

## Training and Internship in Python Full Stack Web Development

### Python ITFS

Duration: 4 – 6 months

#### INTRODUCTION

This industry oriented course is developed by both the Software development division & Training division of **ipsr solutions limited**. IPSR is a **public limited IT company** with 20 years of expertise in [Software product development](#), [Training services](#), [Placement services](#) & [Digital Marketing services](#). During the past 2 decades, IPSR has trained candidates from **50+ countries** and helped **40000+ candidates** to build their IT career. Our IT services division is a pioneer in development of **Academic solution products**, incorporating cutting edge technologies like Artificial Intelligence, Data Analytics and Machine learning. Live industry experts from this IT division contribute a major role in delivering this course. Our placement division is having **1500+ placement tie-up companies** and we are conducting [recruitment on all days](#).

The Course curriculum is designed and developed by a team of expertise panel lead by following academicians

- ❑ **Dr. Mendus Jacob, M.Sc., M.Phil., Ph.D., MIOD**
  - ❑ M.D & C.E.O - IPSR & Valin Technologies, U.K.
  - ❑ Director - MCA, Marian College, Kuttikkanam (Autonomous)
  - ❑ Former Director of School of Applicable Mathematics, M.G. University.
  - ❑ Academician and Entrepreneur with 30+ years experience
- ❑ **Dr. Sunil Job K.A, M.Sc, M.Ed, M.Phil, Ph.D., RHCE**
  - ❑ Chief of Academic Solutions - IPSR
  - ❑ Former college Principal and a Specialist in Data Analytics & Machine Learning
  - ❑ Blogger and a Resource person for National conferences
  - ❑ Academician with 25+ years experience

## Modules and Syllabus

### Module 1: Python GUI Programming using Tkinter

Python is a general purpose language which can be used to develop any kind of applications such as simple GUI programs, games, web applications etc. In this module we cover all topics which are needed for developing a Python GUI application. It covers Python language basics, sequences, file handling, database programming using MySQL, GUI development using Tkinter etc.

#### Module Outcomes

After completing this module, the candidates are able to demonstrate the following skills.

- Define the basic features of Python language
- Explain the uniqueness and use different Python sequences
- Write and use functions. Create and import modules.
- Create files, write data to files and read data from files.
- Write exception handling codes
- Implement OOPS concepts
- Use regular expressions for pattern matching
- Create multi-threaded codes
- Do database handling using Sqlite and MySQL
- Create Python GUI applications using Tkinter
- Do functional programming using iterators, lambdas, comprehensions etc. Use functions such as map, filter, reduce.

## Units

### Unit 1: Introduction to Python

Download and install Python software.

Understand the different kinds of Python application areas.

Write a simple Python program using IDLE and execute it from command prompt and directly from IDLE.

### Unit 2: Python Language Basics

Use different data types, variables and operators.

Operator precedence

Data type conversions

Read input from console.

Write comments.

### Unit 3: Python Flow Control

Write conditional statements using If.

Create loop using while and for.

Use break, continue

Use else with loop constructs

### Unit 4: Python Sequences

The sequences and the common functions in sequences.

Create and use different sequences such as List, Tuple, Set, String and Dictionary.

Understand shallow copy and deep copy

## Unit 5: Functions and Modules

Define functions with different argument structures.

Understand the concept of default arguments and arbitrary arguments.

Define local and global variables.

Write functions with return statements.

Use built-in functions such as mathematical functions, random functions etc.

Write recursive functions.

## Unit 6: File Handling

Create and save files.

Read data from a file.

Write data to a file.

Do different file operations such as rename a file, delete a file etc.

Create directories, rename and delete directories.

## Unit 7: Exception Handling (for ITFS only)

Write exception handling code using try and except.

Explicitly invoke exceptions using raise.

Create and raise user defined exceptions.

Write clean up code using finally.

## Unit 8: Python Classes and Objects

Implement OOPS concepts in Python.

Define classes and create objects.

Write constructors and destructors.

Implement OOPS features such as inheritance, overloading, overriding and data hiding

### **Unit 9: Regular Expressions**

Do pattern matching using RegEx.

Implement the methods - match(), search(), findall(), sub() etc.

Use modifiers and create patterns.

Use different character classes.

### **Unit 10: Multithreading (for ITFS only)**

Write multithreaded codes.

Implement thread synchronization.

Create multi-threaded priority queue.

### **Unit 11: Database programming**

Do database programming using SQLite and MySQL.

Implement all CRUD operations

Create subqueries

Retrieve data from multiple tables using join statements

Use aggregate functions

Write procedures.

### **Unit 12: GUI Applications using Tkinter**

Create GUI applications using Tkinter and MySQL.

Use different widgets available in Tkinter package.

Do event handling.

### Unit 13: Functional Programming

Create optimized codes using map, reduce, filter functions.

Use lambda constructs.

Create iterators, comprehensions etc.

**Module work: A project using Python Tkinter and MySQL.**

## Module 2: Python Web Development using Django Framework

Python is exclusively used in web development also. Django is a popular framework. As a web developer, we should have knowledge in HTML, CSS, JavaScript etc.

### Outcomes

After completing this module, the candidates are able to demonstrate the following skills.

- Create web pages using HTML and CSS
- Do client-side validation using JavaScript
- Use Django framework to do web development
- Understand ORM concepts
- Integrate templates

## Units

### Unit 1: Web Development Basics

Understand web server and web client

Create webpages using HTML & CSS.

Perform client-side validation using JavaScript.

## Unit 2: Web MVC Framework - Django

- Install Django framework.
- Create urls and views.
- Understand ORM concepts and create models.
- Do database settings
- Do template integration.
- Understand and implement form processing.
- Manage sessions.
- Use AJAX and jQuery.
- Upload files & images.
- Create form classes.
- Use Django user authorization module.
- Integration with REST API. **(Only for ITFS)**
- Do social media integration. **(Only for ITFS)**
- Host the website. **(Only for ITFS)**

## Unit 3: Version Control using GIT (for ITFS only)

- Create GIT account and save all works.
- Deploy applications from GitHub.

## Unit 4: Unit Testing using PyUnit (for ITFS only)

## Unit 5: Introduction to React JS (for ITFS only)

- Create single page applications using React JS.

## Module work: A web project using Python Django

## Internship: Project on Web Development mentored by Industry Experts

Candidates are assigned an industry level project and will be guided by our development team members. During this period the candidate will gain experience in the following skills.

- Work habits and attitudes necessary for job success.
- Communication, interpersonal and other soft skills.
- Skills needed to develop your own web applications.
- Insight into the 'Roles' played by a Developer.
- Live Projects experience.
- GIT fundamentals and use GIT as version control s/m.
- Knowledge in Project Management tools like Redmine.
- Hands on project experience to help freshers to build a career in Software Development.
- Handle all the phases of Software Development Life Cycle.
- Exposure to the latest technologies.
- Providing optimized algorithmic solutions.
- Incorporate standard practices and technological advancements in software development life cycle.
- Implement agile methodologies using Scrum frame work.
- Do unit testing
- Expertise in sprint planning, sprint reviews and conducting daily scrums with the team.





## Contact Us

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We have branches at Kochi, Thiruvananthapuram, Calicut and Bengaluru.