

Python Programming Course Syllabus

Course Duration: 30+ hours

Instructor: Dr. Amar Panchal

Course Description:

This comprehensive 30+hour Python programming course is designed to take you from beginner to proficient in Python. You'll learn the fundamentals of Python programming, develop problem-solving skills, and build real-world applications throughout the course. This course is ideal for students with no prior programming experience.

Course Objectives:

- Gain a solid understanding of Python syntax and programming concepts.
- Master the use of variables, operators, conditional statements, and loops.
- Work effectively with various data structures like lists, tuples, dictionaries, and sets.
- Develop and utilize functions to create modular and reusable code.
- Understand the principles of Object-Oriented Programming (OOP) in Python.
- Implement exception handling to make your programs robust.
- Build 10+ real-world Python applications to solidify your learning.
- Earn a certificate upon successful completion of the course.

Course Syllabus :

Module 1: Introduction to Python Programming

- Introduction to Python: What is Python and why use it?
- Program structure in Python: Understanding scripts and modules.
- Execution steps: Running Python code interactively and in scripts.
- Interactive Shell: Using the Python interpreter for exploration.
- Memory management: How Python handles data and garbage collection works.
- Dos and Don'ts: Best practices for writing clean and efficient Python code.

Module 2: Operators, Conditional Statements, and Loops

- Assignments, Expressions, and prints: Working with data and output.
- If statements and syntax rules: Making decisions in your code.
- While and For loops: Iterating over sequences and controlling program flow.
- Iterations and comprehensions: Advanced techniques for looping.



Module 3: Data Structures

- Numbers: Working with integers, floats, and complex numbers.
- Strings: Manipulating text data in Python.
- Lists: Creating, accessing, and modifying ordered collections of items.
- Tuples: Immutable ordered sequences for specific use cases.
- Dictionaries: Key-value pairs for storing and organizing data.

Module 4: Functions in Python

- Function definition and call: Creating and using reusable blocks of code.
- Function scope: Understanding variable visibility within functions.
- Arguments: Passing data to and returning data from functions.

Module 5: Object-Oriented Programming (OOP) using Python

- Classes and instances: Creating blueprints for objects.
- Class method calls: Defining behavior for objects.
- Inheritance and composition: Building relationships between classes.
- Polymorphism: Making code adaptable to different object types.

Module 6: Exception Handling in Python Programming

- Default exception handler: Default behavior when errors occur.
- Catching exceptions: Handling specific errors gracefully.
- Raising exceptions: Signaling errors to other parts of your code.
- User-defined exceptions: Creating custom error types for specific scenarios.

Assessment:

This course will include a combination of assignments, quizzes, and a final project to assess your understanding of the covered concepts.

Recordings and Ongoing Support:

You will have access to recordings of all lectures for a year, allowing you to revisit and solidify your learning. Additionally, support will be provided throughout the course to address your questions and ensure your success.

Happy Learning!