# Introduction to Full Stack Web Development with Python and Django (TTPS4860) Training

Duration: **5 Day**

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## Overview

**Modern Skills for Robust Web Development | Core Python, Classes, Django Architecture, Views, Querying, Templates, Testing & More**

Designed for experienced web developers who are new to Python, *Introduction to Full Stack Web Development with Python and Django* is a **five-day, hands-on** training course that equips students with the skills to build dynamic, full-stack web applications using the Django framework.

Participants will start with the fundamentals—creating applications with the MVC (Model-View-Controller) design pattern—and advance to complex topics such as administration, session management, authentication, and automated testing.

Unlike purely academic courses that focus on syntax and grammar, this comprehensive, practical training dives deep into *real-world, applicable Python programming*. By the end, attendees will be able to confidently use Python and Django to deliver functional, production-ready projects.

### Key Course Topics

- **The Python Environment**
- Getting Started
- Flow Control
- Lists and Tuples
- Working with Files
- Dictionaries and Sets
- Functions
- Error and Exception Handling
- Using Modules
- Classes
- Django Architecture
- Configuring a Project
- Adding an Application
- *"Login for Nothing" and "Admin for Free"*
- Basic Views (Controllers) and Templates

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- Querying Models
- Working with Templates
- Forms
- Automated Testing

## Prerequisites

This introductory-level {*training} is intended for **experienced web developers new to Python** who wish to use Python and Django for full-stack web development projects.

**Recommended Knowledge:**

- Web development fundamentals (HTML5, CSS3, Responsive Design – Course TT4605)

## Who Should Attend

- Web Developers
- Full Stack Developers

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## What You Will Learn

This course is **approximately 50% hands-on**, blending:

- Expert-led lectures
- Real-world demonstrations
- Group discussions
- Machine-based labs and exercises

Under the guidance of experienced practitioners with extensive industry expertise, attendees will:

- Develop full-stack websites driven by content stored in an RDBMS
- Use Python data types effectively
- Define and work with data models
- Understand Django-based web application architecture
- Create Django templates for easily maintainable views
- Map views to URLs
- Leverage the built-in Django Admin interface
- Implement HTML form processing

## Outline

**The Python Environment**

- Starting Python
- Using the interpreter
- Running Python scripts (Unix/Windows)
- Editors and IDEs

**Getting Started**

- Variables
- Built-in functions
- Strings and numbers
- Type conversion

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- Output to the screen
- Command-line parameters

**Flow Control**

- Conditional expressions
- Relational & Boolean operators
- While loops and loop exits
- White space significance

**Lists and Tuples**

- Sequences overview
- Lists and their methods
- Tuples
- Indexing & slicing
- Iterating sequences
- List comprehensions
- Nested sequences

**Working with Files**

- Opening, reading, writing files
- Using with statements
- Handling binary data

**Dictionaries and Sets**

- Creating and iterating dictionaries
- Creating and managing sets

**Functions**

- Parameters, scope, return values
- Sorting data

**Errors and Exception Handling**

- Syntax errors vs exceptions

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- try/except/else/finally
- Handling multiple exceptions

**Using Modules**

- Importing modules
- Module search paths
- Creating your own modules

**Classes**

- Object-oriented programming concepts
- Constructors, methods, inheritance

**Django Architecture**

- Sites and apps
- Shared configurations
- Minimal project layout

**Configuring a Project**

- Using `manage.py`
- Starting projects and setting up databases
- Development server

**Adding an Application**

- Creating apps and models
- Relationships and migrations
- Accessing model data

**Login for Nothing & Admin for Free**

- Creating admin users
- Customizing the admin interface

**Basic Views & Templates**

- Views and `HttpResponse`

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- URL routing
- Template syntax, static files, and inheritance

**Querying Models**

- QuerySets, filters, slicing, related fields

**Working with Templates**

- Variables, comments, filters, escaping HTML, custom filters

**Forms**

- GET & POST
- The Form class, widgets, validation

**Automated Testing**

- Django's testing framework
- Using the test client
- Measuring code coverage