SANKALCHAND PATEL UNIVERSITY ।। अथातो ज्ञानजिज्ञासा ।।	**FACULTY OF COMPUTER SCIENCE** **Master Of Computer Application (Integrated) (Sem-IV)** In Effect from Academic Year 2023-24

Branch Name:	IMCA
Program Code:	CS201
Course Name:	Python Programming
Course Code:	1CS3010402T
Pre-requisite Course:	Knowledge of some programming language like C, Java

Course Objective:

1. To be able to understand the various data structures available in Python programming language.
2. To be able to apply them in solving computational problems.
3. To be able to develop proficiency in creating applications using the Python Programming Language.
4. To understand and implement the notion of an abstract data type.
5. To learn how to build and package Python modules for reusability.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
				Theory		Practical		
Lecture	Tutorial	Practical	Credit	University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	Total
4	-	-	4	60	40	-	-	100

Course Contents:

Unit No	Topics	Total Hours	Weightage (%)
1	**INTRODUCTION, DATA, EXPRESSIONS, STATEMENTS** Introduction to Python, installation of Python, Data types: Int, float, Boolean, string, tuple, list, Set, Dictionary; variables, expressions, statements, precedence of operators, comments.	06	15
2	**CONTROL FLOW, LOOPS, FUNCTIONS, STRINGS, ARRAYS** Conditionals: Conditional (if), alternative (if-else), chained conditional (if-elif-else); Iteration: while, for, break, continue, pass. Functions: return values, parameters, local and global scope, function composition, recursion; Strings: string slices, immutability, string functions and methods, string module; Python arrays, Access the Elements of an Array, array methods, Lambda function.	12	25

3	**LISTS, TUPLES, SET, DICTIONARIES** Lists: Access List Items, Change List Items, Delete List Item, list slices, list methods, list loop, list parameters, list comprehension Tuples: tuple assignment, tuple as return value, tuple comprehension Set: Set assignment, Set operations Dictionaries: operations and methods, comprehension	12	25
4	**FILES, MODULES, PACKAGES** Files and exception: text files, reading and writing files, command line arguments, errors and exceptions, handling exceptions, modules (date time, time, OS , calendar, math module), Explore packages.	10	20
5	**EXCEPTIONS AND ASSERTIONS:** Exception handling, Try Except, Built in Exceptions, Raise an exception, Exceptions as a control flow mechanism, Assertions	06	15

Text Books:

1. R. Nageswara Rao, "Core Python Programming", dreamtech
2. Python Programming: A Modern Approach, Vamsi Kurama, Pearson

References Books:

1. Core Python Programming, W.Chun, Pearson.
2. Introduction to Python, Kenneth A. Lambert, Cengage
3. Learning Python, Mark Lutz, Orielly
4. Allen B. Downey, ``Think Python: How to Think Like a Computer Scientist‘‘, 2nd edition, updated for Python 3, Shroff/O‘Reilly Publishers, 2016.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To **read, write, execute** by hand simple Python programs.	2 Understanding
CLO2	To **study, read, write, and execute** simple Python programs for solving problems.	2 Understanding 3 Applying 6 Creating
CLO3	To **decompose** a Python program into functions.	3 Applying 1 Remembering 4 Analyzing
CLO4	To **represent** compound data using Python lists, tuples, Sets and dictionaries.	2 Understanding 3 Applying 5 Evaluating
CLO5	To **read and write** data from/to files in Python Programs	1 Remembering 2 Understanding 4 Analyzing
CLO6	To **understand** Exception handling and **create** a program using it.	3 Applying 4 Analyzing

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Out comes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1		M	L	M		M	H	L	M		M		H	M
CLO2	M	L			H	L		L		M	L	L	M	M
CLO3		L	M		M	M		L	M	M		L	M	L
CLO4	L		M	L	M		M		L		L		M	M
CLO5	M	L		M	L			M		L		L	M	L
CLO6	M		M		L	M			M	M		L	L	M

H:High, M:Medium, L:Low