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

COURSE PLAN

Department	**Computer Science and Engineering**		
Course Name	Problem Solving Using Computers	Course Code	CSE 1051
Semester	I	Curriculum	2022
Name of the faculty	Dr. Kishore B.	Academic year	2022-23
No. of Contact Hours/Week	L T P C: 2 1 0 3		

COURSE OUTCOMES (CO'S)

At the end of this course, the student should be able to:		**No. of Hours**	**Marks**
CO1	Explain basics of computing, use problem solving techniques to solve simple problems using C language.	05	14
CO2	Use operators, decision making and looping constructs for solving complex programs.	08	22
CO3	Understand and use derived data structures like arrays and strings to solve higher level programs.	08	22
CO4	Understand and implement use of modular programming to decompose a problem into functions and synthesize a complete program.	07	20
CO5	Describe and use the derived data types like structures and pointers and understand the importance of cyber security.	08	22
Total hours/ Marks		**36**	**100**

ASSESSMENT PLAN

Components	**Quiz/Assignments**	**Sessional Tests**	**End Semester/Make - Up Examinations**
Duration	Quiz 1 & 2 [30 Mins each]	Sessional 1 & 2 [60 Mins each]	3 Hours
Weightage	20 % [10M+10M]	30% [15M+15M]	50% [50M]
Typology of Questions	Applying, Analysing and Evaluating	Understanding, Applying, Analysing and Evaluating	Understanding, Applying, Analysing and Evaluating
Pattern	Quizzes (MCQs and/or Fill in the blanks)	Short Answer Questions, Descriptive Questions and Design Questions	Descriptive Questions and Design Questions
Schedule	Quiz 1: ____ Week of the semester Quiz 2: ____ Week of the semester	__Week of the Semester	End of semester
Topics covered	Quiz 1: L_ to L_ Quiz 2: L_ to L_	Sessional 1: L_ to L_ & Sessional 2: L_ to L_	Exam: L1 to L36

LESSON PLAN

Lecture No.	Topic	CO's addressed
L0	Introductory class(Introduction between teacher & students. Over view of the subject).	-
L1	Introduction, Computer Organization, early Operating System, Machine, Assembly and High Level language	CO1
L2	History of C, Typical C program development environment	CO1
L3(T1)	Problem solving using computers. Idea of Algorithm: steps to solve logical and numerical problems, Representation of Algorithm. (Tutorial on algorithms)	CO1
L4	Flowchart / Pseudocode with examples	CO1
L5	General structure of a C program, Simple C programs, Syntax and Logical Errors in compilation, object and executable code	CO1
L6(T2)	Variable names and declarations, Datatypes, sizes and constants (Tutorial on basic C programs)	CO2
L7	Arithmetic operators, relational and logical operators, increment and decrement operators and bitwise operators	CO2
L8	Type conversion, assignment operators and expression, conditional expressions.	CO2
L9(T3)	Precedence and order of evaluation, (Tutorial on expressions and Order of Evaluation)	CO2
L10	Statements and blocks, if, if-else, else-if ladder and Switch statements	CO2
L11	Loops-While, Do-While, For	CO2
L12(T4)	Tutorial on Control statements	CO2
L13	Break and continue statements	CO2
L14	1-D arrays	CO3
L15(T5)	Programs on 1D arrays (Tutorial)	CO3
L16	Searching: Linear and binary searching. Comparison between search procedures	CO3
L17	Sorting: Selection sort, bubble sort, Comparison	CO3
L18(T6)	Strings, Programs on strings (Tutorial)	CO3
L19	String handling functions, Strings sorting	CO3
L20	Multidimensional arrays and matrices	CO3
L21(T7)	Tutorial on 2D arrays	CO3
L22	Pointer variables, Declaration and dereferencing pointer variables	CO5
L23	Programs on Pointers	CO5
L24(T8)	Functions: The prototype declarations, Actual and formal parameters, function definition (Tutorial)	CO4

L25	Functions with and without returns. Scope of variables	CO4
L26	Programs on functions	CO4
L27(T9)	Passing arguments to a function by value and by reference (Tutorial)	CO4
L28	Programs on Passing arguments to a function	CO4
L29	Recursive programming as a different way of solving problems	CO4
L30(T10)	Tutorial on recursive functions	CO4
L31	Structures: Defining structures, example and simple programs	CO5
L32	Array of Structures	CO5
L33(T11)	Tutorial on Structures	CO5
L34	Pointers: Pointer Arithmatic	CO5
L35	Pointer to structures, Programs on Pointers	CO5
L36(T12)	Computer and cyber security	CO5

References:

References	
1	Dromey.R. G, *How to solve it by computers*, Pearson Education, 2007.
2	Brian W. Kernighan and Dennis M. Ritchie, *The C Programming language (2e)*, Pearson India, 2015.
3	Deital. P and Deitel. H. M, *C: How to program (9e)*, Pearson, 2022.
4	Balagurusamy.E, *Computing fundamentals and C programming (2e)*, MC GRAW HILL INDIA, 2017.

Submitted by:
Dr. Kishore B.

(Signature of the faculty)

Date: 09/09/2022

Approved by:
(Signature of HOD)

Date: 09/09/2022

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

FACULTY NAME	SECTION	FACULTY NAME	SECTION
Mr. Ashwath Rao B.	CA	Ms. Aparna V	CJ
Mr. Ganesh Babu	CB	Dr. Aditya Bakshi	CK
Dr. Kishore B.	CC	Ms. Roopashri Shetty	CL
Mr. Giridhar N.S	CD	Dr. Neelima B	CM
Mr. Ramnath Shenoy	CE	Ms. Tanuja Shailesh	CN
Mr. Manoj R	CF	Mr. Ramnath Shenoy	CO
Ms. Archana Praveen Kumar	CG	Dr. Andrew J	CP
Mr. Rajesh G.	CH	Dr. Neelima B	CQ

COURSE PLAN – ADDITIONAL DETAILS

At the end of this course, the student should be able to:		No. of contact Hours	Marks	Program outcomes (PO's)	Learning outcomes (LO's)	PSO	BL
CO1	Explain basics of computing, use problem solving techniques to solve simple problems using C language.	05	14	1	2,5	-	1,2
CO2	Use operators, decision making and looping constructs for solving complex programs.	08	22	9	3	-	2,3
CO3	Understand and use derived data structures like arrays and strings to solve higher level programs.	08	22	11	5	3	2,3
CO4	Understand and implement use of modular programming to decompose a problem into functions and synthesize a complete program.	09	20	3,9	3,6,12	-	3,4
CO5	Describe and use the derived data types like structures and pointers and understand the importance of cyber security.	06	22	2,11	7,9	-	4,5
Total hours/ Marks		**36**	**100**				

Course Articulation Matrix

CO	PO1	PO2	PO3	PO5	PO6	PO8	PO9	PO10	PO12	PSO1
CSE 1051.1	3	3	2	2	1	2	1	1	3	1
CSE 1051.2	3	3	2	1	1	2	1	1	3	1
CSE 1051.3	3	3	2	1	1	2	1	1	3	1
CSE 1051.4	3	3	2	1	1	2	1	1	3	1
CSE 1051.5	3	3	2	1	1	3	1	1	3	1
Average Program Articulation Level	3	3	2	1.2	1	2.2	1	1	3	1

IET – Course Learning Outcomes (CLO's) mapping with AHEP LO's

Course Learning Outcome	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
CSE 1051.1	✓																	
CSE 1051.2			✓															
CSE 1051.3			✓															
CSE 1051.4			✓															
CSE 1051.5	✓						✓											

Abbreviations

1. **CO – Course outcome**
2. **PO – Program outcome**
3. **PSO – Program Specific outcome**
4. **LO – Learning outcome**
5. **CLO – Course Learning outcome**
6. **BL – Blooms Taxonomy**
7. **AHEP – The Accreditation of Higher Education Programmes**