

Session: 2026-27			
Part A – Introduction			
Subject	Mathematics/Statistics		
Semester	V		
Name of the Course	Python		
Course Code	MIC-5/VOC-2		
Course ID			
Course Type: (CC/MIC/ MDC/ /VOC/AEC/VA C/SEC)	MIC/VOC		
Course Learning Outcomes(CLOs)	After completing this course, the learner will be able to; 1. Develop, document and debug modular python programs to solve computational problems. 2. Select a suitable programming construct and data structure for a situation. 3. Use built-in strings, lists, sets, tuples and dictionary in applications. 4. Define classes and use them in applications. 5. Understand use files for I/O operations.		
Credits	Theory	Practical	Total
	2	2	4
Contact Hours	2	4	6
Internal Assessment Marks	15	15	30
End Term Assessment Marks	35	35	70

Examination Time	2 Hours	---	100
Part B - Course Content			
Instructions for Paper- Setter Note: The examiner will set 9 questions asking two questions from each unit and one compulsory question by taking Course Learning Outcomes (CLOs) into consideration. The compulsory question (Question No. 1) will contain 5 parts covering entire syllabus. The examinee will be required to attempt 5 questions, selecting one question from each unit and the compulsory question.			
Unit	Topic	Contact Hours	
I	Introduction to Programming using Python: Structure of a Python Program, Functions, Python Interpreter, Python shell, Indentation. Identifiers and keywords, Literals, Strings, Basic operators (Arithmetic operator, Relational operator, Logical , Assignment Operator, Bit wise operator, Identity Operator, Membership Operator)	30 hrs	
II	Building blocks of Python: Standard libraries in Python, notion of class, object and method.		
III	Creating Python Programs: Input and Output Statements, Control statements:-branching, looping, Exit function, break, continue and pass,. Testing and debugging a program		
IV	Built-in data structures: Mutable and immutable structures Strings, lists, Sets, Tuples and Dictionary and associated operations. Basic searching and sorting methods using iteration.		
Practical			
The Following practicals will be done using Python and record of those will be maintained in the practical book 1. Write a program to execution of expressions involving arithmetic, relational, logical, and bitwise operator in the shell window of Python IDLE. 2. Write a program to calculate sum of two numbers. 3. Write a program to find the greatest number among three or more numbers. 4. Write a program to find the factorial of a number. 5. Write a program to find the reverse of two or more digits. 6. Write a program to find the LCM and HCF of two numbers.			60 hrs

7. Write a program to find whether a number is prime or not.
8. Write a program to calculate Simple Interest.
9. Write a program to calculate Compound Interest.
10. Write a program to return nth terms of Fibonacci sequence.
11. Write a program to find square root of a number.
12. Write a program to find roots of a quadratic equation. Program
13. Write a program to find the area of a triangle when the lengths of three sides are given.

Suggested Evaluation Methods

Internal Assessment:

➤ Theory 15

- Class Participation: 5
- Seminar/presentation/assignment/quiz/class test etc.: 5
- Mid-Term Exam: 5

➤ Practicum 15

- Seminar/Demonstration/Viva-voce/Lab records etc.: 15

End Term Examination:

➤ Theory 35

- Written Examination

➤ Practicum 35

- Lab record, viva-voce, write up and execution of the program

Part C-Learning Resources

Recommended Books:

1. A. B. Downey (2015), *Think Python: How to Think Like a Computer Scientist (3rd Edition)*, O'Reilly Media.
2. S. Taneja and N. Kumar (2017), *Python Programming: A Modular Approach*, Pearson Education.
3. M. C. Brown (2001), *The Complete Reference: Python*, McGraw-Hill Education.
4. R. G. Dromey (2006), *How to Solve It by Computer*, Pearson Education.
5. J. V. Guttag (2016), *Introduction to Computation and Programming Using Python*, MIT Press.
6. Y. D. Liang (2013), *Introduction to Programming Using Python*, Pearson Education.

