

Lesson Plan

Name of the Subject: PROBLEM SOLVING AND COMPUTER PROGRAMMING

Class & Semester: I B.TECH (common to CSE, IT & CSSE)

S. No.	Topic	No. of periods required	Date(s) covered	No. of periods used	Book(s) followed	Remarks
Pre Requisites						
1.	Introduction to computer	1			T1,R2,web	
2.	Computing Environments	1			T1,R2,Web	
3.	Computer Languages	1			T1,web	
4.	Creating and Running programs	1			T1	
5.	Diagnostic Test	1				
Total no of periods required:		5	Total no of periods used:			
UNIT- I						
6.	Introduction to Problem Solving.	1			T2,R1,R2	
7.	Algorithm and flowchart	2			T2,R1	
8.	The problem solving aspect, top-down design	1			T2,R2,R1	
9.	Implementation of algorithms	1			T1,R1	
10.	Program verification and efficiency of algorithms	2			T1,R1	
11.	Introduction to the C Language	1			R1	
12.	C programs, identifiers, types, variables	2			T1,R1	
13.	Tutorial	1				
14.	Types of operators, constants, coding constants	2			T1,R1	
15.	Type casting and conversion, formatted input and output	2			T1	
16.	Structure of a C program	1			R2,T1,R1	
17.	Expressions, precedence and associativity	1			T1	
18.	Evaluation of expressions	1			T1	
19.	Mixed type expressions	1			T1	
20.	Tutorial	1				
Total no of periods required:		20	Total no of periods used:			
UNIT- II						
21.	Selection - Making Decisions	1			T1	
22.	Two way selection: if, if-else and nested if-else	1			T1	
23.	Multi-way selection: if, else-if ladder and switch statements	2			T1	
24.	Repetition: concept of loop, pre-test and post-test loops	2			T1,R1	

25.	Initialization and updating,	2			T1	
26.	Event and counter controlled loops	1			T1,R1	
27.	Loops in C, break, continue and goto statements	2			T1,R1	
28.	Tutorial	1				
29.	Fundamental Algorithms	1			T2,T1	
30.	Exchanging the values of two variables, counting,	1			T2,T1	
31.	Summation of a set of numbers,	1			T2,T1	
32.	Factorial computation,	1			T2,T1	
33.	Generation of the Fibonacci sequence,	1			T2,T1	
34.	Reversing the digits of an integer	1			T2,T1	
35.	Number base conversion, character to number conversion	1			T2,T1	
36.	The smallest divisor of an integer, greatest common divisor of two integers	1			T2,T1	
37.	Generating prime numbers	1			T2,T1	
38.	Tutorial	1				
39.	Formative Test and Remedial	2				
Total no of periods required:		23	Total no of periods used:			
UNIT- III						
40.	Arrays: Arrays in C	1			T1,R1	
41.	One, two and multidimensional arrays	1			T1	
42.	Linear search, binary search	2			T1	
43.	Bubble sort	1			T1	
44.	Selection sort and insertion sort	2			T1	
45.	Strings: Concepts, strings in C	2			R2,T1	
46.	String input/output functions	1			R2,T1	
47.	Array of strings and string manipulation functions.	2			T1	
48.	Tutorial	1				
49.	Functions: Designing structured programs	1			R1,R2	
50.	Functions in C, user- defined functions, types of functions,	2			R1	
51.	Recursion and factorial using recursion	1			R1	
52.	Standard library functions	1			R1	
53.	Scope, storage classes and pre-processor directives	1			R1	
54.	Tutorial	1				
Total no of periods required:		20	Total no of periods used:			
UNIT- IV						

55.	Derived Types: Type definition (typedef), enumerated types	1			T1,R1	
56.	Structure, accessing structures.	2			R1,T1	
57.	Complex Structures: Nested structures	1			R1,T1	
58.	Structures containing arrays, array of structures.	2			R1	
59.	Tutorial	1				
60.	Structures and Functions	2			,R2,R1,T1	
61.	Sending individual members, sending the whole structure	1			R1	
62.	Unions and bit fields.	1			R1	
63.	Pointers: Concepts, pointer variables	2			R1,T1	
64.	Accessing variables through pointers, pointer declaration and definition, initialization	1			R1	
65.	Pointer arithmetic, array of pointers	1			R1,T1	
66.	Pointers to arrays, pointers and functions	2			R1,T1	
67.	Tutorial	1				
68.	Call-by-value and call-by-reference, pointers to pointers	2			R1	
69.	Pointers to structures and memory allocation functions.	1			R1	
70.	Formative Test and Remedial	2				
Total no of periods required:		23	Total no of periods used:			
UNIT- V						
71.	Files: Introduction and classification of files	2			R1	
72.	Opening and closing of files	1			R1	
73.	Read and write operations	2			R1	
74.	Conversion of files	1			R1	
75.	Command line arguments	2			R1	
76.	Tutorial	1				
77.	Basic Data Structures: Overview of data structures	2			R1	
78.	Implementation of stack operations (push, pop)	2			R1	
79.	Implementation of linear queue operations (insertion, deletion) using arrays.	2			R1	
80.	Implementation of Circular queue operations (insertion, deletion) using arrays	2			R1	
Total no of periods required:		17	Total no of periods used:			
Topics Beyond Syllabus						
81.	Additional Sorting Techniques	1			T1,R1	

82.	Pragma Directives in C	1		T1,R1
	Total no of periods required:	2	Total no of periods used:	
	Grand total of periods required:	110	Grand total of periods used:	

Text Books:

T1: Behrouz A. Forouzan and Richard F. Gilberg, “A *Structured Programming Approach using C*,” Third Edition, Cengage Learning, NewDelhi, 2007

T2: R.G. Dromey, “*How to Solve it by Computer*,” First Edition, Pearson Education, NewDelhi, 1982

Reference Books:

R1: Pradip Dey and Manas Ghosh, “*Programming in C*,” Second Edition, Oxford University Press, NewDelhi, 2007

R2: Jeri R Hanly and Elliot B. Koffman, “*Problem Solving and Program design in C*,” Seventh Edition, Pearson Education, NewDelhi, 2014.

Signature of the faculty Member

Signature of the HOD