Certificate course in basic programming using python

22-23

syllabus

Module 1: Introduction to Python and Basic Syntax

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1. Introduction to Programming and Python

   - Overview of programming concepts

   - Setting up Python environment

2. Basic Python Syntax

   - Print statements and comments

   - Variables and data types

   - Basic arithmetic operations

3. Control Flow

   - Conditional statements (if, elif, else)

   - Loops (for and while)

   - Break and continue statements

Module 2: Functions and File Handling

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4. Functions

   - Defining functions

   - Parameters and return values

   - Scope and namespaces

5. File Handling

- Reading and writing files in Python

- Using context managers (with statement)

Module 3: Data Structures and Libraries

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6. Lists and Tuples

  - Creating and manipulating lists

  - Working with tuples

7. Dictionaries and Sets

  - Understanding dictionaries

  - Working with sets

Module 4: Object-Oriented Programming (OOP) Basics

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8. Introduction to OOP

  - Classes and objects

  - Constructors and methods

9. Inheritance and Polymorphism

  - Extending classes

  - Overriding methods

Module 5: Final Project and Conclusion

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10. Mini Project

   - Implement a small project using concepts learned so far

11. Introduction to Python Standard Library

- Exploring Python's standard library

- Useful modules for everyday tasks

12. Final Project

- Develop a simple Python program using various concepts covered