VNR Vignana Jyothi Institute of Engineering & Technology

I Year B.Tech CSE – I Sem	**L**	**T/P/D**	**C**
	0	**3**	**2**

(5CS51)COMPUTER PROGRAMMING LABORATORY

Course objectives

- **Gain** a working knowledge of C programming to write modular, efficient and readable C programs by Identifying the structural elements and layout of C source code.
- **Declare** and **manipulate** single and multi-dimensional arrays of the C data types and derived data types like structures, unions.
- **Use** functions from the portable C library and to describe the techniques for creating program modules using functions and recursive functions.
- **Manipulate** character strings in C programs. Utilize pointers to efficiently solve problems

Course Outcomes:

After completion of the course student is able to

- **Apply** and practice logical ability to solve the problems using C
- **Understand** C programming development environment.
- **Analyzing** the complexity of problems , modularize the problems into small modules and convert them into programs
- **Document** and **present** the algorithms flow charts and programs .

Week 1

a. Basic Linux commands

b. Simple C programs -to implement basic arithmetic operations – sum, average, product, smallest, largest of the numbers, difference, quotient and remainder of given numbers etc.

Week 2

Programs on if, else-if, nested if, else if ladder - largest and smallest of given numbers, to find the grade of a student based on marks, roots of a quadratic equation etc.

Week 3

a. Programs on switch-case – to check the type of a given character, to find the grade of a student etc.

b. Programs on while and do-while- to find factorial, Fibonacci series, GCD, sin(x), cos(x) series , to check whether a given number is an Armstrong, Palindrome, Perfect, number conversion, and Prime number etc.

Week 4

Programs on for loop- sum of n natural numbers, factorial, sin(x), to generate Pascal's triangle etc.

Week 5

a. Programs on nested loops – check for Fibonacci prime, Pyramids of numbers, generation of prime numbers in the given range, multiplication table etc.

b. programs using break, go to, continue.

Week 6
a. Programs on 1-D array-finding Minimum and maximum element, Sorting and Searching etc.
b. Programs on 2-D array – Sum, product and Multiplication of two Matrices etc.
Week 7
a. Programs on Functions-Implementation of user defined functions categories, passing of arrays to functions etc.
b. Programs on recursion - factorial of a given integer, GCD of two given integers etc.
Week 8
a. Programs on String handling functions-Copying, reverse, substring, concatenation.
b. Programs on structure and unions.
Week 9
Midterm exam
Week 10
Programs using pointers- pointer basic operations
Week 11
Programs on pointers towards structures,
Week 12
Programs on pointers to arrays
Week 13
Programs on pointers to strings
Week 14
Programs on pointers to functions
Week 15
Programs on preprocessor directives
Week 16
Internal Lab Exam

TEXT BOOKS:

1. C programming A Problem-Solving Approach by Behrouz A.Forouzan,E.V.Prasad,RichardF.Gilberg
2. How To Program:C, Dietel & Dietel, Seventh Edition,PHI

REFERENCES:

1. The C Programming Language by Brian W. Kernighan, Dennis M. Ritchie.
2. Absolute beginner's guide to C, Greg M. Perry, Edition 2,Publisher: Sams Pub., 1994.
3. Computer Programming and Data Structures by E Balagurusamy, Tata McGraw Hill.
4. Let Us C Yashavantkanetkar BPB