

# **RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL**

## **New Scheme Based On AICTE Flexible Curricula**

### **Artificial Intelligence and Data Science, III-Semester**

#### **AD306 Computer Workshop/Introduction to Python-I**

**Module1:** Introduction to python language, Basic syntax, Literal Constants, Numbers, Variable and Basic data types,String, Escape Sequences, Operators and Expressions, Evaluation Order, Indentation, Input, Output, Functions, Comments.

**Module2:** Data Structure: List, Tuples, Dictionary, DataFrame and Sets, constructing, indexing, slicing and content manipulation.

**Module3:** Control Flow:Conditional Statements - If, If-else, Nested If-else. Iterative Statement - For, While, Nested Loops. Control statements - Break, Continue, Pass.

**Module4:** Object oriented programming:Class and Object, Attributes, Methods, Scopes and Namespaces, Inheritance, Overloading, Overriding, Data hiding,Exception: Exception Handling, Except clause, Try finally clause, User Defined Exceptions.

**Module5:** Modules and Packages: Standard Libraries: File I/O, Sys, logging, Regular expression, Date and Time, Network programming, multi-processing and multi-threading.

#### **References**

- **Timothy A. Budd: Exploring python, McGraw-Hill Education.**
- **R.NageshwarRao ,”Python Programming” ,Wiley India**
- **Think Python: Allen B. Downey, O'Reilly Media, Inc.**

#### **List of Experiments:**

1. To write a Python program to find GCD of two numbers.
2. To write a Python Program to find the square root of a number by Newton's Method.
3. To write a Python program to find the exponentiation of a number.
4. To write a Python Program to find the maximum from a list of numbers.
5. To write a Python Program to perform Linear Search
6. To write a Python Program to perform binary search.
7. To write a Python Program to perform selection sort.
8. To write a Python Program to perform insertion sort.
9. To write a Python Program to perform Merge sort.
10. To write a Python program to find first n prime numbers.
11. To write a Python program to multiply matrices.
12. To write a Python program for command line arguments.
13. To write a Python program to find the most frequent words in a text read from a file.
14. To write a Python program to simulate elliptical orbits in Pygame.
15. To write a Python program to bouncing ball in Pygame.