GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 5th Semester
Branch: Information Technology
Subject Name: Python Programming-1
Subject Code: 1350505

Teaching and Examination Scheme

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE(E)	PA (M)	PA (V)	PA (I)	
3	0	4	5	70	30	30	20	150

Content:

Sr. No.	Content	Teaching Hours	Module Weightage (%)
1.	**Introduction, Data Types and Operators:** Installation and working with Python, Variables and data types in python, Perform computations and create logical statements using Python's operators: Arithmetic, Assignment, Comparison, Logical, Membership, Identity, Bitwise operators, list, tuple and string operation	6	20
2.	**Python Decision making and Loops:** Write conditional statements using If statement, if ...else statement, elif statement and Boolean expressions, While loop, For loop, Nested Loop, Infinite loop, Break statement, Continue statement, Pass statement, Use for and while loops along with useful built-in functions to iterate over and manipulate lists, sets, and dictionaries. Plotting data, Programs using decision making and loops.	7	20
3.	**Functions, Scoping and Abstraction:** Functions and scoping, Specifications , Recursion, Global variables , Modules, Files, System Functions and Parameters	5	10
4.	**Structured Types, Mutability and Higher-Order:** Strings, Tuples, Lists and Dictionaries, Lists and Mutability, Functions as Objects	5	15
5.	**Testing, Debugging, Exceptions and Assertions:** Types of testing – Black-box and Glass-box, Debugging, Handling Exceptions, Assertions	6	15
6.	**Classes and Object-Oriented Programming :** Abstract Data Types and Classes, Inheritance, Encapsulation and Information Hiding	5	10
7.	**Simple Algorithms and Data structures:** Search Algorithms, Sorting Algorithms, Hash Tables	6	10

Suggested Specification table with Marks (Theory):70

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	30	10	10	5	5

R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Reference Books:

1. John V Guttag. "Introduction to Computation and Programming Using Python", Prentice Hall of India
2. R. Nageswara Rao, "Core Python Programming", dreamtech
3. Wesley J. Chun. "Core Python Programming - Second Edition", Prentice Hall
4. Michael T. Goodrich, Roberto Tamassia, Michael H. Goldwasser, "Data Structures and Algorithms in Pyhon", Wiley
5. Kenneth A. Lambert, "Fundamentals of Python – First Programs", CENGAGE Publication
6. Luke Sneeringer, "Professional Python", Wrox

Course Outcome:

After learning the course, the students should be able to:

No.	CO statement
CO-1	To develop proficiency in creating based applications using the Python Programming Language.
CO-2	To be able to understand the various data structures available in Python programming language and apply them in solving computational problems.
CO-3	To be able to do testing and debugging of code written in Python.
CO-4	To be able to implement searching and sorting algorithm
CO-5	To be able to understand object oriented concepts.