Python Syllabus (Basic-Advance)

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📜 Course Description

Here we dive into the fascinating world of Coding. The program encompasses two distinct yet interconnected processes: learning how to code and doing that while exploring the depths of the Python language.

With me, you'll develop problem-solving skills and computational thinking, along with gaining a solid foundation in coding principles. Simultaneously, we'll delve into the intricacies of Python, equipping you with a comprehensive understanding of the language and its unique tools.

This course combines convenience with depth, providing you with the necessary knowledge and techniques to navigate Python effectively. Whether you're a beginner or have some programming experience, I'll guide you towards unlocking Python's potential for real-world applications.

Join me on this transformative learning journey and let's uncover the endless possibilities of coding and Python together.

Prerequisite(s): To get the most out of this course, it's helpful to have some basic computer skills and be comfortable navigating the web. If you can rock some online research and know your way around search engines, you're all set!

📚 Topics

- Introduction to programming and Python.

- Data Types and other Fundamentals

- Operators

- IO

- Flow Control

- Built-in Data Structures

- Functions

- Modules and Packages

- Exception, File Handling

- Database connectivity

- Web APIs with Python

- Data Analysis libraries

Course Schedule

> 📌 This syllabus serves as a basic framework. The course content and order of topics will be customized to meet the individual needs of each student, guaranteeing a unique and highly effective learning journey.

Schedule

Weews	Topic	Classes	Date
📗 1	Intro to Programming, Python, Features, Installation.		
.	Variables, Fundamental Data Types (int, float, bool, str), Comments, Type Casting.		
.	Operators (Arithmetic, Relational, Equality, Logical, Membership), Concept of Mutability		
.	Input, Output, Flow Control (conditional Statements - if, else, elif)		
.	Flow Control (Looping Statements - for)		
📗 2	Flow Control (Looping Statements - while)		
.	Strings		
.	List		
.	Dictionary		
Untitled	Functions (Types, Parameters), Local and Global scope		
.	OOP (Objects, Classes, Self, Constructor, Attributes, Methods)		
📗 3	Inheritance(is-a, has-a relationship)		
.	Polymorphism (Method Overriding, Operator Overloading)		
.	Higher Order Functions(map, filter), Lambda expressions/Anonymous functions		
.	Modules - 1 Importing builtin modules, 3rd party modules, pip		
.	Modules - 2 Creating modules, __ name __ variable, Packages		
.	CLI commands, Subprocesses		
📗 4	Exception Handling, File Handling, Context Manager, CSVs		
.	Database (SQL basics, DB installation and connectivity with Python application)		
.	CRUD operations in a DB.		
.	Web APIs, Fetching data(text,image) through APIs.		
Untitled	Creating APIs through Flask, Deployment		
.	Web Scraping in Static Websites		
📗 5	Data Analysis Environment (Anaconda, Jupyter Notebook), Understanding Jupyter platform		

Aa Weeks	☰ Topic	☰ Classes	🗓 Date
.	Understanding some essential data analysis (numpy, pandas, matplotlib, seaborn)		
.	Comprehensive overview of data analysis techniques.		
.	Data Import/Collection, Assessing, Cleaning, Exporting		
.	Data Web Application using Streamlit		

We'll incorporate problem-solving sessions, assignments for each lesson.

A collection of over 100 coding challenges, and engage in 7-10 mini projects.

🧠 Possible Projects

- Guess the correct number Game (text based)

- File manager in OS

- Cryptography

- Password Manager

- Password/OTP generators

- System Task Scheduling

- Weather App

- Food Nutrition app

- NASA APOD app

- Backend API Deployment

- Web Scraping.

- Data App using Streamlit

- Data Analysis