Python Programming Curriculum Content

1. Introduction to Python

- **Topics:**
    - What is Python?
    - Python Installation
    - Python IDEs and Tools
    - Python Syntax and Semantics

2. Basic Python Syntax

- **Topics:**
    - Variables and Data Types
    - Operators
    - Input and Output
    - Basic Data Structures (Lists, Tuples, Dictionaries, Sets)

3. Control Flow

- **Topics:**
    - Conditional Statements (if, elif, else)
    - Loops (for, while)
    - Loop Control (break, continue, pass)

4. Functions

- **Topics:**
    - Defining Functions
    - Function Arguments
    - Return Values
    - Lambda Functions

5. Modules and Packages

- **Topics:**
    - Importing Modules
    - Standard Library Modules
    - Creating and Using Packages

6. File Handling

- **Topics:**

- Reading and Writing Files
- File Operations (open, close, read, write)
- Working with Different File Formats (CSV, JSON)

7. Error Handling

- **Topics:**
  - Exceptions and Error Handling
  - Try, Except, Finally
  - Custom Exceptions

8. Object-Oriented Programming

- **Topics:**
  - Classes and Objects
  - Inheritance
  - Encapsulation
  - Polymorphism

9. Data Analysis with Python

- **Topics:**
  - Introduction to Pandas
  - DataFrames and Series
  - Data Cleaning and Manipulation
  - Basic Data Analysis Techniques

10. Introduction to Libraries for Data Science

- **Topics:**
  - NumPy
  - Matplotlib
  - Scikit-Learn

11. Working with APIs

- **Topics:**
  - Making API Requests
  - Parsing API Responses
  - Using JSON Data

12. Final Project

- **Topics:**
  - Project Planning and Requirements
  - Implementation
  - Testing and Debugging
  - Presentation