

FULL STACK WEB DEVELOPMENT USING PYTHON & DJANGO – SYLLABUS – 120 HRS

Module 1: Python Programming Fundamentals (30 hours)

1.1 Python Basics (15 hours)

- Variables, data types, operators
- Conditional statements and loops
- Functions and scope
- Lists, tuples, sets, dictionaries
- String operations and formatting
- Exception handling

1.2 Object-Oriented Programming (10 hours)

- Classes and objects
- Constructors, methods
- Inheritance and polymorphism
- Encapsulation and abstraction

1.3 File Handling & Libraries (5 hours)

- Reading and writing files
- Using os, math, and datetime
- Installing packages with pip

Module 2: Frontend Web Technologies (20 hours)

2.1 HTML5 & CSS3 (10 hours)

- HTML structure and tags
- Forms, tables, lists
- CSS styling, Flexbox, layout
- Responsive design basics

2.2 JavaScript Essentials (10 hours)

- Syntax, variables, functions
- DOM manipulation
- Event handling
- Basic validation

Module 3: Django Framework – Template-Based Development (35 hours)

3.1 Django Fundamentals (10 hours)

- Setting up Django projects and apps
- MTV architecture overview
- URL routing and path management
- Managing static and media files

3.2 Django Templates (10 hours)

- Template inheritance
- Template filters and tags
- Dynamic content rendering
- Bootstrap integration for UI

3.3 Django Models & ORM (10 hours)

- Defining models and migrations
- ORM queries (Create, Read, Update, Delete)
- One-to-many & many-to-many relationships
- Using the Django admin panel

3.4 Views & Forms (5 hours)

- Function-based views
- Handling GET/POST requests
- Creating forms and ModelForms
- Validating and processing form data

Module 4: Manual Authentication, Sessions & Deployment (20 hours)

4.1 Custom Login & Registration System (10 hours)

- Designing user registration and login forms manually
- Creating a custom user table/model
- Storing credentials securely
- Building login validation logic from scratch
- Managing sessions and user state manually
- Redirects and access control

4.2 Deployment Basics (10 hours)

- Preparing project for production: settings, static files, .env
- Hosting the app on platforms like PythonAnywhere / Render
- Media file handling and database migration
- Connecting frontend and backend in live environment

Module 5: Capstone Project & Portfolio (15 hours)

5.1 Capstone Project (10 hours)

- Develop and deploy a complete Django web application
- Examples: Blog system, Attendance tracker, Feedback portal, Online job board

5.2 GitHub & Project Showcasing (5 hours)

- Structuring projects for GitHub
- Writing clear README files
- Linking live apps to portfolio

Key Job Roles in Django Full Stack Development:

1. Python Developer
2. Django Web Developer
3. Full Stack Developer (Python)
4. Backend Developer (Template-based)
5. Web Application Developer
6. Junior Software Engineer
7. Frontend-Backend Integrator
8. Django Intern
9. Software Development Trainee
10. UI-Integrated Python Developer

MODEL CERTIFICATE – STED COUNCIL

