Devi Ahilya University, Indore, India Institute of Engineering & Technology				III Year B.E. (Computer engineering) (Full Time)			
Subject Code & Name	**Instructions Hours per Week**			**Credits**			
CER5L3 **Software Laboratory**	**L**	**T**	**P**	**L**	**T**	**P**	**Total**
	0	**0**	**1**	**0**	**0**	**1**	**1**
Duration of Practical: **2 Hours**							

Objective: To develop the skill set so that the students can develop software application using python on their own

Prerequisite: Programming Concepts.

Unit-1

Features of Python, Setting up path, Working with Python, Basic Syntax, Variable and Data Types, Operator, If, If- else, Nested if-else, For, While, Nested loops Break, Continue Accessing Strings, Basic Operations, Function and Methods.

Unit-2

Introduction of Sqlite, Database connectivity, Accessing tuples , Executing queries, Transactions , Operations Working, Handling error Functions and Methods, Printing on screen Reading data from keyboard, Opening and closing file, Reading and writing files

Unit-3

Graphics and GUI programming-Drawing using Tkinter and python. Networking and Multi-threaded programming –Sockets, Thread and Processes, Chat application.

Unit-4

Class and object. Attributes, Inheritance, Overloading, Overriding, Data hiding Regular expressions, Match function, Search function, Matching VS Searching, Modifiers, Patterns, CGI(Introduction,Architecture, CGI environment variable, GET and POST methods, Cookies, File upload.

Unit-5

Web Frameworks - for developing server-side Web applications in Python, Web Browse Programming - interfacing with existing browsers and browser technologies.

Outcome: After the completion of the course the student will be able to develop projects on their own and will try to relate them with the real life problems and this skill will help them for the development of project in next academic session as well as their analytic and research capability will be enhanced.

Reference Books:

- John V Guttag. “Introduction to Computation and Programming Using Python”, Prentice Hall of india
- R. Nageswara Rao, “Core Python Programming”, dreamtech
- Wesley J. Chun. “Core Python Programming - Second Edition”, Prentice Hall
- Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, “Data Structures and Algorithms in Pyhon”, Wiley
- Kenneth A. Lambert, “Fundamentals of Python – First Programs”, CENGAGE Publication
- Luke Sneeringer, “Professional Python”, Wrox
- Hacking Secret Ciphers with Python”, Al Sweigart, URL- https://inventwithpython.com/hacking/chapters

Programming Assignments:

Students are given programming assignments to learn following.

1. How to take input through file/command line/ network.
2. Concept of Python List, Python String, Python Dictionary, Python Tuples and data type conversion.
3. Techniques of function calling, modules like import, from import etc.
4. Basic I/O functions and exception handling in Python.
5. Concept of object oriented programming, built in class attributes, regular expressions for pattern matching.
6. To work with database interfaces (Sqlite).
7. Concept of networking using Python
8. Web development using web framework flask,bootstrap.
9. Use of XML, CSS, HTML, AJAX to understand the concept behind the web browsing.
10. A project to be developed which uses the above concept.