INVERTIS
UNIVERSITY BAREILLY

BCS-304	Python	L T P 1 0 0	1 credits

Course Objectives:

CO1	Describe the core syntax and semantics of Python programming language.
CO2	Discover the need for working with the strings and functions.
CO3	Illustrate the process of structuring the data using lists, dictionaries, tuples and sets.
CO4	Infer the Object-oriented Programming concepts in Python.
CO5	Discuss concept of Function

Detailed Syllabus

MODULE-I

Parts of Python Programming Language: Identifiers, Keywords, Statements and Expressions, Variables, Operators, Precedence and Associativity, Data Types, Indentation, Comments, Reading Input, Print Output, Type Conversions, The type() Function and Is Operator, Dynamic and Strongly Typed Language

Control Flow Statements: The if Decision Control Flow Statement, The if…else Decision Control Flow Statement, The if…elif…else Decision Control Statement, Nested if Statement, The while Loop, The for Loop, The continue and break Statements, Catching Exceptions Using try and except Statement, , Default Parameters, Keyword Arguments, *args and **kwargs, Command Line Arguments.

MODULE-II

Functions: Built-In Functions, Commonly Used Modules, Function Definition and Calling the Function, The return Statement and void Function, Scope and Lifetime of Variables

Strings: Creating and Storing Strings, Basic String Operations, Accessing Characters in String by Index Number, String Slicing and Joining, String Methods, Formatting Strings,

MODULE-III

Lists: Creating Lists, Basic List Operations, Indexing and Slicing in Lists, Built-In Functions Used on Lists, List Methods, The del Statement.

Object-Oriented Programming: Classes and Objects, Creating Classes in Python, Creating Objects in Python, The Constructor Method, Classes with Multiple Objects, Class Attributes versus Data Attributes, Encapsulation, Inheritance, Polymorphism.

Text Books:
1. Gowrishankar S, Veena A, "Introduction to Python Programming", 1st Edition, CRC Press/Taylor & Francis, 2018.

Reference Books:
1. Jake VanderPlas, "Python Data Science Handbook: Essential Tools for Working with Data", 1st Edition, O'Reilly Media, 2016.
2. Aurelien Geron, "Hands-On Machine Learning with Scikit-Learn and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems", 2nd Edition, O'Reilly Media, 2019.

Course Outcomes:

CO1	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.
CO2	Express proficiency in the handling of strings and functions.
CO3	Identify the commonly used operations involving file systems and regular expressions.
CO4	To apply various types of Function
CO5	Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism--