Program : **Diploma in Computer Hardware Engineering**	
Course Code : **3159**	Course Title: **Application Development Lab**
Semester : **3**	Credits: **0**
Course Category: **Program Core**	
Periods per week: **4 (L:0 T:0 P:4)**	Periods per semester: **60**

Course Objectives:

- To provide practical knowledge to develop and deploy Web Applications using Python Frameworks.

Course Prerequisites:

Topic	Course code	Course name	Semester
Basic programming logic		Introduction to IT systems Lab	1
Basic programming logic		Problem Solving & Programming Lab	2

Course Outcomes :

On completion of the course, students will be able to:

COn	Description	Duration (Hours)	Cognitive Level
CO1	Develop simple programs in python programming language	14	Applying
CO2	Develop a simple web application with form	14	Applying
CO3	Develop a web application with multiple forms	14	Applying
CO4	Make use of front-end framework and MVC to develop an open ended web application	16	Applying
	Lab Exam	2	

CO – PO Mapping:

Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CO1	3			3			
CO2	3			3			
CO3	3			3			
CO4	3	3	3	3	3	3	3

3-Strongly mapped, 2-Moderately mapped, 1-Weakly mapped

Course Outline

	Name of Experiment	Duration (Hours)	Cognitive Level
CO1	Develop simple programs in python programming language		
M1.01	Develop programs using variables and data types.	3	Understanding
M1.02	Develop programs using control structures and loops.	5	Understanding
M1.03	Develop programs with Lists, Tuples, Sets and Dictionaries	3	Understanding
M1.04	Develop programs using class and objects	3	Understanding
CO2	Develop a simple web application with form		
M2.01	Practice installation of Python IDE	2	Applying
M2.02	Practice installation of Python Framework	2	Applying
M2.03	Explain DBMS and Practice SQL commands	3	Understanding
M2.04	Make use of python framework to develop a simple web application	3	Applying
M2.05	Make use of Model-View-Controller architecture to develop a simple web application	4	Applying
CO3	Develop a web application with multiple forms		
M3.01	Make use of MVC architecture to develop a web application with multiple forms (Like Students Attendance Management, Library Management)	11	Applying
M3.02	Practice deployment of web application in a web server or cloud server	3	Applying
CO4	Make use of front-end framework and MVC to develop an open ended web application		
M4.01	Select an open ended web application project** development as a group activity.	16	Applying
	Lab Exam	2	

** - **Sample Open-ended Projects**

(Not for End Semester Examination but compulsory to be included in Continuous Internal Evaluation. Students can do open ended experiments as a group of 2-3. There is no duplication in experiments between groups.)

1) Inventory Management
2) Patient Information
3) Hospital Management
4) Customer Relationship Management
5) Order Management
6) Document Management
7) POS Management
8) Loan Management
9) Service Management
10) Warehouse Management.

Text / Reference:

T/R	Book Title / Author
T1	Swapnil Saurav, Learn and Practice Python Programming
T2	Awanish Ranjan, Building Websites with Django
R1	Martin C. Brown, Python: The Complete Reference
R3	Antonio Melé, Django 3 By Example
R4	Vikram Vaswani, MySQL: The Complete Reference

Online Resources:

Sl.No	Website Link
1	http://www.tutorialspoint.com
2	http://www.w3schools.com
3	https://www.python.org
4	https://www.djangoproject.com
5	https://www.learnpython.org