BHAGWAN MAHAVIR UNIVERSITY

Effective From (2022-2023)

Bachelor of Technology (Computer Engineering)

Semester: III

Subject Code	Subject Title	Teaching Scheme (Hours)					
		Theory	Tutorial	Credits	Theory Examination Marks		Total Marks
					Internal	External	
2010206302	**Python Programming**	3	0	3	40	60	100

Programming concepts, Statistical and numerical methods

Objective of the course:

- To learn about Python programming language syntax, semantics, and the runtime environment
- To be familiarized with universal computer programming concepts like data types, containers
- To be familiarized with general computer programming concepts like conditional execution, loops & functions
- To be familiarized with general coding techniques and object-oriented programming

Course Outcomes:

Upon completion of the course, the student shall be able:

Sr. No.	CO statement	Marks % weightage
CO-1	Develop essential programming skills in computer programming concepts like data types, containers	10
CO-2	Apply the basics of programming in the Python language	20
CO-3	Solve coding tasks related conditional execution, loops	20
CO-4	Solve coding tasks related to the fundamental notions and techniques used in object-oriented programming	30
CO-5	Be able to understand the various data structures available in Python programming language and apply them in solving computational problems.	20

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Detail Content:

Sr. No.	Topic	Total Hrs.
1	**Introduction:** Introduction to Python, Program Development Cycle, Programming Languages, Software Development, History of Python Programming Language , Applications of Python, Features of Python, Installing PyCharm, Creating and Running Your First Python Program	3
2	**Parts of Python Programming Language:** Identifiers, Keywords, Statements and Expressions, Data Types, Type Conversions, Variables, Operators , Precedence and Associativity, Indentation, Comments, Reading Input from the Keyboard, Displaying Output with the Print Function. **Control Statement & Loops :** if statement, if…else statement, if…elif…else statement, Nested if statement, while loop, for loop , foreach loop, continue and break statements	10
3	**List:** Creating Lists, List Operations, Indexing & Slicing, List Functions, List Methods, The del statement. **Dictionaries:** Creating Dictionaries, Accessing and Modifying key : value pairs, Dictionary Functions, Dictionary Methods, The del statement. **Tuples:** Creating Tuples, Tuple Operations, Indexing & Slicing, Tuple Functions, Tuple Methods, Relation between tuples and lists, Relation between tuple and dictionary. **Sets:** Creating Sets, Set methods and Frozen set	11
4	**Functions :** Built-in Function**s,** Function definition and calling the function, The return Statements and void function, Scope and lifetime of variable, Default parameters, Types of Arguments **Strings :** Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining , String Methods, Formatting Strings	6
5	**File Operations:** Reading config files in python, Writing log files in python, Understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Manipulating file pointer using seek, Programming using file operations **Object- Oriented Programming**: Classes and Objects, The Constructor Method, Classes with Multiple Objects, Using Objects as Arguments, Objects as Return Values, Encapsulation, Inheritance, Polymorphism	11
6	**Errors and Exceptions:** Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions, User-defined Exceptions, Defining Clean-up Actions, Redefined Clean-up Actions.	4

Text books:

1. Fundamentals of Python First Programs, Kenneth. A. Lambert, Cengage.
2. Python Programming: A Modern Approach, Vamsi Kurama, Pearson.
3. Introduction to Python Programming, Gowrishankar.S, Veena A, CRC Press.
4. Introduction to Programming Using Python, Y. Daniel Liang, Pearson.

Registrar **Dean- Academics** **Chairman - BOS**

List of Open Source Software/learning website:
https://www.tutorialspoint.com/python3/python_tutorial.pdf

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