SILVER OAK UNIVERSITY

College of Computer Application

Bachelor Computer Application

Subject Name: Python Programming

Subject Code:1040233206

Semester: IV

Prerequisite: Python Programming

Objective:

- Basic knowledge of python.
- Python programming is intended for software engineers, program managers and user support systems.
- Understanding and problem solving.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
3	0	2	4	40	20	60	30	150

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	**Introduction to Python: -** Features of Python, Viewing of Byte Code, Flavors of Python, PVM Memory Management in Python, Garbage collection in python Comparisons between C-Java-Python, writing first Python program Execution of a Python program (using command line, IDLE window and system prompt). Python Built-in datatypes, none types, Numeric types, Explicit conversion of datatypes, Sequences in Python, str, bytes byte array, List, Tuple, range, Sets, set datatype, frozen set, mapping types, Determining the datatype of a variable, Identifiers and reserved words, Naming conventions in Python.	10	25
2	**Operators, Modules, Arrays, Functions, List, Tuples: -** I/O and control statements Membership operators, Identity operators Output statements, input statements, Command line arguments, a word on Indentation, the if-elf-else statement, Infinite loops, Nested Loops the else Suite, break, continue, pass, assert and return statements.	10	25

	Creating our own modules in python, Advantages of Array, creating anArray, Importing the array module, Indexing Slicing and Processing the arrays, Difference between a function and a method, Defining-callingand returning (single and multiple) results from a function, Pass by Object Reference, Positional arguments, Keyword arguments, Default arguments, Variable length arguments, Anonymous Functions, Function Decorators. List and Tuples Exploring List, creating lists using range () function, Updating the elements of the list**,** Concatenation of two lists Repetition of lists, Membership in lists, Aliasing and Cloning lists Methods to process List, Nested Lists, Tuples, Creating and accessing Tuple elements, Basic operations on Tuples, Functions to process tuples, Nested Tuples and its sorting.		
3	**Introduction to Dictionaries, Classes, Inheritance, Polymorphism:** Operations on Dictionaries, Dictionary methods, Converting List intoDictionary, Passing dictionaries to functions. The Self variable, Constructor, Types of variables, Types of methods, Passing members ofone class to another. Constructors in inheritance, Overriding Super classconstructors and methods, The super () method, Types of Inheritance Single and multiple, problems in multiple inheritance, Method resolution order(MRO). Duck Typing Philosophy of Python, Operatoroverloading, method overloading, method overriding	10	25
4	**Exception Handling, virtual environment, Python and MySQL Connector: -** Standard Library Exceptions, Exception handling, Types of exceptions Operating System Interface, File wildcards, Command line arguments String pattern matching, mathematics, internet access, dates and times, data compression, performance measurement. generating virtua environments, managing packages with pip (Python Package Index). Verifying the Connector Installation, Using MySQL from Python retrieving all rows from a table, inserting rows into a table, deleting rows from 5 11 table, Updating rows in a table, Creating database tables through Python.	10	25

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Introduction to Python	1
CO-2	Operators, Modules, Arrays, Functions, List, Tuples	2
CO-3	Introduction to Dictionaries, Classes, Inheritance, Polymorphism	3
CO-4	Exception Handling, virtual environment, Python and MySQL Connector	4

Practical with python: -

Sr. No.	CO statement	Unit No
1.	Print "HELLO PYTHON"	1
2.	To do arithmetical operations, To find the area of a triangle, To solve quadratic equation, To swap to variable	1
3.	To generate a random number and To convert kilometers to miles	1
4.	Program to display calendar	2
5.	Program to check if a number is positive, negative or zero	2
6.	Program to display the multiplication table and check Fibonacci sequence	2
7.	Program to display calendar Python program to convert Decimal to Binary, Octal and Hexadecimal	3
8.	Python program to find ASCII value of a character and make simple calculator	3
9.	Program to display Fibonacci sequence using recursion and Find Factorial of number using Recursion	3
10.	Program to check if given number is disarium number and print all disarium numbers between 1 to 100	4
11.	Program to print the elements of an array present on odd position	4
12.	Program to add and multiply matrices and perform transpose	4
13.	Program to convert list to dictionary and create dictionary	4

Teaching & Learning Methodology: -

- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Lectures with live practical examples using Projector and Computer.
- Experiments shall be performed in the laboratory related to course contents.

Major Equipment:

1. Computer System
2. Projector

Books Recommended: -

1. Core Python Programming by Dr. R. Nageswara Rao, 2017 edition
2. Python Tutorial (Release 3.6.4) By Guido van Rossum and the Python development team
3. A Byte of Python By Swaroop C H
4. Python Cookbook, Recipes of Mastering Python 3 By David Beazely & Brian K. Jones

List of Open Source Software/learning website:

1. https://www.python.org/about/apps/
2. https://www.w3schools.com/python/default.asp
3. https://www.tutorialspoint.com/python3/index.htm
4. https://www.programiz.com/python-programming/tutorial