

VERSION

25

PROFESSIONAL

SR. CODE

EAPL/PROF/PRTC06

COURSE CODE

EAPFP

SUB CATEGORY

FULL STACK DEVELOPMENT



TOTAL DURATION

90

HOURS



THEORY TAKEN

20

HOURS



PRACTICAL TAKEN

70

HOURS

ELYSIUM
ACADEMY
FULL STACK
DEVELOPER
PYTHON
ELYSIUM
ACADEMY
FULL STACK
DEVELOPER
PYTHON
ELYSIUM
ACADEMY
FULL STACK
DEVELOPER
PYTHON

COURSE DESCRIPTION



This Web Programming with Python course takes you through a hands-on guide to object-oriented python web programming, working with multiple types of servers, databases and web frameworks. All that is required to get started is a very basic background knowledge of Python Multiple chapters of review and then goes step by step through the necessary concepts at every stage of development.

COURSE GOALS



You'll get a detailed primer on database programming with Python, installing an SQLite server and performing routine data selections and operations; you'll learn how to interact with FTP and email services using native Python code; see how to process web form data via Python; and learn how to interact with web database applications and utilize XML.

FUTURE SCOPE



Finally, the Python web programming course ends with a chapter on configuring and working with Django and Flask a modern web framework that allows you to create and manage complex database-driven websites.

FRONT END TECHNOLOGIES

01

CHAPTER

HTML

O1. HTML Overview

- a. HTML Editing Tools
- b. Document Structure
- c. HTML Tags
- d. Information browsers ignore
- e. Specifying Color in HTML

O2. Structural HTML Tags

- a. Setting up an HTML document
- b. Using Tags
- c. Formatting Text
- d. Introduction to frames

O3. Adding images and other page elements

- a. Horizontal rules
- b. The Image basics
- c. The IMG tag and its attributes
- d. Media queries

O4. Tables

- a. Introduction to tables
- b. Affecting table appearance
- c. Table troubleshooting
- d. Standard table templates
- e. Multipart images in tables

O5. Forms

- a. The basic form (FORM)



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- b. The FORM elements
- c. The New FORM attributes (HTML 4.0)
- d. Affecting the appearance of forms
- e. Unconventional use of FORM elements

O6. Server Side includes (SSI)

- a. How SSI is used
- b. The SSI and the server
- c. Adding SSI commands to a document
- d. Using environment variables

02

CHAPTER

CSS

O1. Basic styling of web pages using

- a. Concept of CSS
- b. Creating Style Sheet
- c. CSS Properties

O2. Manipulate the display & position of HTML elements

- a. Setting up the initial HTML and CSS files
- b. Using the inline block value
- c. Changing a Table to Use a Display block
- d. Adding Small screen content Element

O3. Understand the Box Model concept

- a. Introduction,
- b. Border properties,
- c. Padding Properties,
- d. Margin properties

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O4. Design mobile friendly web pages using CSS Media Queries

- a. RWD Introduction
- b. RWD Viewport
- c. RWD Gridview
- d. RWD Media Queries
- e. RWD Images
- f. RWD Videos
- g. RWD Frameworks
- h. RWD Templates

O5. Animate HTML elements using CSS animate property

- a. CSS Animation
- b. CSS Animation property
- c. Delay an Animation
- d. Run Animation in reverse Direction or Alternate Cycles
- e. The speed curve of the Animation
- f. The fill-mode of an Animation

O6. Web page Layouts - CSS Flex Box & CSS Grid

- a. How to Build the Navigation Bar
- b. How to Build the Showcase Section
- c. How to Build the Lower Section
- d. How to Build the Footer Section
- e. How to Make the Page Responsive

03

CHAPTER

BOOTSTRAP

O1. The Grid Layout

- a. Grid System
- b. Stacked/Horizontal
- c. Grid small
- d. Grid large
- e. Grid medium
- f. Grid XXL

O2. Buttons and Dropdowns

- a. Adding Dropdowns via Data Attributes
- b. Dropdown within a navbar
- c. Dropdowns within button
- d. Bootstrap Split button dropdown
- e. Dropdowns inside Button Groups
- f. Creating Dropup, Dropleft and Dropright Menus
- g. Creating the Right Aligned Dropdown Menus
- h. Adding Headers to Dropdown Items
- i. Disable Items within a Dropdown
- j. Adding Dropdowns via JavaScript
- k. Methods – toggle, show, hide, update, dispose, Events

O3. Navigation bar

- a. Adding Logo images to Navbar
- b. Adding Dropdown to Navbars
- c. Placing search from inside Navbar
- d. Creating the color scheme for Navbars
- e. Bootstrap fixed Navbar
- f. Creating Navbar with Bootstrap



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O4. Images and media

- a. Styling images with bootstrap
- b. Creating Response images and videos
- c. Horizontal alignment of images
- d. Using the media object
- e. Creating Nested media object

04

CHAPTER

JAVA SCRIPT

O1. JavaScript in Web browser

- a. Embedding JavaScript in HTML
- b. Execution of JavaScript code

O2. Browser Object Model

- a. The window object
- b. Dialog boxes
- c. Timers
- d. The location object
- e. The navigator object
- f. Browsing history

O3. Document Object Model

- a. Document structure
- b. Selecting document elements and query selectors
- c. Moving thorough DOM tree
- d. HTML elements and attributes
- e. Creating, changing and deleting nodes

O4. Handling Events

- a. Event propagation



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- b. Event handlers registering and invocation
- c. Event object
- d. Types of event

O5. Ajax

- a. JavaScript and HTTP communication
- b. Synchronous and asynchronous requests

O6. Graphics

- a. Multimedia basics
- b. Canvas API basics

O7. Data Storage

- a. Cookies,
- b. Web Storage,
- c. IndexedDB

O8. Security

- a. Filesystem security
- b. The Same Origin Policy
- c. Plugins
- d. Cross-Site Scripting

05

CHAPTER

JQUERY

O1. JQuery Basics

- a. Introduction
- b. JQuery Syntax
- c. JQuery Selectors

O2. JQuery Events

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O3. JQuery Effects

- a. JQuery Hide/Show
- b. JQuery Fade
- c. JQuery slide
- d. JQuery Stop()
- e. JQueryCallback()

O4. JQuery HTML

- a. JQuery Get/Set
- b. JQuery Add/Remove
- c. JQuery CSS Classes

O5. Hosting First Website

- a. Web Hosting Basics
- b. Types of Hosting Packages
- c. Registering domains
- d. Defining Name Servers
- e. Using Control Panel
- f. Creating Emails in Cpanel
- g. Using FTP Client

BACK END TECHNOLOGIES

06

CHAPTER

BASICS

O1. Introduction

- a. Overview
- b. Environmental setup



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O2. Coding Instruction

- a. Installation procedure
- b. Different ways to write a python program
- c. Execution steps and process
- d. Understanding a simple program
- e. Program execution flow
- f. Python Virtual Machine
- g. Examples

O3. Variables

- a. What is a variable?
- b. Properties of variable
- c. Creating variable
- d. Invalid cases for variables
- e. Multiple variables in n single line
- f. Single value for multiple
- g. Variable re-initialization

O4. Data types

- a. What is data type?
- b. Different types of data types
- c. Built-in data types
- d. Sequences
- e. Accessing range values
- f. User-defined data types
- g. Converting from one data type into
- h. Another data type

O5. Operators

- a. What is an operator?

- b. Different type of operators
- c. Arithmetic Operators
- d. Assignment operator
- e. Unary minus operator
- f. Relational operators
- g. Logical operators
- h. Membership operators
- i. Identity operators

O6. Control Flow statement

- a. What is Flow control?
- b. Sequential flow
- c. Conditional flow
- d. Looping flow
- e. Sequential statements
- f. Conditional or Decision-making statements
- g. If statement
- h. If else statement
- i. If elif else statement

O7. Looping statements

- a. What are Looping Statements?
- b. While and for loop
- c. Where loops with else block flow are helpful?
- d. Break statement
- e. Continue statement
- f. Pass statement
- g. The return statement

O8. Strings

- a. What is a string

- b. What is Slicing?
- c. What is Immutable?
- d. Strings are immutable
- e. Mathematical operators on string objects

07

CHAPTER

FUNCTION, MODULE & PACKAGES

O1. Types of Function argument

- a. Positional Arguments
- b. Keyword Arguments
- c. Default Arguments Function
- d. Variable Length Arguments
- e. keyword variable-length argument
- f. Function vs Module vs Library

O2. Types of variables

- a. Types of Variables
- b. Local Variables
- c. Global variables
- d. Global Keyword

O3. Recursive and Lambda Functions

- a. Recursive Function in Python
- b. Lambda Function (Anonymous Functions) in Python
- c. Filter() function in Python
- d. Map() function in Python
- e. Reduce() function in Python



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O4. Decorators and Generators

- a. Decorators in Python
- b. @ symbol in python
- c. Generators in Python
- d. Next function in Python

O5. Modules and packages

- a. What is a module?
- b. Renaming or aliasing a module
- c. dir() function
- d. What is a package?
- e. Advantage

08

CHAPTER

DATABASE HANDLING

O1. MySQL database Access

- a. Create Database Connection
- b. DML and DDL Operation with database
- c. Performing transactions
- d. Handling database Errors
- e. Disconnecting Database

O2. Database Connection with NOSQL DB

- a. SQL vs NOSQL
- b. MongoDB
- c. PyMongo
 - SQL vs NOSQL
 - MongoDB
 - PyMongo



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09

CHAPTER

OBJECT ORIENTED PROGRAMMING

O1. Constructors

- a. What are Constructors
- b. Is constructor mandatory in Python?
- c. Can a constructor be called explicitly?
- d. How many parameters can constructor have?
- e. Parameterised and Non-Parameterized Constructors in Python
- f. Difference between a method & constructor in Python
- g. Difference between a method & a function

O2. Types of Class variable

- a. Types of Class Variables
- b. Instance Variables
- c. Where instance variables can be declared?
- d. Accessing instance variables
- e. Static Variables
- f. Declaring static variables
- g. Accessing a static variable
- h. Local Variables

O3. Types of Class Method

- a. Types of Methods in a Class
- b. Instance Methods
- c. Setter and Getter methods
- d. Class Methods
- e. Static Methods
- f. Nested Classes
- g. Garbage Collection



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O5. Polymorphism

- a. Polymorphism
- b. Types of Polymorphism
- c. Overloading
- d. Operator overloading
- e. Method overloading
- f. How we can handle overloaded method requirements
- g. Constructor Overloading
- h. Overriding
- i. Method Overriding
- j. Constructor Overriding

O6. Abstract classes

- a. What is an Abstract Class in Python?
- b. Types of Methods in Python based on the Implementation
- c. How to declare an abstract method in Python
- d. Abstract Classes in Python
- e. Interface

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CHAPTER

EXCEPTION HANDLING & FILES

O1. Exception Handling

- a. Types of Error
- b. Syntax and Runtime Errors
- c. What is an Exception?
- d. Exception Handling in Python

O2. Finally Block

- a. Why do we need Finally Block?
- b. Finally Block in Python
- c. Why not 'try except' block for clean-up activities?
- d. Different control flow cases of try except finally in python

O3. Nested try-except-finally blocks

- a. Nested try-except-finally blocks in Python
- b. Different cases and scenarios
- c. Else Block in Python
- d. Possible Combinations with
- e. try-except-else-finally

O4. Files

- a. What is a File?
- b. Types of Files
- c. File Modes
- d. Opening and Closing a File
- e. Properties of File Object
- f. Writing data to a File
- g. Reading data From a File
- h. With Keyword



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CHAPTER

MULTITHREADING

O1. Introduction

- a. What is Multitasking?
- b. Process based and Thread based Multitasking
- c. Applications of Multithreading
- d. How to implement Multithreading?
- e. Different Ways to Create a Thread
- f. Creating a Thread using Thread class
- g. Creating a Thread class by inheriting Thread class

O2. Methods of Thread Class

- a. `active_count()`
- b. `enumerate()`
- c. `isAlive()`
- d. `join()`
- e. `join(seconds)`

O3. Synchronization

- a. Synchronization
- b. How to implement synchronization?
- c. Synchronization By using Lock concept
- d. Synchronization By using RLock concept
- e. Difference between Lock and RLock
- f. Synchronization by using Semaphore
- g. Bounded Semaphore



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O4. Inter Thread Communication

- a. What is Inter Thread communication?
- b. Inter Thread communication by using Event Objects
- c. Inter Thread communication by using Condition Object
- d. Inter Thread communication by using Queue in python
- e. Types of Queues
- f. FIFO Queue
- g. LIFO Queue
- h. Priority Queue

WEB BASED PYTHON FRAMEWORK

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CHAPTER

DJANGO FRAMEWORK

O1. Django framework

- a. Introduction to Django
- b. How to create Django App
- c. Url Mapping
- d. Templates
- e. Introduction to static file
- f. Django Model overview
- g. Creating model



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- h. Model Template view creation
- i. Django Form and validation
- j. Relative URL with Templates

O2. Django Administration site

- a. Activating the admin interface
- b. Using the admin interface
- c. Users, Groups and permission

O3. Form Processing

- a. Django Forms
- b. Form Validation
- c. Model form
- d. Relative URLs with Templates

O4. Views and Templates

- a. URL templates Inheritance
- b. Quick note on Custom templates Filter
- c. Template Filters and Custom Filters
- d. Django Passwords
- e. Deploying Django Framework

O5. Interacting with a Database

- a. Overview of models
- b. Creating model
- c. Configuring the database
- d. Your First App
- e. Using Django with MySQL
- f. Population Script
- g. Models-Templates-Views Paradigm
- h. Inserting and Updating data

- i. Selecting Object
- j. Deleting Object

O6. Working with Sessions

- a. Get Session
- b. Set session
- c. Session Attributes
- d. Methods in Session

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CHAPTER

FLASK WEB FRAMEWORK

O1. Web Framework

- a. What is a Flask?
- b. WSGI
- c. Werkzeug
- d. Jinja2

O2. Installation and Environmental Setup

- a. Prerequisite
- b. Install Flask on window
- c. Code Structure of flask framework
- d. In-Built Server of flask
- e. Add to System path
- f. Configure in IDE

O3. Create Basic first Application

- a. How a Flask App works
- b. Routing and View Functions
- c. Server startup
- d. Basic app object



O4. Templates

- a. Jinja2 template Engine
- b. Rendering Templates
- c. Variables
- d. Control Structures
- e. Flask-Bootstrap
- f. Custom Error Pages
- g. Creating HTML Templates
- h. Adding more HTML pages
- i. Links
- j. Static files
- k. Localization of Dates and Time with Flask-Moment

O5. Web Forms

- a. CSRF Protection
- b. Form classes
- c. HTML rendering of Forms
- d. Form handling in View Functions
- e. Redirect and User Sessions
- f. Message Flashing

O6. Database

- a. SQL or NoSQL
- b. Flask-SQLAlchemy
- c. Model Definition
- d. Relationships
- e. CRUD Operations
 - SQL or NoSQL
 - Flask-SQLAlchemy

- Modifying Rows
- Deleting Rows
- Querying Rows
- f. Database use in View function
- g. Flask-Migrate

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CHAPTER

CHERRYPY

O1. Introduction

- a. Environmental Setup
- b. Built – in Http Server

O2. Tool box

- a. Caching Tool
- b. Decoding Tool

O3. Working Application

O4. Web services

- a. Authentication
- b. Authorization
- c. Structure
- d. Encapsulation
- e. Error Handling

O5. Presentation layer

O6. Use of Ajax

O7. Demo Application

O8. Web services

- a. Unit Testing
- b. Functional testing
- c. Load Testing

O9. Deployment of Application



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