Ganpat University
॥ विद्यया समाजोत्कर्षः ॥

Faculty of Computer Applications

NAAC A Grade Accredited University

Programme	B.Sc. IT Honours (Data Science)	**Branch**	Computer Applications
Semester	V	**Version**	1.0.0.0
Effective from Academic Year	2026-27	**Effective for the batch Admitted in**	June 2024
Subject code	U75A1PY1	**Subject Name**	PYTHON PROGRAMMING - I

Teaching scheme						**Examination scheme(Marks)**			
(Per week)	**Lecture (DT)**		**Practical (Lab.)**		**Total**		**CCE**	**SEE**	**Total**
	L	TU	P	TW					
Credit	2	-	2	-	4	Theory	50	50	100
Hours	2	-	4	-	6				

Objective:

To equip students with foundational proficiency in programming by introducing core concepts, logical thinking, and problem-solving skills using the Python programming language

Pre-requisites:

Foundational proficiency in programming principles and languages

Learning Outcome:

Name of CO	Description
CO1	Gain familiarity with fundamentals and perform basic operations using lists.
CO2	Apply operators and control flow statements to build logical and iterative program structures.
CO3	Develop proficiency in using Python collections for efficient data handling and manipulation.
CO4	Demonstrate the ability to create and use for modular Python programming.
CO5	Demonstrate proficiency in essential file and directory operations using Python.

Mapping of CO and PO:

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	2	2	2	2	1	0	0	1
CO2	3	3	2	2	2	1	2	2	1	0	0	1
CO3	3	3	2	1	3	2	2	2	1	0	0	1
CO4	3	3	2	2	3	2	2	2	1	0	0	1
CO5	3	2	2	2	3	1	2	2	1	0	0	1

Content:

Unit	Content	Hrs.
1	**Introduction to Python Programming:** History of Python, Features and Applications, Python Syntax and Indentation, Variables, Data Types, Comments, Literals, Input and Output functions, Strings and Characters, Type casting, Array Operations – List Creation, Indexing, Slicing, Traversal with Loops, Element Modification, List in Conditional and Loop Structures	06
2	**Control Flow and Operators in Python:** Operators – Arithmetic, Comparison, Assignment, Logical, Bitwise, Membership and Identity Decision Making Statements – If Statement, If else, Nested If, elif Statement Looping Statements – While loop, For loop, Nested loops Loop Control Statements – Break, Continue, Pass	06
3	**Python Collections:** List – List Indexing and Slicing, Traversing Lists, List Methods, List Membership, List Comprehensions Tuple - Creating and Accessing Tuples, Tuple Immutability, Tuples vs Lists Dictionary - Creating and Accessing Dictionary Elements, Dictionary Methods	06

	Set - Creating Sets and Set Literals, Set Operations, Set Methods	
4	**Python Functions and Modules:** Functions - Defining and Calling Functions, Function Parameters and Arguments (Positional Arguments, Keyword Arguments, Default Arguments, Variable-length Arguments), Returning Single and Multiple Values from Function, Scope of Variables, Recursive Functions, Anonymous Functions Modules - Creating and Importing Modules, Standard Python Modules, Creating Custom Modules	06
5	**File Handling Essentials:** Types of Files, File Operations (Open, Read, Write, Close), File Modes, File Positioning, Directory Operations, Zipping and Unzipping Files	06

Practical Content:	
List of programs specify by subject teacher based on above mention topics.	
Reference Books:	
1	Introduction to Computation and Programming Using Python by John V. Guttag (3rd Edition) MIT Press
2	Core Python Programming by R. Nageswara Rao (2nd Edition) Dreamtech Press
3	Data Structures and Algorithmic Thinking with Python by Narasimha Karumanchi (1st Edition) CareerMonk Publications
Web Reference:	
1	https://www.w3schools.com/python/
2	https://www.tpointtech.com/python-tutorial
3	https://www.geeksforgeeks.org/python/python-programming-language-tutorial/
MOOC/Certificate Course:	
1	https://in.coursera.org/learn/python-programming-intro
2	https://nptel.ac.in/courses/106106145
3	https://www.edx.org/learn/python/ibm-python-basics-for-data-science
Question Paper Scheme:	
	End Semester Examination Duration: (2 Hours Theory Examination) **Note for Examiner: -** Q-1 Any Five out of Seven (25 Marks) Q-2 Any Two out of Three (06 Marks) Q-3 Mandatory question (05 Marks) Q-4 Any Two out of Three (08 Marks) Q-5 Any Two out of Three(06 Marks) *The question paper must comprehensively address all Course Outcomes (COs), align with Bloom's Taxonomy levels, and ensure complete syllabus coverage.