BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE

(An AUTONOMOUS INSTITUTION, APPROVED BY AICTE-NEW DELHI, PERMANENTLY AFFILIATED TO JNTUK-KAKINADA, ACCREDITED BY NAAC 'A' GRADE, 2 PROGRAMMES (CSE,EEE) ACCREDITED BY NBA (For A.Y 2023-24 to 2025-26) Post Box: 26, Amalapuram 533201, Dr.B R Ambedkar Konaseema Dt., A.P.

BR23 B.Tech INF II YEAR II SEMESTER SYLLABUS

		L	T	P	C
II Year II Semester	PYTHON WITH DJANGO (SKILL ENHANCEMENT COURSE) (23SC4L09)	0	1	2	2

Course Objectives:

The main objectives of the course are to

- Design and build static as well as dynamic web pages and interactive web-basedapplications
- Web development using Django framework.
- Analyze and create functional website in Django and deploy Django Web Applicationon Cloud

Course Outcomes:

On successful completion of this course, students will be able to:

CO1: Utilize Python libraries such as Tkinter, Requests, BeautifulSoup4, and Flask for developing web-based and GUI applications.

CO2: Develop dynamic web applications using the Django framework and apply concepts of MVC/MTV architecture, URL mapping, templates, and models.

CO3: Implement user authentication and authorization in Django applications including registration, login, logout, and email functionalities.

CO4: Integrate and manage databases in Django using SQLite—perform migrations, data retrieval, filtering, sorting, and session handling.

CO5: Deploy Django-based web applications on cloud platforms like Heroku using GitHub integration and WSGI configuration.

Dr.N.Rama Krishnaiah, Professor of CSE,UCEK & Control of Examination JNTUK, kakinada.	Dr.C.Krishna Mohan, Professor of CSE,IIT, Kandi, Hyderabad.	Dr.P.Radha Krishna, Professor of CSE,NIT, Warangal	Mr.Rajesh Bobburi Chief Operating Officer, HighQ Labs Private Limited, Rajahmundry	Dr.Lakshmi Haritha Medida, Associate Professor, R.M.K.Engineering College,Kavaraipettai,Tamil nadu	Dr.K.Srinivas, Professor & HoD Department of CSE, B.V.C.I.T.S, Batlapalem

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UNIT-I : Python libraries for web development :

Collections-Container datatypes, Tkinter-GUI applications, Requests-HTTP requests, BeautifulSoup4-web scraping, Scrapy, Zappa, Dash, CherryPy, Turbo Gears, Flask, Web2Py, Bottle, Falcon, Cubic Web, Quixote, Pyramid.
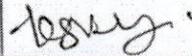
Sample Experiments:

1. Write a Python GUI program to import Tkinter package and create a window. Set itstitle and add a label to the window.
2. Write a Python program that designs a simple login form with labels and Entry widgets, arranging them in a grid using the Grid geometry manager.
3. Write a program using BeautifulSoup4 library for web scraping for a given URL
4. Develop a sample Hello World page using Flask framework
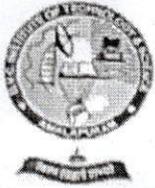5. Develop a sample web page using CherryPy / Web2Py / Bottle Framework

UNIT-II: Introduction to Django Framework

Understanding Django environment, Features of Django and Django architecture, MVC and MTV, Urls and Views, Mapping the views to URLs, Django Template, Template inheritance Django Models, Creating model for site, Converting the model into a table, Fields in Models, Integrating Bootstrap into Django, Creating tables, Creating grids, Creating carousels.

Sample Experiments:

1. Create a Sample "Hello World" Application using Django
2. Create a Login and Registration Page using MVC architecture in Django Framework
3. Create a sample page in Django by integrating BootStrap.
4. Create an application with Tables, grids in Django
5. Create a Django App with Carousels feature.

Rb			*Rajesh*		*signature*
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UNIT-III : Integrating Accounts & Authentication on Django

Introduction to Django Authentication System, Security Problem &Solution with Django Creating Registration Form using Django, Adding Email Field in Forms, Configuring email settings, Sending emails with Django, Adding Grid Layout On Registration Page, Adding Page Restrictions, Login Functionality Test and Logout.

Sample Experiments:

1. Create a registration page using Authentication System
2. Create an application in Django to send emails using email settings and Grid Layout
3. Create an application in Django using page restriction / authentication with Login andLogout Functionality
4. Create a sample form using Django Forms

UNIT-IV: Connecting SQLite with Django

DatabaseMigrations,FetchDataFromDatabase,DisplayingDataOnTemplates,AddingConditi on OnData,Sending data from url to view, Sending data from view to template, Saving objectsinto database, Sorting objects, Filtering objects, Deleting objects, Difference between sessionand cookie, Creating sessions and cookies in Django.

Sample Experiments:

1. Create an app in Django which fetches data from database and show as list and alsosave objects in database
2. Create an app in Django for performing CRUD operations on records in a database
3. Create an app in Django which uses session management and cookies to store andmanage user sessions.

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UNIT-V: Deploying Django Web Application on Cloud

Creating a functional website in Django, Four Important Pillars to Deploy, registering on Heroku and GitHub, Push project from Local System to GitHub, working with Django Heroku, Working with StaticRoot, Handling WSGI with gunicorn, setting up Database & adding users.

Sample Experiments:

1. Create a website in Django with login, and registration page.
2. Register on GitHub, and Heroku and deploy the website on Heroku with all the functionalities developed.
3. Configure Django to handle static files.

Text books:

1. Martin C.Brown, "Python: The Complete Reference Paper back", 4th Edition 2018,McGraw Hill Education.
2. Reema Thareja, "Python Programming: Using Problem Solving Approach", 3rd Edition 2017, Oxford.
3. Daniel Rubio, Apress, "Beginning Django Web Application Development and Deployment with Python", 2nd Edition 2017,Apress.

Reference Books:

1. Tom Aratyn, "Building Django 2.0 Web Applications: Create enterprise-grade, scalable Python web applications easily with Django 2.0",2ndEdition 2018, Packt Publishing.
2. Harry Percival, "Test-Driven Development with Python: Obey the Testing Goat: Using Django, Selenium and JavaScript",2nd Edition 2019, Kindle Edition.

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