

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	B.Tech. Computer Science and Engineering
Course Code:	2CSDE86
Course Title:	Application Development Frameworks
Course Type:	Departmental Elective
Year of Introduction:	2021-22

Credit Scheme

L	T	Practical Component				C
		LPW	PW	W	S	
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Course Learning Outcomes (CLO):

At the end of the course, students will be able to –

1. interpret basic concepts of application development frameworks
2. explain message framework in Django
3. develop programs to solve real world problems based on concepts of Django
4. design applications using cross platform development concepts

Syllabus:

Total Teaching hours: 30

Unit	Syllabus	Teaching hours
Unit-I	Introduction: Introduction about different Web and mobile application-based frameworks, Introduction to Django and kivy, The MVT and MVC Design Pattern, Environment Setup, Project Structure, Apps Life Cycle	02
Unit-II	View, Form and Templates in Django: Creating Django Views, URL mapping, basic of templates, template variables, built-in and custom tags and filters, using templates in views, template inheritance, assets handing, Form creation using Django, Form rendering process, build-in and custom widgets, Formsets, generating PDF	09
Unit-III	Django models: Interacting with a Database: Basics, Installation and Configuration of Database, defining model, database CRUD operations, rendering model in Admin interface, Fields validation, file uploads	07
Unit-IV	Advance topics in Django: Customizing Authentication, Admin Interface and its control, User and group creation, permission handling, session and cookies handling, sending mails, message framework	05



Unit-V **Cross-platform application development:** Basic of kivy, Creating views, Navigation drawer, Layouts and Screen Manager, APK file generation 07

Self-Study: The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents

- Suggested Readings/References:
1. William S Vincent: Django for Beginners: Build websites with Python and Django,
 2. Nigel George: Build a Website with Django 3: A complete introduction to Django 3,
 3. Antonio Mele: Django 3 By Example: Build powerful and reliable Python web applications from scratch, Packt Publishing Limited
 4. Online Django documentation: <https://docs.djangoproject.com/en/3.1/>
 5. William S Vincent: Django for Professionals: Production websites with Python & Django
 6. William S Vincent: Django for APIs: Build web APIs with Python and Django
 7. Daniel Roy Greenfeld: Two Scoops of Django 1.11: Best Practices for the Django Web Framework, Two Scoops Press
 8. Tarkeshwar Barua, Ruchi Doshi, Kamal Kant Hiran: Mobile Applications Development: with Python in Kivy Framework, De Gruyter

Suggested List of Experiments:	Sr. No.	Practical Title	Hours
	1	To explore the Django application structure and design simple hello world webpage	02
	2	To design a new social media platform using Django. Design a view, templates and filters for different modules. Ensure that your application has following features: <ol style="list-style-type: none"> 1. login and registration page 2. the dashboard which displays the latest post 3. every post can be liked, shared by others 4. no other user is permitted to comment on displayed post 	04
	3	To design an admin module with dashboard and grant management privileges like admin can update and delete the content of any user	02

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| 4 | To perform CRUD operation and connect database with your social media website. Store all the data and retrieve the data according the user | 04 |
| 5 | To manage session and cookies in your social media platform | 02 |
| 6 | To enhance the admin interface and customize the authentication rules and permission handling module, group handling | 04 |
| 7 | To include an advance feature such as recommendation friend to the user based on common features they are sharing. | 02 |
| 8 | To design a simple Expense management system using kivy, compile it and generate .apk file | 04 |
| 9 | To improve the Expense management system developed in previous practical by implementing navigation drawer and grid layout | 02 |
| 10 | To integrate various visualization packages in python and improve the previously developed Expanse management system. Categories your expenses and visualize them using pie-chart based on daily, weekly, monthly, quarterly and yearly data. Give some generalized tips to increase the savings, too. | 04 |

Suggested Case -NA-
List: