Python Full Stack Course Module

The course is 60 hours in length, which will last 10 weeks 6 hours a week, 2 session a week 3 hours each.

Week 1: Introduction to Python and Basic Programming Concepts

Session 1:
- Course Overview
- Introduction to Python
    - History and Features
    - Setting Up the Environment
- Basic Syntax
    - Variables and Data Types
    - Operators

Session 2:
- Control Structures
    - Conditional Statements
    - Loops (for, while)
- Functions
    - Defining Functions
    - Parameters and Return Values

Week 2: Advanced Python Concepts

Session 3:
- Data Structures
    - Lists
    - Tuples
    - Sets
    - Dictionaries

Session 4:
- Advanced Functions
    - Lambda Functions
    - Map, Filter, Reduce
    - List Comprehensions
- Error Handling
    - Try, Except, Finally

Week 3: Object-Oriented Programming

Session 5:
- Introduction to OOP
    - Classes and Objects
    - Methods and Constructors

Session 6:
- Inheritance
- Single and Multiple Inheritance
- Polymorphism
- Encapsulation and Abstraction

Week 4: Working with Files and Libraries

Session 7:
- File Handling
- Reading and Writing Files
- Working with CSV and JSON Files

Session 8:
- Libraries and Modules
- Importing Libraries
- Popular Python Libraries (os, sys, datetime)

Week 5: Web Development Basics

Session 9:
- Introduction to HTML and CSS
- Basic HTML Structure
- CSS Basics

Session 10:
- Introduction to JavaScript
- Basic Syntax and Control Structures
- DOM Manipulation

Week 6: Python Web Frameworks

Session 11:
- Introduction to Flask
- Setting Up Flask
- Creating Your First Flask App

Session 12:
- Flask Templates and Static Files
- Jinja2 Templating
- Serving Static Files

Week 7: Working with Databases

Session 13:
- Introduction to Databases
- SQL Basics
- Setting Up SQLite/MySQL

Session 14:
- SQLAlchemy with Flask

- ORM Concepts
                              - CRUD Operations

Week 8: Advanced Flask Features

Session 15:

- Flask Forms
    - WTForms
    - Form Validation

Session 16:

- User Authentication
    - Flask-Login
    - Implementing Login and Registration

Week 9: Building RESTful APIs

Session 17:

- Introduction to REST APIs
    - REST Principles
    - Building APIs with Flask

Session 18:

- Consuming APIs
    - Requests Library
    - Working with External APIs

Week 10: Deployment and Capstone Project

Session 19:

- Deployment
    - Deploying Flask Apps to Heroku/AWS
    - Environment Variables and Configurations

Session 20:

- Capstone Project
    - Project Overview and Requirements
    - Project Work and Q&A

Additional Resources and Assignments

- Weekly Assignments and Projects
- Recommended Reading and Practice Problems
- Additional Online Resources and Tutorials

This outline provides a comprehensive structure for a 60-hour Python Full Stack course, covering essential topics in Python programming, web development, and deployment.