

<b>Devi Ahilya University ,Indore,India Institute of Engineering &amp; Technology</b>				<b>III Year B.E .(Computer engineering /Information Technology) (Full Time)</b>			
<b>Subject Code &amp; Name</b>		<b>Instructions Hours per Week</b>		<b>Credits</b>			
<b>5ITRL3 Scripting Language Programming Laboratory</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Total</b>
	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Duration of Practical: 2 Hours</b>							

**Learning Objectives:**

- Understand the basic syntax and features of Python programming language.
- Learn how to work with variables, data types, operators, loops, conditional statements, functions, and modules in Python.
- Understand the basics of database connectivity using Sqlite and learn how to execute queries, handle transactions, and work with functions and methods.

**Course Outcome:** Students earned credits will develop ability to

CO-1	Gain practical experience in using SQLite for database connectivity, executing queries, handling transactions, and managing database operations.	PO-1, PO-2, PO-5, PO-12
CO-2	Develop skills in handling files, including opening, closing, reading, and writing files, as well as managing file I/O operations in scripting languages.	PO-1, PO-2, PO-5
CO-3	Design and implement graphical user interfaces and graphics using Tkinter in Python, enhancing user interaction and experience.	PO-3, PO-5, PO-11
CO-4	Implement networking and multithreaded programming concepts to develop applications such as chat programs using sockets and threading.	PO-4, PO-5, PO-9
CO-5	Apply object-oriented programming concepts, including classes, objects, inheritance, overloading, and data hiding, to develop robust and modular scripts.	PO-1, PO-2, PO-3, PO-10

**CO-PO Relationship Matrix**

CO\PO	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
CO-1	3	3			3							3
CO-2	3	3			3							
CO-3			3		3						3	
CO-4				3	3				3			
CO-5	3	3	3							3		

\* CO (rows) mention nil/very small/insignificant contribution to the PO(column)

1 → relevant and small significance    2 → medium or moderate    and    3 → strong

**Prerequisite:** Programming Concepts.

#### **UNIT-I**

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-II**

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-III**

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

#### **UNIT-IV**

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-V**

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

### **Learning Outcomes:**

After completion of the course students will be able to–

- 1) Acquiring fundamental knowledge of Python language syntax, variables, datatypes, operators, and control statements for implementing basic algorithms and programs.
- 2) Developing proficiency in file handling, database connectivity, and networking concepts, including sockets and multithreading, for building efficient and scalable applications.
- 3) Familiarizing with object-oriented programming concepts, such as inheritance, overloading, overriding, and data hiding, to create modular and extensible code.
- 4) Gaining practical experience in using graphical user interface (GUI) programming with Tkinter and web development frameworks, such as Flask and Bootstrap, to build interactive and user-friendly applications.
- 5) Understanding and implementing regular expressions and CGI programming for pattern matching, web server communication, and file uploads.

### **Reference Books:**

- [1]. John V Gutttag. “Introduction to Computation and Programming Using Python”, [2].  
Prentice Hall of india
- [3]. R. Nageswara Rao, “Core Python Programming”, dreamtech
- [4]. Wesley J. Chun. “Core Python Programming- Second Edition”, Prentice Hall
- [5]. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, “Data Structures and Algorithms in Python”, Wiley
- [6]. Kenneth A. Lambert, “Fundamentals of Python– First Programs”, CENGAGE Publication
- [7]. Luke Sneeringer, “Professional Python”, Wrox
- [8]. Hacking Secret Ciphers with Python”, Al Sweigart, URL-  
<https://inventwithpython.com/hacking/chapters>

### **List of Practical Assignments:**

Students are given programming assignments to learn following.

- 1) How to take input through file/commandline/network.
- 2) Concept of Python List, Python String, Python Dictionary, Python Tuples and datatype 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 web browsing.
- 10) A project to be developed which uses the above concepts.

