Sri Sathya Sai College for Women, Bhopal
(An Autonomous College Affiliated to Barkatullah University Bhopal)
Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus (Annual Pattern)
As recommended by Central Board of Studies and approved by the Governor of M. P.
wef 2023-2024
(Session 2023-24)
(NEP-2020)

Class	B.C.A.
Year	III Year
Subject	Computer Application
Course Title	Python Programming (Group A - Paper II)
Course Type	Discipline Specific Elective (DSE)
Credit Value	4
Max. Mark	30+70 (Minimum Marks 35)

Course Outcome: On successful completion of this course , the students will be able to:
1. Develop and execute simple Python programs.
2. Structure a Python program into functions.
3. Using Python lists, tuples to represent compound data
4. Develop Python Programs for file processing

Particular

Unit-I	What is Python? WHY PYTHON? History, Features – Dynamic, Interpreted, Object oriented, Embeddable, Extensible, Large standard libraries, Free and Open source, Download Python Installation Process in Windows, Unix, Linux and Mac, Online Python IDLE, Python Realtime IDEs like Spyder, Jupyter Note Book, PyCharm, Rodeo, Visual Studio Code, ATOM. PyDevetc, Data Types and Variables, Numbers, Operators Comments in Python, Input output operation in python.
Unit-II	Control Statements: Conditional control statement if, If-else, If-elif-else, Loop control statements- for, while, Data Structure & Collection:- String, List, Tuple, Set, Dictionary, Comparison of List, Tuple and Set, Function in python, types of function in python, map,reduce, filter function, Lamda function
Unit-III	Importance of modular programming. What is module? Types of Modules- Predefined, User defined User defined module creation, OS, Date-time, math modules, organizing python project into packages, Types of packages- predefined, user defined, Package, v/s Folder, File and Directory handling in python.
Unit-IV	Procedural v/s Object oriented programming, Principles of OOP- Encapsulation, Abstraction (Data Hiding), Polymorphism, Inheritance, Inner Classes. Exception handling and types of errors, try, except, finally, raise, and Need to Custom exceptions, Case studies, regular expression.

1

		handling and types of errors, try, except, finally, raise, and Need to Custom exceptions, Case studies, regular expression.
Unit-V		Multithreading and multiprocessing in python, Threading module, Creating thread - inheriting thread class, Using callable object, Life cycle of thread, Single threaded application, Multithreaded application, Can we call run() directly ? Need to start() method, Sleep() & Join(). Synchronization- Lock class - acquire(), release() functions, Garbage collection, Python Data Base Communication (PDBC), Introduction of Numpy, Pandas & MatPlotLib, Drawing plots.
Keywords/Tags:		Open Source, Data Type, Module, List, Tuples, Directory

Suggestion Books:
1. Mark Lutz, Learning Python
2. Tony Gaddis, Staring Out with Python
3. Kenneth A. Lambert, Fundamentals of Python
4. James Payne, Beginning Python using Python 2.6 and Python 32.

Reference Books:
1. Python Crash Course: A Hands-On, Project-Based Introduction to Programming (2nd Edition) Author: Eric Matthes.
2. The Python Language Reference Manual (version 3.2), Guido van Rossum, and Fred L. Drake Jr (Editor), ISBN: 1906966141, Network Theory Ltd, 120 pages (Revised November 2006)

Suggested Digital Platforms Web links:
www.javatpoint.com
www.w3school.com
www.python.org
https://www.tutorialspoint.com/python/index.htm

Scheme of Marks:
Suggested Continuous Evaluation Methods:

Maximum Marks: 100		
Continuous Comprehensive Evaluation (CCE) 30 marks, Term End Exam Theory 70 marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE):	Class Test Assignment / Presentation	**30**
External Assessment: University Exam Section Time: 03.00 Hours	**Section (A)** Very Short question **Section (B)** Short questions **Section (C)** Long questions	**70**
		Total 100

2

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Class	B.C.A.
Year	III Year
Subject	Computer Application
Course Title	Python Programming Lab (Group A - Paper II)
Course Type	Discipline Specific Elective (DSE)
Credit Value	2
Max. Mark	max. marks:100 min. passing marks :35

Course Outcome: On successful completion of this course , the students will be able to:
1. Develop Simple programs in Python
2. Knowledge of conditional and loop statements.
3. Learning of Tuple, List, Directory in Python
4. Knowledge of Files and OOPs Concepts in Python.
5. Introductory Knowledge of Pandas, PDBC and Numpy.

Particular

	Suggestive List of Practical
	Students are required to write program (Code) in Python, execute and test it
	1. Write a Program to demonstrate different number data types in python.
	2. Write a program to perform different Arithmetic Operations on numbers in python.
	3. Write a program to create, concatenate and print a string and accessing sub-string from a given string.
	4. Write a python script to print the current date in the following format a. "Fri Oct 11 2:26:23 IST2019"
	5. Write a program to create, append, and remove lists in python.
	6. Write a program to demonstrate working with tuples in python.
	7. Write a program to demonstrate working with dictionaries in python.
	8. Write a python program to find largest of three numbers.
	9. Write a python program to construct the following pattern, using a nested for loop

| | ```
*
**
***
****
***
**
*
``` |
	10. Write a Python script that prints prime numbers less than20.
	11. Write a python program to define a module to find Fibonacci Numbers and import the module to another program.
	12. Write a python program to define a module and import a specific function in the module to another program.
	13. Write a program that input a text file. The program should print all of the unique words in the file in alphabetical order.
	14. Write a python class to convert an integer to a roman numeral.
	15. Write a Python class to reverse a string word by word.
Keywords/Tags:	Open Source, Data Type, Module, List, Tuples, Directory, Loops Array

Suggestion Books:-
1. Mark Lutz, Learning Python
2. Tony Gaddis, Staring Out with Python
3. Kenneth A. Lambert, Fundamentals of Python
4. James Payne, Beginning Python using Python 2.6 and Python 32.

Suggested Digital Platforms Web links:
1. www.javatpoint.com
2. www.w3school.com
3. www.python.org
4. https://www.tutorialspoint.com/python/index.htm

Scheme of Marks:

Maximum Marks: 100		
Internal Assessment:	Class Interaction / Quiz Attendance Assignments (Charts / Model Seminar / Rural Service / Technology Dissemination / Report of Excursion / Lab Visits / Survey / Industrial visit)	30
External Assessment:	Viva Voce on Practical Practical Record File Table work/Experiments	70
		Total 100