

Course Name : **MASTERING DJANGO: FROM BASICS TO ADVANCED**
Duration : **4 Days (Physical Classroom / Virtual Live Instructor)**
Skill Level : **Beginner**

COURSE DESCRIPTION:

In the realm of web development, understanding the concept of Separation of Concerns is pivotal for creating maintainable and scalable applications. These principals advocate dividing a software system into distinct and independent modules, each catering to a specific concern. In the context of web frameworks, the comparison between the Model-View-Controller (MVC) and Model-Template-View (MTV) architectural patterns is noteworthy. While MVC separates the application into three components – Model (data and business logic), View (user interface), and Controller (handles user input), MTV, as implemented by Django, has a similar structure with Model representing the data, Template managing the presentation, and View controlling the application's logic. This distinction showcases Django's adherence to the Separation of Concerns principle. Error-driven development is a pragmatic approach where developers anticipate and address potential errors throughout the development process. By actively identifying and resolving errors as they arise, this methodology enhances the robustness and reliability of the application. In the Django framework, a systematic flow governs the development process. It begins with the definition of Routes and URLConfs to determine how URLs map to views.

WHAT WILL YOU LEARN?

In this Django web development guide, you'll learn essential principles such as Separation of Concerns, delve into core components like Routes and Views, and advance to topics like Database Models, Class-Based Views, and API creation using the Django REST Framework. The tutorial covers deployment on platforms like Heroku and Microsoft Azure, offering a well-rounded understanding of building, styling, and deploying web applications. Whether you're a beginner or an experienced developer, this guide ensures you acquire the skills to create robust and scalable Django-based projects.

PREREQUISITE:

Beginners. Having Python programming knowledge is an added advantage.

METHODOLOGY:

This program will be conducted with interactive lectures, PowerPoint presentations, discussions, and practical exercises. This course can be conducted as instructor-led (ILT) or virtual instructor-led training (VILT).

JOB SCOPE:

Upon completion of this course, candidates may pursue the following career paths:

- Web Developer (Flask)
- Full Stack Developer
- Backend developer
- Database Developer
- API Developer

MODULE 1: SEPARATION OF CONCERNS, MVC VS. MTV

- Welcome
- Separation of Concerns, MVC vs. MTV
- Error-Driven Development
- Django Flow
- Routes
- URLConfs
- Views Templates
- Double-Folder-Structure
- Django's Admin Interface
- Fixing Common Errors

MODULE 2: DATA MODELS AND DATABASES

- Relational Databases
- Database design through Django Models
- Using the Django Object-Relational-Mapper (ORM)
- PostgreSQL Django Shell
- Database Migrations
- SQLite3 Commands

MODULE 3: ADVANCED FLASK

- Database Queries in Views
- Context Dictionary Django's Templating Language
- Template Filters Capturing Path Components
- Path Converters
- Dynamic URL Linking, Passing Arguments in Template Tags
- App Namespaces
- Collecting Form Input
- Handling POST requests
- Raising 404 Errors
- Class-Based Views
- Template Inheritance
- Customizing Django's Admin Interface
- Writing Automated Tests
- Handling Static Files
- Styling With Bootstrap

MODULE 4: RESTFUL APIS

- Intro to WSGI
- Django Production Settings
- Heroku (PaaS): Configuration & Deployment
- Setting Config Vars
- Heroku Dashboard
- Microsoft Azure (IaaS): Cloud Provider Deployment & Hosting, Linux VMs
- Serving Static Files in production
- Production SQL Databases

MODULE 5: DEPLOYMENT

- Using Postman to professionally explore an API
- Understanding the Django REST Framework
- Build and Deploy Your API: Installation and Setup,
- Serializers, Views, URLs
- Testing Your API by Sending Requests

CONCLUSION

- QA
- Useful References and Books
- Feedback