

# KAUR'S CODING ACADEMY

## Django Backend Development

### Module-wise Teacher Syllabus

A Django backend syllabus covering project setup, virtual environments, templates, views, models, ORM, APIs, forms, social authentication, custom user features, email/OTP, AJAX and final backend project work.

| Course                     | Audience                                                | Suggested Duration         | Final Output                                                                                                         |
|----------------------------|---------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------|
| Django Backend Development | Python learners, college students and backend beginners | 4 modules / 10 to 14 weeks | Django backend project with templates, models, APIs, authentication, user dashboard and social/OTP features overview |

### Teacher Note

Before Django, ensure students know Python basics, functions, OOP basics and file/folder structure. Teach Django using one continuous project.

### Learning Outcomes

- Create Django project and app with virtual environment.
- Use templates, views, static files, forms and models with ORM.
- Build GET, POST, update, delete and filter APIs.
- Implement authentication, dashboards, profiles and login-required pages.
- Understand social login, email activation, OTP and AJAX-based interactions.

### Document Use

This PDF is made for teachers to plan classes module by module. Each module includes topic names, teaching points, class practice and revision work.

# Complete Module Index

The table below gives a quick view of what will be taught in this course.

| Module | Topic Name                                    | Main Things Teacher Will Cover                                                                                       |
|--------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 1      | Django Introduction and Environment Setup     | What is Django?, Virtual environment creation, Installing Django, Creating project and app, and more                 |
| 2      | First Page and URL Routing                    | URL patterns, Views, HTTP request and response, Creating first page, and more                                        |
| 3      | HTML Integration with Django Templates        | Templates folder setup, Rendering HTML templates, Passing data from views to templates, Template variables, and more |
| 4      | Static Files, Images and Frontend Integration | Static folder setup, CSS and JS linking, Images in templates, Static file settings, and more                         |
| 5      | Models and ORM Concepts                       | What is a model?, ORM concept, Fields and data types, Migrations, and more                                           |
| 6      | Views - Function-Based and Class-Based        | Function-based views, Class-based views overview, When to use which view, Request methods, and more                  |
| 7      | Forms and Input Handling                      | Django forms basics, Form fields, Validation, Messages framework, and more                                           |
| 8      | CRUD APIs - GET and POST                      | GET API for all users, GET API for particular user, POST API to store user info, Showing data in table, and more     |
| 9      | CRUD APIs - Update and Delete                 | POST/PUT update flow, Delete API, Finding records by ID, Handling not found cases, and more                          |
| 10     | Filtering and Page APIs                       | Filter by name/email, Filter by date, Terms and conditions page API, About us page API, and more                     |
| 11     | JavaScript Validation and AJAX Basics         | Client-side validation, Form error messages, AJAX request concept, Updating UI without full page reload, and more    |
| 12     | Authentication and User Dashboard             | Signup, Login, Logout, User dashboard, and more                                                                      |
| 13     | Social Authentication Overview                | Google social signup/login/logout, GitHub login concept, Facebook/LinkedIn overview, Callback URL idea, and more     |
| 14     | Custom User and Multiple User Types           | Abstract base model creation, Creating user and superuser, Multiple user types, Model inheritance, and more          |
| 15     | Email Activation, OTP and Password Reset      | Email activation link, OTP flow, Forgot password through email and OTP, Login with email/phone, and more             |
| 16     | Profile Editing and Social Features           | Edit profile with image, Showing user details, Friend/follow functionality, Followers and following list, and more   |
| 17     | Django Final Project and Deployment Basics    | Project planning, Database design, Templates and API flow, Authentication integration, and more                      |

# Detailed Module-wise Teaching Plan

Teachers should first explain the concept in simple language, then demonstrate code, then allow students to practice and customize the output.

## Module 1: Django Introduction and Environment Setup

| Topics to be Covered                                                                                                                                                                                                                                    | What Teacher Will Explain / Demonstrate                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- What is Django?</li> <li>- Virtual environment creation</li> <li>- Installing Django</li> <li>- Creating project and app</li> <li>- Running development server</li> <li>- Project and app structure</li> </ul> | <ul style="list-style-type: none"> <li>- Explain framework vs plain Python</li> <li>- Demonstrate virtual environment and first project</li> <li>- Show main files: settings, urls, views and manage.py</li> </ul> |
| Class Practice / Student Output                                                                                                                                                                                                                         | Homework / Revision                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>- Create Django project</li> <li>- Run server</li> <li>- Create first app</li> </ul>                                                                                                                             | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul>        |

## Module 2: First Page and URL Routing

| Topics to be Covered                                                                                                                                                                                   | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- URL patterns</li> <li>- Views</li> <li>- HTTP request and response</li> <li>- Creating first page</li> <li>- Connecting app URLs with project URLs</li> </ul> | <ul style="list-style-type: none"> <li>- Explain request to URL to view to response flow</li> <li>- Demonstrate first Hello Django page</li> <li>- Show URL organization</li> </ul>                         |
| Class Practice / Student Output                                                                                                                                                                        | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create home page</li> <li>- Add about/contact URL</li> <li>- Return simple HTML response</li> </ul>                                                           | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 3: HTML Integration with Django Templates

| Topics to be Covered                                                                                                                                                                                                                | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
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| <ul style="list-style-type: none"> <li>- Templates folder setup</li> <li>- Rendering HTML templates</li> <li>- Passing data from views to templates</li> <li>- Template variables</li> <li>- Template inheritance basics</li> </ul> | <ul style="list-style-type: none"> <li>- Explain how backend sends data to HTML</li> <li>- Demonstrate render function</li> <li>- Show base.html and child templates</li> </ul>                             |
| Class Practice / Student Output                                                                                                                                                                                                     | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create template pages</li> <li>- Pass student/user data to template</li> <li>- Create common header/footer</li> </ul>                                                                      | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 4: Static Files, Images and Frontend Integration

| Topics to be Covered                                                                                                                                                                              | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
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| <ul style="list-style-type: none"> <li>- Static folder setup</li> <li>- CSS and JS linking</li> <li>- Images in templates</li> <li>- Static file settings</li> <li>- Organizing assets</li> </ul> | <ul style="list-style-type: none"> <li>- Explain static vs dynamic content</li> <li>- Demonstrate linking CSS and images</li> <li>- Show common static file mistakes</li> </ul>                             |
| Class Practice / Student Output                                                                                                                                                                   | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Add CSS to Django template</li> <li>- Display images</li> <li>- Create styled home page</li> </ul>                                                       | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 5: Models and ORM Concepts

| Topics to be Covered                                                                                                                                                                                          | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- What is a model?</li> <li>- ORM concept</li> <li>- Fields and data types</li> <li>- Migrations</li> <li>- Database tables</li> <li>- Admin panel overview</li> </ul> | <ul style="list-style-type: none"> <li>- Explain model as database table blueprint</li> <li>- Demonstrate makemigrations and migrate</li> <li>- Show admin data entry</li> </ul>                            |
| Class Practice / Student Output                                                                                                                                                                               | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create UserInfo model</li> <li>- Run migrations</li> <li>- Add records through admin</li> </ul>                                                                      | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 6: Views - Function-Based and Class-Based

| Topics to be Covered                                                                                                                                                                                                | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Function-based views</li> <li>- Class-based views overview</li> <li>- When to use which view</li> <li>- Request methods</li> <li>- Returning templates and data</li> </ul> | <ul style="list-style-type: none"> <li>- Compare FBV and CBV simply</li> <li>- Demonstrate GET/POST logic</li> <li>- Show clean view organization</li> </ul>                                                |
| Class Practice / Student Output                                                                                                                                                                                     | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create function-based view</li> <li>- Create simple class-based view</li> <li>- Display model data</li> </ul>                                                              | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 7: Forms and Input Handling

| Topics to be Covered                                                                                                                                                                                 | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Django forms basics</li> <li>- Form fields</li> <li>- Validation</li> <li>- Messages framework</li> <li>- Saving form data</li> <li>- CSRF token</li> </ul> | <ul style="list-style-type: none"> <li>- Explain secure form handling</li> <li>- Demonstrate form submission</li> <li>- Show validation error messages</li> </ul>                                           |
| Class Practice / Student Output                                                                                                                                                                      | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create contact/user form</li> <li>- Validate inputs</li> <li>- Save data to database</li> </ul>                                                             | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 8: CRUD APIs - GET and POST

| Topics to be Covered                                                                                                                                                                                                            | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- GET API for all users</li> <li>- GET API for particular user</li> <li>- POST API to store user info</li> <li>- Showing data in table</li> <li>- Request and response format</li> </ul> | <ul style="list-style-type: none"> <li>- Explain API vs template page</li> <li>- Demonstrate fetching all records</li> <li>- Show posting form/API data to database</li> </ul>                              |
| Class Practice / Student Output                                                                                                                                                                                                 | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create user list API</li> <li>- Create user detail API</li> <li>- Create user create API</li> </ul>                                                                                    | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 9: CRUD APIs - Update and Delete

| Topics to be Covered                                                                                                                                                                                       | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- POST/PUT update flow</li> <li>- Delete API</li> <li>- Finding records by ID</li> <li>- Handling not found cases</li> <li>- Success and error responses</li> </ul> | <ul style="list-style-type: none"> <li>- Demonstrate update user details</li> <li>- Show delete confirmation idea</li> <li>- Explain safe error handling</li> </ul>                                         |
| Class Practice / Student Output                                                                                                                                                                            | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create update API</li> <li>- Create delete API</li> <li>- Test with sample users</li> </ul>                                                                       | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 10: Filtering and Page APIs

| Topics to be Covered                                                                                                                                                                                                                         | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Filter by name/email</li> <li>- Filter by date</li> <li>- Terms and conditions page API</li> <li>- About us page API</li> <li>- Contact us POST API</li> <li>- Sending email to end user</li> </ul> | <ul style="list-style-type: none"> <li>- Explain query parameters</li> <li>- Demonstrate filtering data</li> <li>- Show static page APIs and contact email workflow</li> </ul>                              |
| Class Practice / Student Output                                                                                                                                                                                                              | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Build filter API</li> <li>- Create about/terms pages</li> <li>- Create contact form with email response</li> </ul>                                                                                  | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 11: JavaScript Validation and AJAX Basics

| Topics to be Covered                                                                                                                                                                                                         | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Client-side validation</li> <li>- Form error messages</li> <li>- AJAX request concept</li> <li>- Updating UI without full page reload</li> <li>- CSRF with AJAX overview</li> </ul> | <ul style="list-style-type: none"> <li>- Explain frontend validation vs backend validation</li> <li>- Demonstrate simple JS validation</li> <li>- Show AJAX flow for dynamic action</li> </ul>              |
| Class Practice / Student Output                                                                                                                                                                                              | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Validate form with JS</li> <li>- Send simple AJAX request</li> <li>- Show success message without reload</li> </ul>                                                                 | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 12: Authentication and User Dashboard

| Topics to be Covered                                                                                                                                                                                           | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Signup</li> <li>- Login</li> <li>- Logout</li> <li>- User dashboard</li> <li>- Profile page</li> <li>- Login required decorator</li> <li>- Session concept</li> </ul> | <ul style="list-style-type: none"> <li>- Explain authentication flow</li> <li>- Demonstrate login/logout</li> <li>- Show protecting a dashboard route</li> </ul>                                            |
| Class Practice / Student Output                                                                                                                                                                                | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Build signup/login/logout pages</li> <li>- Create dashboard</li> <li>- Protect profile route</li> </ul>                                                               | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 13: Social Authentication Overview

| Topics to be Covered                                                                                                                                                                                                                | What Teacher Will Explain / Demonstrate                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Google social signup/login/logout</li> <li>- GitHub login concept</li> <li>- Facebook/LinkedIn overview</li> <li>- Callback URL idea</li> <li>- User profile after social login</li> </ul> | <ul style="list-style-type: none"> <li>- Explain OAuth/social login at a high level</li> <li>- Demonstrate configuration workflow conceptually</li> <li>- Discuss provider differences and permissions</li> </ul> |
| Class Practice / Student Output                                                                                                                                                                                                     | Homework / Revision                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>- Document social login setup steps</li> <li>- Create placeholder social login buttons</li> <li>- Implement one provider where setup is available</li> </ul>                                 | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul>       |

## Module 14: Custom User and Multiple User Types

| Topics to be Covered                                                                                                                                                                                                              | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Abstract base model creation</li> <li>- Creating user and superuser</li> <li>- Multiple user types</li> <li>- Model inheritance</li> <li>- One-to-one and many-to-many fields</li> </ul> | <ul style="list-style-type: none"> <li>- Explain default vs custom user model</li> <li>- Demonstrate relationship fields</li> <li>- Show student/teacher/admin user type example</li> </ul>                 |
| Class Practice / Student Output                                                                                                                                                                                                   | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Plan custom user fields</li> <li>- Create profile relationship</li> <li>- Build multiple user type flow</li> </ul>                                                                       | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 15: Email Activation, OTP and Password Reset

| Topics to be Covered                                                                                                                                                                                       | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Email activation link</li> <li>- OTP flow</li> <li>- Forgot password through email and OTP</li> <li>- Login with email/phone</li> <li>- Security notes</li> </ul> | <ul style="list-style-type: none"> <li>- Explain verification flow step by step</li> <li>- Demonstrate token/OTP idea</li> <li>- Show password reset user journey</li> </ul>                                |
| Class Practice / Student Output                                                                                                                                                                            | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Create activation flow plan</li> <li>- Build forgot password screen</li> <li>- Implement OTP demo where possible</li> </ul>                                       | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 16: Profile Editing and Social Features

| Topics to be Covered                                                                                                                                                                                                                      | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Edit profile with image</li> <li>- Showing user details</li> <li>- Friend/follow functionality</li> <li>- Followers and following list</li> <li>- Sending friend request through AJAX</li> </ul> | <ul style="list-style-type: none"> <li>- Explain user relationship features</li> <li>- Demonstrate profile update form</li> <li>- Show AJAX friend request flow</li> </ul>                                  |
| Class Practice / Student Output                                                                                                                                                                                                           | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Build profile edit page</li> <li>- Create follow/unfollow model idea</li> <li>- Add AJAX request button</li> </ul>                                                                               | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Module 17: Django Final Project and Deployment Basics

| Topics to be Covered                                                                                                                                                                                                      | What Teacher Will Explain / Demonstrate                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>- Project planning</li> <li>- Database design</li> <li>- Templates and API flow</li> <li>- Authentication integration</li> <li>- Testing</li> <li>- Deployment overview</li> </ul> | <ul style="list-style-type: none"> <li>- Guide students to combine all topics into one project</li> <li>- Review code and security basics</li> <li>- Explain deployment steps conceptually</li> </ul>       |
| Class Practice / Student Output                                                                                                                                                                                           | Homework / Revision                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>- Build blog, CRM or student portal</li> <li>- Prepare demo data</li> <li>- Present final Django project</li> </ul>                                                                | <ul style="list-style-type: none"> <li>- Revise the class notes and complete a small improvement in the class project.</li> <li>- Write down two doubts or two new things learned in the module.</li> </ul> |

## Final Review and Certification Checklist

- Student can explain the main concepts in simple words.
- Student has completed the required practice tasks and mini projects.
- Student can run the project, fix common errors and present the work confidently.
- For advanced courses, student should submit GitHub repository, screenshots and deployment link where possible.