MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

COURSE PLAN

Department	:	COMPUTER SCIENCE AND ENGINEERING
Course Name & code	:	PROBLEM SOLVING USING COMPUTERS & CSE 1051
Semester & branch	:	I & FIRST YEAR (COMMON TO ALL BRANCHES)
Name of the faculty	:	Ahamed Shafeeq B M

No of contact hours/week:

L	T	P	C
2	1	0	3

ASSESSMENT PLAN

Course Outcomes (COs)

	At the end of this course, the student should be able to:	No. of Contact Hours	Marks
CO1:	Explain basics of computing, use problem solving techniques to solve simple problems using C language.	5	14
CO2:	Use operators, decision making and looping constructs for solving complexed programs.	8	22
CO3:	Understand and use derived data structures like arrays and strings to solve higher level programs.	8	22
CO4:	Understand and implement use of modular programming to decompose a problem into functions and synthesize a complete program. Demonstrate use of recursive functions in problem solving.	7	20
CO5:	Describe and use the derived data types like structures and pointers. Understand the importance of cyber security	8	22
	Total	36	100

Components	Quizzes	Sessional Tests	End Semester/ Make-up Examination
Duration	20 to 30 minutes	60 minutes	180 minutes
Weightage	20 % (4 X 5 marks)	30 % (2 X 15 Marks)	50 % (1 X 50 Marks)
Typology of Questions	Understanding/ Comprehension; Application; Analysis; Synthesis; Evaluation	Knowledge/ Recall; Understanding/ Comprehension; Application	Understanding/ Comprehension; Application; Analysis; Synthesis; Evaluation
Pattern	Answer one randomly selected question from the problem sheet (Students can refer their class notes)	MCQ: 10 questions (0.5 marks) Short Answers: 5 questions (2 marks)	Answer all 5 full questions of 10 marks each. Each question may have 2 to 3 parts of 3/4/5/6/7 marks
Schedule	4, 7, 10, and 13th week of academic calendar	Calendared activity	Calendared activity
Topics Covered	Quiz 1 (L 1-9 & T 1-4) **(CO1&2)**	Test 1 (L 1-11 & T 1-5) **(CO1&2&3)**	Comprehensive examination covering full syllabus. Students are expected to answer all questions **(CO1-5)**
	Quiz 2 (L **10-15** & T 5-6) **(CO3)**		
	Quiz 3 (L 16-20 & T 7-8) **(CO4)**	Test 2 (L 12-23 & T 6-9) **(CO3&4&5)**	
	Quiz 4 (L 21-25 & T 9-11) **(CO5)**		

Course Plan

L. No./ T. No.	Topics	Course Outcome Addressed
L0	Introductory class(formal introduction of teacher, students and subject).	---
L1	Introduction, Computer Organization, early Operating System, Machine, Assembly and High Level language	C01
L2	History of C, Typical C program development environment	CO1
L3	Problem solving using computers. Idea of Algorithm: steps to solve logical and numerical problems, Representation of Algorithm. Flowchart/Pseudocode with examples	CO1
T1	Tutorial on algorithms and flowcharts	CO1
L4	General structure of C program, Simple C programs, Syntax and Logical Errors in compilation, object and executable code	CO1
L5	Variable names and declarations, Datatypes, sizes and constants.	CO2
L6	Arithmetic operators, relational and logical operators, increment and decrement operators and bitwise operators	CO2
T2	Tutorial on simple C programs and different operators	CO2
L7	Type conversion, assignment operators and expression, Conditional expressions, precedence and order of evaluation.	CO2

L8	Statements and blocks, if-else, else-if, Switch	CO2
T3	Tutorial on expression evaluation, if-else, else-if, Switch	CO2
L9	Loops-While, Do-While, For, Break and Continue statement	CO2
T4	Tutorial on Loops, Break and continue statement	CO2
L10	1-D arrays and strings	CO3
L11	Searching: Linear and binary searching. Comparison between search procedures	CO3
L12	Programs on strings and string handling functions	CO3
T5	Tutorial on 1D array and strings	CO3
L13	Sorting: Selection, bubble	CO3
L14	Comparison between sorting procedures. Sorting with strings	CO3
L15	Multidimensional arrays and matrices	CO3
T6	Tutorial on 2D arrays	CO3
L16	Pointer variables, Declaration and dereferencing pointer variables	CO4
L17	Programs on Pointers.	CO4
L18	Functions: The prototype declarations, Actual and formal parameters, function definition	CO4
T7	Passing arguments to a function using by value aand examples.	CO4
L19	Passing arguments to a function using by reference and examples.	CO4
L20	Tutorial on functions	CO4
T8	Functions with and without returns Scope of variables	CO4
L21	Recursive programming, as a different way of solving problems	CO5
L22	Tutorial on recursive functions	CO5
T9	Structures: Defining structures, example and simple prorams	CO5
L23	Array of Structures	CO5
T10	Tutorial on Structures	CO5
L24	Pointer arithmetic	CO5
T11	Tutorial on pointers	CO5
L25	Computer and cyber security	CO5

References:

1.	Dromey.R. G, How to solve it by computers, Pearson, 1982.
2.	Brian W. Kernighan and Dennis M. Ritchie, The C Programming language (2e), Pearson Education, 1988.
3.	Deital.P. J and Deitel.H.M, C: How to program (7e), Pearson Education, 2010
4.	Balagurusamy.E, Computing fundamentals and C programming (1e), McGraw-Hill, 2008.
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Submitted by: Ahamed Shafeeq B M

(Signature of the faculty)

Date: 01-09-2021

Approved by: DR ASHALATHA NAYAK

(Signature of HOD)

Date: 01-09-2021

FACULTY MEMBERS TEACHING THE COURSE (IF MULTIPLE SECTIONS EXIST):

FACULTY	SECTION	FACULTY	SECTION
Mr. Ahamed Shafeeq B.M.		Dr. Muralikrishna S.N.	
Mr. Rajesh G.		Mrs Rajashree Krishna	
Mr. Kishore B		Mrs. Aparna V	
Mrs.Archana Praveen Kumar		Ms. Suma Shettigar	
Mrs Tanuja Shailesh		Mr. Ramnath Shenoy	
Mr. Ashwath Rao B		Dr. Sandhyalaxmi G Navada	
