

**COMPUTER PROGRAMMING LABORATORY**  
**[As Per Choice Based Credit System (CBCS) System]**  
**(Effective from the academic year 2018 -2019)**  
**SEMESTER – I/II**

<b>Subject Code</b>	18CPL16/26	<b>CIE Marks</b>	40
<b>Number of Lecture Hours/Week</b>	2	<b>SEE Marks</b>	60
<b>Total Number of Lab Hours</b>	32	<b>Exam Hours</b>	3 Hrs

**Credits – 1**

**Course Objectives :**

- To practice writing flowcharts, algorithms and programs.
- To implement basics of C programming language.
- To provide provide solutions to the laboratory programs.
- To familiarize the processes of debugging and execution.

**Descriptions (if any):**

- The laboratory should be preceded or followed by a tutorial to explain the approach or algorithm to be implemented / implemented for the problems given. Ensure that no built-in functions are used.

**Laboratory Programs:**

1.	Familiarization with programming environment, concept of naming the program files, storing, compilation, execution and debugging. Taking any simple C- code.
2.	Simple computational problems using arithmetic expressions and use of each operator leading to implementation of a Commercial calculator.
3.	Problems involving if-then-else structures. Implement different ways of finding the largest of given three positive integers.
4.	Compute the roots of a quadratic equation by accepting the coefficients.
5.	Introduce Iterative problem solving and implement Taylor series approximation to compute Sin(x).
6.	Introduce 1D/2D Array manipulation and implement bubble sort technique.
7.	Implement Matrix multiplication and ensure the rules of multiplication are checked.
8.	Use functions to check whether the given string is a Palindrome. Convince the parameter passing techniques.
9.	Implement Newton-Raphson method to find the square root of a given positive integer. Also Cross check with implementation of long-division method.
10.	Implement structures to read, write, compute average- marks and the students scoring above and below the average marks for a class of 60 students.
11.	Implement addition of array elements using Pointers.
12.	Implement Recursive functions, namely, GCD and Binary to Decimal Conversion.

**Laboratory Outcomes:** The student should be able to:

- Write algorithms, flowcharts and program for simple problems.
- Correct syntax and logical errors to execute a program.
- Write iterative and wherever possible recursive programs
- Demonstrate use of functions, arrays, strings and structures in problem solving.
- Appreciate pointers and their advantages.

**Conduct of Practical Examination:**

- All laboratory experiments, excluding the first, are to be included for practical examination.
- Students are allowed to pick one experiment from the lot and provide equal opportunity.
- Strictly follow the instructions as printed on the cover page of answer script for breakup of marks
- Change of experiment is allowed only once and 15% Marks is deducted from the procedure part.

