SCHEME OF COURSE WORK

Course Details:

Course Title	**Computer Programming Lab**			
Course Code	**15CT1103**		**L T P C**	**: 3 0 0 3**
Program:	**B. Tech.**			
Specialization:	**Information Technology**			
Semester	**II**			
Prerequisites	**None**			
Courses to which it is a prerequisite	**Data Structures Lab, Object Oriented Programming Lab**			

Course Outcomes (COs):

CO No.	Course outcomes	Cognitive level
CO1	Use RAPTOR tool in program development	Apply
CO2	Program mathematical operations using control statements	Apply
CO3	Develop Programs for Arrays and String manipulations	Apply
CO4	Implement Programs using functions, pointers, structures and unions.	Apply
CO5	Implement Programs for File I/O operations	Apply

Course Outcome versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3			3									3		
CO-2	3	3											3		
CO-3		3			2								3		
CO-4	3	2		2									3		
CO-5	2				3					3			3		

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods:	Assignment / Quiz / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	Teaching Learning Strategy	Assessment Method & Schedule
1	Demonstration of RAPTOR Tool with some examples	CO-1	To generate flowcharts by considering simple algorithms, to solve problems such as Temperature Conversion, Swapping of two numbers	Drawing Flowcharts	Day to Day Analysis and Lab Internal Assessment
2	Use of IF statements with RAPTOR Tool, Writing simple C Programs	CO-1,2	Student Grading, Income Tax Calculation, and Largest of three Numbers etc., which expose students to various categories of IF Statements. Generate flowcharts using RAPTOR Tool.	Writing Programs and Drawing Flowcharts	Day to Day Analysis and Lab Internal Assessment
3	Conditional Control Statements, Switch Case, simple if and if else statements	CO-2	Finding the roots of a quadratic equation, Performing Arithmetic Operations using Switch Case Statement	Writing Programs	Day to Day Analysis and Lab Internal Assessment
4	Iteration Control Statements- for, while, do- while	CO-2	Finding the distance travelled in t seconds, given u and a, Armstrong number or not	Writing Programs	Day to Day Analysis and Lab Internal Assessment
5	Iteration Control Statements- for, while, do- while	CO-2	Sum of individual digits of a positive number, generating Fibonacci sequence up to a given range	Writing Programs	Day to Day Analysis and Lab Internal Assessment

6	Functions, and iterative control statements	CO-2,4	Sum of Series, generating all primes up to a given integer	Writing Programs	Day to Day Analysis and Lab Internal Assessment
7	Functions, and iterative control statements	CO-2,4	Printing Pyramid of numbers, and Pascal Triangle.	Writing Programs	Day to Day Analysis and Lab Internal Assessment
8	Non recursive functions and recursive functions	CO-4	To find the factorial of the given number, and GCD of two given numbers using both recursive and non recursive functions	Writing Programs	Day to Day Analysis and Lab Internal Assessment
9	Functions, and iterative control statements	CO-2,4	Computing geometric progression, SINE and COSINE series	Writing Programs	Day to Day Analysis and Lab Internal Assessment
10	Arrays	CO-3	Matrix addition and multiplication, largest and smallest numbers in an array of integers, Matrix transpose	Writing Programs	Day to Day Analysis and Lab Internal Assessment
11	Functions, pointers	CO-4	Call by value and call by reference	Writing Programs	Day to Day Analysis and Lab Internal Assessment
12	Arrays and strings, Functions	CO-3,4	User defined string handling functions	Writing Programs	Day to Day Analysis and Lab Internal Assessment
13	Arrays and strings, Functions	CO-3,4	String palindrome and finding the index	Writing Programs	Day to Day Analysis and Lab Internal Assessment

14	Arrays and strings, Functions	CO-3,4	Inserting sub string into main string, deleting n characters from a given string, replacing a character in a string with desired character	Writing Programs	Day to Day Analysis and Lab Internal Assessment
15	Strings	CO-4	Finding 2's complement of binary number and converting roman numeral to its decimal equivalent	Writing Programs	Day to Day Analysis and Lab Internal Assessment
16	Structures	CO-4	Performing addition and multiplication of two complex numbers using structures	Writing Programs	Day to Day Analysis and Lab Internal Assessment
17	Files and I/O operations on Files	CO-5	Copying file contents from one file to another, to count the number of words, lines, tabs, spaces and tabs in a file	Writing Programs	Day to Day Analysis and Lab Internal Assessment
EXTERNAL PRACTICAL EXAMINATION					