

Branch: B.Sc.(IT)	Semester-IV
Subject Code: 4102	Lecture: 04 Credit: 04
Course Opted	Core Course - 12
Subject Title	PYTHON PROGRAMMING

Course Objectives:

- To understand the fundamentals of Python Scripting language
- Learn basic components of Python such as variables, looping and conditional flow controls
- Understand the working of list, tuples and dictionary data types
- Learn python file operations for file handling
- Learn the creating GUI form and designing of GUI applications

Course Outcomes:

- To understand importance of Python scripting language for developers and Data Scientists.
- To learn to install Python IDE, start the Python shell
- To define and implement components of a Python program.
- To learn how to use lists, tuples, and dictionaries in Python programs
- To learn how to use functions
- To implement GUI application and layout management

Modules	Sr. No.	Topic and Details	No. of Lectures Assigned	Marks Weightage %
UNIT - I	1	Introduction to Python and Basic Concepts in python Introduction to python: What is python? Applications of Python, Why Python? Installation of python, First program in Python, Comments and Docstrings in Python	4	8
	2	Python variables and Data Types: Declaring and using Numeric data types: int, float, complex, Using string data type and string operations. Accessing strings, Basic operations, String slices, Functions and methods Operators in python	4	8
UNIT - II	3	Python Program Flow Control Conditional Statements: Indentation in python, Conditional blocks using if, else and elif, Looping statement: Simple for loops in python, For loop using ranges, string, list and dictionaries, Use of while loops in python, Loop manipulation using pass, continue, break and else, Programming using Python conditional and loops block	8	16
	4	Python collection: List, Tuple, set and dictionary List: Introduction, Accessing lists, change item value in list, loop through list, methods Tuple: Introduction, Accessing tuples, change item value in tuple , loop through tuple and methods of tuple Set: introduction and methods of set Dictionary: Introduction, Accessing values in dictionaries, properties, Change	10	20

		value in dictionary, loop through dictionary and methods of dictionary.		
UNIT - III	5	Functions, Data visualization in python Functions: Defining a function, Calling a function, Function arguments, Default parameter value, Anonymous function: Lambda function(why use lambda, syntax and examples of lambda). Data visualization in python: Pandas packages (NumPy and matplotlib libraries)	10	20
	6	File Handling: working with open, read, write, append modes of file Understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines()	5	8
UNIT - IV	7	Creating the GUI Form and Adding Widgets: Widgets: Button, Canvas, Checkbutton, Entry, Frame, Label, Listbox, Menubutton, Menu, Message, Radiobutton, Scale, Scrollbar, text, Toplevel, spinbox, PanedWindow, LabelFrame, tkMessageBox. Handling Standard attributes and Properties of Widgets.	5	12
	8	Layout Management: Designing GUI applications with proper Layout Management features.	4	8
TOTAL			50	100

Text Book:

1. Learning With Python, by Allen Downey, Jeff Elkner and Chris Meyers

Reference Books:

1. Dive into Python, Mike
2. Learning Python, 4th Edition by Mark Lutz
3. Programming Python, 4th Edition by Mark Lutz
4. Python Cookbook, Third edition by David Beazley and Brian K. Jones
5. Head First Python: A Brain-Friendly Guide, by Paul Barry
6. Learn Python The Hard Way, by Zed A. Shaw
7. Learning Python the hard way by show zed, Pearson 3rd Edition