

COMPUTER PROGRAMMING LABORATORY (Effective from the academic year 2018 -2019) SEMESTER – I/II			
Subject Code	18CPL17/27	CIE Marks	40
Number of Contact Hours/Week	0:0:2	SEE Marks	60
Total Number of Lab Contact Hours	30	Exam Hours	3 Hrs
Credits – 1			
Descriptions (if any):			
<ul style="list-style-type: none"> • The laboratory should be preceded or followed by a tutorial to explain the approach or algorithm being implemented / implemented for the problems given. • Note that experiment 1 is mandatory and written in the journal. • Questions related with experiment 1, need to be asked during viva-voce for all experiments. • Every experiment should have algorithm and flowchart be written before writing the program. • Code should be traced using minimum two test cases which should be recorded. • It is preferred to implement using Linux and GCC. 			
Laboratory Programs:			
1.	Familiarization with computer hardware and programming environment, concept of naming the program files, storing, compilation, execution and debugging. Taking any simple C- code.		
PART A			
2.	Develop a program to solve simple computational problems using arithmetic expressions and use of each operator leading to simulation of a commercial calculator. (No built-in math function)		
3.	Develop a program to compute the roots of a quadratic equation by accepting the coefficients. Print appropriate messages.		
4.	Develop a program to find the reverse of a positive integer and check for palindrome or not. Display appropriate messages.		
5.	An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit: for the next 100 units 90 paise per unit: beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.		
6.	Introduce 1D Array manipulation and implement Binary search.		
7.	Implement using functions to check whether the given number is prime and display appropriate messages. (No built-in math function)		
PART B			
8.	Develop a program to introduce 2D Array manipulation and implement Matrix multiplication and ensure the rules of multiplication are checked.		
9.	Develop a Program to compute Sin(x) using Taylor series approximation .Compare your result with the built- in Library function. Print both the results with appropriate messages.		
10.	Write functions to implement string operations such as compare, concatenate, string length. Convince the parameter passing techniques.		
11.	Develop a program to sort the given set of N numbers using Bubble sort.		
12.	Develop a program to find the square root of a given number N and execute for all possible inputs with appropriate messages. Note: Don't use library function sqrt(n).		
13.	Implement structures to read, write, compute average- marks and the students scoring above and below the average marks for a class of N students.		
14.	Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of n real numbers.		

15.	Implement Recursive functions for Binary to Decimal Conversion.
Laboratory Outcomes: The student should be able to:	
<ul style="list-style-type: none"> • 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, structures and pointers in problem solving. 	
Conduct of Practical Examination:	
<ul style="list-style-type: none"> • All laboratory experiments, excluding the first, are to be included for practical examination. • Experiment distribution <ul style="list-style-type: none"> ○ For questions having only one part: Students are allowed to pick one experiment from the lot and are given equal opportunity. ○ For questions having part A and B: Students are allowed to pick one experiment from part A and one experiment from part B and are given 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 marks allotted for procedure part to be made zero. • Marks Distribution (<i>Subjected to change in accordance with university regulations</i>) <ul style="list-style-type: none"> a) For questions having only one part – Procedure + Execution + Viva-Voce: 15+70+15 = 100 Marks b) For questions having part A and B <ul style="list-style-type: none"> i. Part A – Procedure + Execution + Viva = 4 + 21 + 5 = 30 Marks ii. Part B – Procedure + Execution + Viva = 10 + 49 + 11 = 70 Marks 	