GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc), 4th Semester
Branch: Software Development
Subject Name: Python Programming Lab
Subject Code: 21140206

With effective from academic year 2022-23

Type of course: Core

Prerequisite: Object Oriented Programming

Rationale: Python is a modern language useful for writing compact codes specifically for programming in the area of Server side Web development, Data Analytics, AI and scientific computing as well as production tools and game programming. This course covers the basics and advanced Python programming to harness its potential for modern computing requirements.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE (E)	PA (M)	ESE (V)	PA (I)	
-	-	2	2	-	-	30	20	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit;
ESE- EndSemester Examination; PA- Progressive Assessment

Experiments to be covered based on the theory covered in class

Content:

Sr. No.	Content	Total Hrs.	% Weightage
1	Study of various Python Libraries in detail.	4	10
2	a. Find the largest and smallest numbers in a list. b. Find the third largest number in a list.	2	10
3	a. Check whether given number is prime or not. b. Check whether given string is palindrome or not.	2	10
4	a. Given two integers x and n, compute x^n. b. Compute Quadratic Equation with all possible solutions.	2	10
5	a. Compute the greatest common divisor and the least common multiple of twointegers. b. Test if a number is equal to the sum of the cubes of its digits. Find the smallestand largest such numbers.	2	10
6	Develop programs to learn concept of functions scoping, recursion and list mutability.	4	10
7	Perform Insertion Sort for given data.	2	10
8	Perform Bubble Sort for given data.	2	10
9	Develop programs to learn regular expressions using python.	4	10
10	Develop programs to understand working of exception handling and assertions.	4	10
	Total	**28**	**100**

Reference Books:
1. Python: The Complete Reference, Martin C. Brown, Mc Graw Hill
2. Introduction to Computation and Programming Using Python, John V Guttag, Prentice Hall of India
3. Introduction to Computing and Problem Solving With Python, Jeeva Jose, Khanna Publishing House
4. Taming Python by Programming, Jeeva Jose, Khanna Publishing House

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Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Understand basics of Python Programming	30
CO-2	To be able to understand the various data structures available in Python programming language	20
CO-3	To be able to do testing and debugging of code written in Python	30
CO-4	To be able to understand sorting algorithms in Python	20

List of Open Source Software/learning website :

Students must refer to following sites to enhance their learning ability.

1. Turtle -https://docs.python.org/2/library/turtle.html
2. PyLab -https://scipy.github.io/old-wiki/pages/PyLab