprehensions
- Dictionary comprehensions
- Functions
- Default parameters
- Variable arguments
- Specialized sorts

Module 10: Collections

- namedtuple()
- deque
- Chainmap
- Counter
- OrderedDict
- defaultdict
- UserDict
- UserList
- UserString

Module 11: Writing GUIs in Python (Tkinter)

- Introduction
- Components and Events

- An example GUI
- The root component
- Adding a button
- Entry widgets
- Text widgets
- Check buttons

Module 12: Python SQL Database Access

- Introduction
- Installation
- DB Connection
- Creating DB Table
- Insert, read, update, delete operations
- Commit and Roll back operation
- Handling errors

Module 13: Network Programming

- Introduction
- A Daytime Server
- Clients and Servers
- The Client Program
- The Server Program

Module 14: Date and Time

- Sleep
- Program Execution Time
- More methods on date/time

Module 15: Other Topics

- Filter
- Map
- Reduce
- Decorators
- Frozen Set
- Collections

Module 16: Regular Expression

- Split
- Working with special characters, dates, emails
- Quantifiers
- Match and find all
- Character sequence and substitute
- Search method

Module 17: Threads ESSENTIAL

- Class and threads
- Multithreading
- Synchronization
- Threads lifecycle
- Use cases

Module 18: Accessing API ESSENTIAL

- Introduction
- Facebook Messenger
- Openweather

Module 19: DJANGO

- Django Overview

- Django installation
- Creating a Project
- Usage of project in-depth discussion
- Creating an application
- Understanding folder structure
- Creating a Hello World Page
- Database and Views
- Static Files and Forms
- API and Security