Course: Minor
Principles of Programming and Algorithms

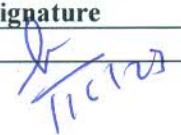| Semester: II	Credits: 2	Subject Code: BCMINPPA22301	Lectures: 30

Course Outcomes:
At the end of this course the learner will be able to,   • CO1- Analyze the problem and find the logical solution.   • CO2-Analyze the basics of programming.   • CO3-Relate how to use programming in day to day application.   • CO4-Develop Analytical / Logical thinking and Problem solving capabilities.

Unit 1: Algorithm and Flowchart	15
- Concept: Problem, Algorithm. - Characteristics of an algorithm. - Examples- Addition / Multiplication of integers , Determining if a number is +ve / -ve , even / odd, Maximum of 2 numbers , 3 numbers Sum of first n numbers, sum of given n numbers ,Sum of digits of a given number, sum of first and last digit of a Number, Digit reversing, Table generation for number n, Factorial of a number, Prime number, Factors of a number, Perfect number, Palindrome number ,Armstrong number, GCD And LCM of 2 numbers - Managing I/O operations - Console based I/O and related built-in I/O functions - printf(), scanf() - getch(), getchar() - Formatted input and formatted output - Introduction - Symbols - Draw for the algorithms done.	

Unit 2: Function and Array	15
- Definition, Syntax. - Introduction to Library functions : such as pow(),sqrt() etc - Recursion - Factorial of a number. Sum of digits of a given number. - Introduction - Algorithms and Flowcharts using array - Maximum and minimum element from an array - Reversing elements of an array - Mean and Median of n numbers - Row major and Column major representation of an array	

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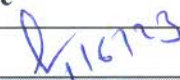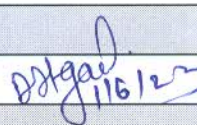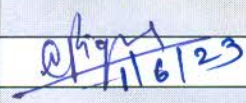
- Sum of elements of an array
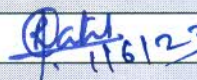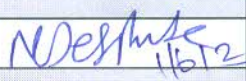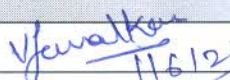- Matrices: Addition, Multiplication, Transpose, Symmetry, upper/lower triangular

Recommended Text Books:

- R. G. Dromy ,*How to solve it by Computer* ,Pearson
- Horowitz and Sahani ,Fundamentals of Data Structures,- Universities Press
- Cormen, Leiserson, Rivest ,Introduction to algorithms, Stein-MIT Press

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