

Lovely Professional University, Punjab

Course Code	Course Title	Lectures	Tutorials	Practicals	Credits	
INT253	WEB DEVELOPMENT IN PYTHON USING DJANGO	2	0	2	3	
Course Weightage	ATT: 5 CA: 45 ETP: 50	Exam Category: X6: Mid Term Exam: Not Applicable – End Term Exam: Practical				

Course Outcomes :Through this course students should be able to

CO1 :: understand Python/Django installation, editor setup, project creation, grasp Django commands, and excel in app structuring

CO2 :: experiment views, map URLs for content display, handle HTTP methods, and manage errors for enhanced functionality

CO3 :: apply Django templates for creation, variable handling, loops, conditions, inheritance, debugging, and app testing

CO4 :: apply Django forms for handling GET, POST, HTTP, implementing CSRF security, and validating data

CO5 :: apply Django for modeling, migrations, ORM, Admin, user management, and database setup

CO6 :: apply techniques for cookies, sessions, user management, login/logout URLs, and view-based login within the system.

	TextBooks (T)		
Sr No	Title	Author	Publisher Name
T-1	BUILDING WEBSITES WITH DJANGO	AWANISH RANJAN	BPB PUBLICATIONS

	Reference Books (R)		
Sr No	Title	Author	Publisher Name
R-1	DESIGNING MICROSERVICES USING DJANGO	SHAYANK JAIN	BPB PUBLICATIONS

Relevant Websites (RW)		
Sr No	(Web address) (only if relevant to the course)	Salient Features
RW-1	https://www.javatpoint.com/django-installation	Django installation
RW-2	https://www.javatpoint.com/django-project	Django project creation
RW-3	https://www.javatpoint.com/django-virtual-environment-setup	Virtual environment
RW-4	https://www.javatpoint.com/django-admin-interface	django-admin
RW-5	https://www.javatpoint.com/django-app	django app

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RW-6	https://docs.djangoproject.com/en/5.0/topics/db/models/	Models
RW-7	https://www.javatpoint.com/django-model	Model
RW-8	https://docs.djangoproject.com/en/5.0/topics/http/views/	Views
RW-9	https://www.javatpoint.com/django-view	Views
RW-10	https://docs.djangoproject.com/en/5.0/topics/http/urls/	URL
RW-11	https://www.javatpoint.com/django-url-mapping	URL
RW-12	https://docs.djangoproject.com/en/5.0/ref/django-admin/	django admin
RW-13	https://docs.djangoproject.com/en/5.0/topics/templates/	Template
RW-14	https://www.javatpoint.com/django-template	Template
RW-15	https://docs.djangoproject.com/en/5.0/topics/forms/	Forms
RW-16	https://www.javatpoint.com/django-forms	Forms
RW-17	https://www.javatpoint.com/django-cookie	Cookie
RW-18	https://www.javatpoint.com/django-database-migrations	Migration
RW-19	https://docs.djangoproject.com/en/5.0/topics/migrations/	Migration
RW-20	https://www.javatpoint.com/django-orm-queries	Django ORMS queries
RW-21	https://www.javatpoint.com/django-crud-application	CRUD
RW-22	https://docs.djangoproject.com/en/5.0/ref/templates/language/	Django Template Language (DTL)
RW-23	https://www.w3schools.com/django/django_tags_extends.php	Template inheritance
RW-24	https://www.javatpoint.com/django-form-validation	Form validation
RW-25	https://www.javatpoint.com/django-session	Sessions
RW-26	https://www.geeksforgeeks.org/django-orm-inserting-updating-deleting-data/	Django ORM
RW-27	https://www.freecodecamp.org/news/what-is-one-to-many-relationship-in-django/	Models using foreign keys
RW-28	https://www.w3schools.com/django/django_admin_create_user.php	Django admin createuser
RW-29	https://developer.mozilla.org/en-US/docs/Learn/Server-side/Django/Admin_site	Django admin site
RW-30	https://developer.mozilla.org/en-US/docs/Learn/Server-side/Django/Authentication	Django admin users and groups

Software/Equipments/Databases		
Sr No	(S/E/D) (only if relevant to the course)	Salient Features
SW-1	https://code.visualstudio.com/	VS code

LTP week distribution: (LTP Weeks)	
Weeks before MTE	7
Weeks After MTE	7
Spill Over (Lecture)	4

Detailed Plan For Lectures

Week Number	Lecture Number	Broad Topic(Sub Topic)	Chapters/Sections of Text/reference books	Other Readings, Relevant Websites, Audio Visual Aids, software and Virtual Labs	Lecture Description	Learning Outcomes	Pedagogical Tool Demonstration/ Case Study / Images / animation / ppt etc. Planned	Live Examples
Week 1	Lecture 1	Introduction to Django (Installing Python and Django)	T-1 R-1	RW-1 SW-1	Overview of Django, Installation of Python and Django	Students will have an overview of Django, will be able to install Python and Django	Live demonstration using VS code	Instagram, YouTube and Spotify
		Introduction to Django (Installing Python and Django)	T-1 R-1	RW-1 SW-1	Overview of Django, Installation of Python and Django	Students will have an overview of Django, will be able to install Python and Django	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 2	Introduction to Django (Setting up project in editor)	T-1 R-1	RW-2 SW-1	Setting up project in editor, Overview regarding projects and apps in Django	Students will be able set up project in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
		Introduction to Django (Projects and Apps overview)	T-1 R-1	RW-2 SW-1	Setting up project in editor, Overview regarding projects and apps in Django	Students will be able set up project in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 2	Lecture 3	Introduction to Django (Project structure)	T-1 R-1	RW-2 RW-3 SW-1	Structure of project and creation of project in Django	Students will be able to create first project in Django and will understand its structure	Live demonstration using VS code	Instagram, YouTube and Spotify
		Introduction to Django (Creating your first project)	T-1 R-1	RW-2 RW-3 SW-1	Structure of project and creation of project in Django	Students will be able to create first project in Django and will understand its structure	Live demonstration using VS code	Instagram, YouTube and Spotify

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Week 2	Lecture 4	Introduction to Django (Django-admin & manage.py commands)	T-1 R-1	RW-4 RW-5 RW-12 SW-1	Django-admin & manage.py commands, Creating an App, Structure of App	Students will implement Django-admin & manage.py commands, will create an app within Django project and understand the app structure	Live demonstration using VS code	Instagram, YouTube and Spotify
		Introduction to Django(App structures)	T-1 R-1	RW-4 RW-5 SW-1	Django-admin & manage.py commands, Creating an App, Structure of App	Students will implement Django-admin & manage.py commands, will create an app within Django project and understand the app structure	Live demonstration using VS code	Instagram, YouTube and Spotify
		Introduction to Django (Creating an App)	T-1 R-1	RW-4 RW-5 SW-1	Django-admin & manage.py commands, Creating an App, Structure of App	Students will implement Django-admin & manage.py commands, will create an app within Django project and understand the app structure	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 3	Lecture 5	Views and URLs(Creating views and mapping to URLs)	T-1 R-1	RW-8 RW-9 RW-10 RW-11 SW-1	Creating views and mapping to URLs	Students will be able to create views and map to URLs	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 6	Views and URLs(Creating views and view logic)	T-1 R-1	RW-8 RW-9 RW-10 RW-11 SW-1	Creating views and view logic, HTTP requests	Students will be able to create views and understand HTTP requests	Live demonstration using VS code	Instagram, YouTube and Spotify
		Views and URLs(HTTP requests)	T-1 R-1	RW-8 RW-9 RW-10 RW-11 SW-1	Creating views and view logic, HTTP requests	Students will be able to create views and understand HTTP requests	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 4	Lecture 7	Views and URLs(Creating Requests and Responses)	T-1 R-1	RW-10 RW-11 SW-1	Creating Requests and Responses, Understanding URLs	Students will be able to create requests and responses and understand URLs	Live demonstration using VS code	Instagram, YouTube and Spotify

Week 4	Lecture 7	Views and URLs (Understanding URLs)	T-1 R-1	RW-10 RW-11 SW-1	Creating Requests and Responses, Understanding URLs	Students will be able to create requests and responses and understand URLs	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 8	Views and URLs(Mapping URLs with Params)	T-1 R-1	RW-10 RW-11 SW-1	Mapping URLs with Params, Regular expressions in URLs, Error Handling	Students will be able to map URLs with params, implement regex and error handling	Live demonstration using VS code	Instagram, YouTube and Spotify
		Views and URLs(Regular expressions in URLs)	T-1 R-1	RW-10 RW-11 SW-1	Mapping URLs with Params, Regular expressions in URLs, Error Handling	Students will be able to map URLs with params, implement regex and error handling	Live demonstration using VS code	Instagram, YouTube and Spotify
		Views and URLs(Error Handling)	T-1 R-1	RW-10 RW-11 SW-1	Mapping URLs with Params, Regular expressions in URLs, Error Handling	Students will be able to map URLs with params, implement regex and error handling	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 5	Lecture 9	Templates, Debugging and Testing(Introduction to Templates in Django)	T-1 R-1	RW-13 RW-14 SW-1	Introduction to Templates in Django, Creating Templates	Student will be able to understand and implement templates in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
		Templates, Debugging and Testing(Creating Templates)	T-1 R-1	RW-13 RW-14 SW-1	Introduction to Templates in Django, Creating Templates	Student will be able to understand and implement templates in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 10	Templates, Debugging and Testing(Working with Django Template Language (DTL))	T-1 R-1	RW-22 SW-1	Working with Django Template Language (DTL), Using template tags	Students will implement Django Template Language and tags	Live demonstration using VS code	Instagram, YouTube and Spotify
		Templates, Debugging and Testing(Using template tags)	T-1 R-1	RW-22 SW-1	Working with Django Template Language (DTL), Using template tags	Students will implement Django Template Language and tags	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 6	Lecture 11				Test - Code based 1			
	Lecture 12	Templates, Debugging and Testing(Django variables, for loop and if-else statements)	T-1 R-1	RW-22 SW-1	Django variables, for loop and if-else statements, Dynamic Templates in Django	Students will implement variables, for loop and if-else statements, and dynamic templates in Django	Live demonstration using VS code	Instagram, YouTube and Spotify

Week 6	Lecture 12	Templates, Debugging and Testing(Dynamic Templates in Django)	T-1 R-1	RW-22 SW-1	Django variables, for loop and if-else statements, Dynamic Templates in Django	Students will implement variables, for loop and if-else statements, and dynamic templates in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 7	Lecture 13	Templates, Debugging and Testing(Working with Template inheritance)	T-1 R-1	RW-23 SW-1	Working with Template inheritance, Debugging Django applications, Testing in Django	Students will be able to implement template inheritance, debug and test Django apps	Live demonstration using VS code	Instagram, YouTube and Spotify
		Templates, Debugging and Testing(Debugging Django applications)	T-1 R-1	RW-23 SW-1	Working with Template inheritance, Debugging Django applications, Testing in Django	Students will be able to implement template inheritance, debug and test Django apps	Live demonstration using VS code	Instagram, YouTube and Spotify
		Templates, Debugging and Testing(Testing in Django)	T-1 R-1	RW-23 SW-1	Working with Template inheritance, Debugging Django applications, Testing in Django	Students will be able to implement template inheritance, debug and test Django apps	Live demonstration using VS code	Instagram, YouTube and Spotify
		SPILL OVER						
Week 7	Lecture 14				Spill Over			
		MID-TERM						
Week 8	Lecture 15	Forms in Django (Introduction to Forms)	T-1 R-1	RW-15 RW-16 SW-1	Introduction to Forms, Using GET, POST and HTTP	Students will understand forms, GET and POST	Live demonstration using VS code	Instagram, YouTube and Spotify
		Forms in Django(Using GET, POST and HTTP)	T-1 R-1	RW-15 RW-16 SW-1	Introduction to Forms, Using GET, POST and HTTP	Students will understand forms, GET and POST	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 16	Forms in Django(Building forms using Django)	T-1 R-1	RW-15 RW-16 SW-1	Building forms using Django	Student will be able to implement forms in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 9	Lecture 17	Forms in Django (Introduction to Cross Site Request Forgery(CSRF))	T-1 R-1	RW-15 RW-16 SW-1	Introduction to Cross Site Request Forgery (CSRF), CSRF support in Django	Students will understand and implement the importance of CSRF	Live demonstration using VS code	Instagram, YouTube and Spotify
		Forms in Django(CSRF support in Django)	T-1 R-1	RW-15 RW-16 SW-1	Introduction to Cross Site Request Forgery (CSRF), CSRF support in Django	Students will understand and implement the importance of CSRF	Live demonstration using VS code	Instagram, YouTube and Spotify

Week 9	Lecture 18	Forms in Django (Implementing POST redirect in Django)	T-1 R-1	RW-15 RW-16 SW-1	Implementing POST redirect in Django	Students will be able to implement POST method	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 10	Lecture 19	Forms in Django(Data validation with Django forms)	T-1 R-1	RW-24 SW-1	Data validation with Django forms	Students will understand and implement form validation in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 20				Test - Code based 2			
Week 11	Lecture 21	Models and Migrations and Django Admin(Creating models)	T-1 R-1	RW-6 RW-7 RW-18 RW-19 SW-1	Creating models and Working with Migrations	Students will be able to understand and implement models using migrations in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
		Models and Migrations and Django Admin(Working with Migrations)	T-1 R-1	RW-6 RW-7 RW-18 RW-19 SW-1	Creating models and Working with Migrations	Students will be able to understand and implement models using migrations in Django	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 22	Models and Migrations and Django Admin(Using the Django Shell to Explore Models(Insert, Update and Delete))	T-1 R-1	RW-20 RW-21 RW-26 SW-1	Using the Django Shell to Explore Models (Insert, Update and Delete)	Students will be able to understand and implement commands in Django shell	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 12	Lecture 23	Models and Migrations and Django Admin(Using Object Relational Mapping(ORM))	T-1 R-1	RW-20 RW-26 RW-27 SW-1	Using Object Relational Mapping(ORM), Models using Foreign Keys	Students will be able to understand and implement the concept of ORM and implement foreign keys	Live demonstration using VS code	Instagram, YouTube and Spotify
		Models and Migrations and Django Admin(Models using Foreign Keys)	T-1 R-1	RW-20 RW-26 SW-1	Using Object Relational Mapping(ORM), Models using Foreign Keys	Students will be able to understand and implement the concept of ORM and implement foreign keys	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 24	Models and Migrations and Django Admin(Django Admin)	T-1 R-1	RW-28 RW-29 RW-30 SW-1	Django Admin, Adding groups and users	Student will be able to understand the concept of Django admin, create users and groups	Live demonstration using VS code	Instagram, YouTube and Spotify

Week 12	Lecture 24	Models and Migrations and Django Admin(Adding groups and users)	T-1 R-1	RW-28 RW-29 RW-30 SW-1	Django Admin, Adding groups and users	Student will be able to understand the concept of Django admin, create users and groups	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 13	Lecture 25	Models and Migrations and Django Admin(Users and Permissions)	T-1 R-1	RW-30	Users and Permissions, Database configuration – Configuring and setting up database connection	Students will be able to understand and create permissions and configure database	Live demonstration using VS code	Instagram, YouTube and Spotify
		Models and Migrations and Django Admin(Database configuration – Configuring and setting up database connection)	T-1 R-1	RW-30 SW-1	Users and Permissions, Database configuration – Configuring and setting up database connection	Students will be able to understand and create permissions and configure database	Live demonstration using VS code	Instagram, YouTube and Spotify
	Lecture 26	Cookies and Sessions, users and authentication(Creating Cookies and sessions in Django)	T-1 R-1	RW-17 RW-25 SW-1	Creating Cookies and sessions in Django, Creating and Managing Users in Django	Students will understand and implement cookies and sessions	Live demonstration using VS code	Instagram, YouTube and Spotify
		Cookies and Sessions, users and authentication(Creating and Managing Users in Django)	T-1 R-1	RW-17 RW-25 SW-1	Creating Cookies and sessions in Django, Creating and Managing Users in Django, Login and Logout URLs in Django, Using Django Login in Views	Students will understand and implement cookies and sessions	Live demonstration using VS code	Instagram, YouTube and Spotify
		Cookies and Sessions, users and authentication(Login and Logout URLs in Django)	T-1 R-1	RW-17 RW-25 SW-1	Creating Cookies and sessions in Django, Creating and Managing Users in Django, Login and Logout URLs in Django, Using Django Login in Views	Students will understand and implement cookies and sessions	Live demonstration using VS code	Instagram, YouTube and Spotify
		Cookies and Sessions, users and authentication(Using Django Login in Views)	T-1 R-1	RW-17 RW-25 SW-1	Creating Cookies and sessions in Django, Creating and Managing Users in Django, Login and Logout URLs in Django, Using Django Login in Views	Students will understand and implement cookies and sessions	Live demonstration using VS code	Instagram, YouTube and Spotify
Week 14	Lecture 27				Project			
SPILL OVER								
Week 14	Lecture 28				Spill Over			
Week 15	Lecture 29				Spill Over			
	Lecture 30				Spill Over			

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Scheme for CA:

CA Category of this Course Code is:C010102 (Total 3 tasks, 1 compulsory and out of remaining 1 best out of 2 to be considered)

Component	Iscompulsory	Weightage (%)	Mapped CO(s)
Project	Yes	50	CO1, CO2, CO3, CO4, CO5, CO6
Test - Code based 1	NO	50	CO1, CO2, CO3
Test - Code based 2	NO	50	CO4, CO5, CO6

Details of Academic Task(s)

Academic Task	Objective	Detail of Academic Task	Nature of Academic Task (group/individuals)	Academic Task Mode	Marks	Allottment / submission Week
Project	To create a ReactJS web application	This task includes the development of website using Django. Students will be evaluated on the basis of Functionality & Requirements, User Interface, Database Design & Model Implementation	Individual	Online	30	3 / 11
Test - Code based 1	To test the implementation skills of the students	This task will include topics such as views, URLs and templates	Individual	Online	30	4 / 5
Test - Code based 2	To test the implementation skills of the students	This task will include topics such as forms, models, cookies, sessions	Individual	Online	30	9 / 10

MOOCs/ Certification etc. mapped with the Academic Task(s)

Academic Task	Name Of Certification/Online Course/Test/Competition mapped	Type	Offered By Organisation
Test - Code based 1	DJANGO WEB FRAMEWORK	MOOCs	COURSERA

Where MOOCs/ Certification etc. are mapped with Academic Tasks:

1. Students have choice to appear for Academic Task or MOOCs etc.
2. The student may appear for both, In this case best obtained marks will be considered.

Detailed Plan For Practicals

Practical No	Broad topic	Subtopic	Other Readings	Learning Outcomes
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Practical 1	List of practicals	Set up a Django project, create an app, and execute basic manage.py commands.		Students will set up a Django project, create an app, and execute basic manage.py commands
Practical 2	List of practicals	Organize the project structure and explore the initial settings.		Students will organize the project structure and explore the initial settings.
Practical 3	List of practicals	Develop views for different functionalities (e.g., displaying content, handling forms).		Students will develop views for different functionalities (e.g., displaying content, handling forms).
Practical 4	List of practicals	Map views to specific URLs and handle various HTTP requests.		Students will map views to specific URLs and handle various HTTP requests.
Practical 5	List of practicals	Create and integrate templates in Django for different pages or components.		Students will create and integrate templates in Django for different pages or components.
Practical 6	List of practicals	Debug a Django application, utilizing Django's built-in debugging features.		Students will debug a Django application, utilizing Django's built-in debugging features.
Practical 7	List of practicals	Implement basic tests to check functionality across different parts of the app.		Students will implement basic tests to check functionality across different parts of the app.
Practical 8	List of practicals	Build forms using Django for user input or data submission.		Students will build forms using Django for user input or data submission.
Practical 9	List of practicals	Validate form data and implement CSRF protection to ensure security.		Students will validate form data and implement CSRF protection to ensure security.
Practical 10	List of practicals	Design and create models representing different data entities.		Students will design and create models representing different data entities.
Practical 11	List of practicals	Apply migrations to reflect changes in the database schema.		Students will apply migrations to reflect changes in the database schema.
Practical 12	List of practicals	Utilize Django Admin to manage and interact with model data.		Students will utilize Django Admin to manage and interact with model data.
Practical 13	List of practicals	Implement session-based functionality using cookies for user interaction.		Students will implement session-based functionality using cookies for user interaction.
Practical 14	List of practicals	Manage user creation, authentication, and permissions within the Django system.		Students will manage user creation, authentication, and permissions within the Django system.
Practical 15	List of practicals	Set up login/logout functionality and secure specific views with authentication checks.		Students will set up login/logout functionality and secure specific views with authentication checks.
	SPILL OVER			
Practical 16	Spill Over			