	ANNA UNIVERSITY **BHARATHIDASAN INSTITUTE OF TECHNOLOGY** **TIRUCHIRAPPALLI – 620 024.** **DEPARTMENT OF INFORMATION TECHNOLOGY**	**Year: Dec'18 – April'19** **Semester: EVEN**

LESSON PLAN

Course Details

Name of the Programme	B. Tech IT	Batch	2018-2022
Semester & Year	II & I	No. of Students	54
Subject Code & Name	CS8251 - PROGRAMMING IN C		

UNIT I
BASICS OF C PROGRAMMING

Introduction to programming paradigms - Structure of C program - C programming: Data Types – Storage classes - Constants – Enumeration Constants - Keywords – Operators: Precedence and Associativity - Expressions - Input/Output statements, Assignment statements – Decision making statements - Switch statement - Looping statements – Pre-processor directives - Compilation process

Objective: To develop C Programs using basic programming constructs

Session No	Topics to be covered	Text/Ref& Page No.	Teaching Method
1	Introduction to programming paradigms - Structure of C program	T1(1-15)	BB/LCD
2	C programming: Data Types	T1(19-24) T1(117-120)	BB/LCD
3	Storage classes – Constants		BB/LCD
4	Enumeration Constants – Keywords		BB/LCD
5	Operators: Precedence and Associativity	T1(32-45)	BB/LCD
6	Expressions - Input/Output statements, Assignment statements	T1(24-31)	BB/LCD
7	Decision making statements - Switch statement	T1(57-68)	BB/LCD
8	Looping statements	T1(69-89)	BB/LCD
9	Pre-processor directives - Compilation proce	T1(325-336) T1(16-18)	BB/LCD
Content beyond syllabus covered (if any):			
Course Outcome 1: Upon completion of the course, the students will be able to develop simple applications in C using basic constructs			

UNIT II
ARRAYS AND STRINGS

Introduction to Arrays: Declaration, Initialization – One dimensional array – Example Program: Computing Mean, Median and Mode - Two dimensional arrays – Example Program: Matrix Operations (Addition, Scaling, Determinant and Transpose) - String operations: length, compare, concatenate, copy – Selection sort, linear and binary search.

Objective: To develop C programs using arrays and strings

Session No	Topics to be covered	Text/Ref& Page No.	Teaching Method
1	Introduction to Arrays: Declaration, Initialization	T1(134-153)	BB/LCD
2	One dimensional array		BB/LCD
3	Example Program: Computing Mean, Median and Mode		BB/LCD
4	Two dimensional arrays	T1(156-163)	BB/LCD
5	Example Program: Matrix Operations (Addition, Scaling)		BB/LCD
6	Example Program: (Determinant and Transpose)		BB/LCD
7	String operations: length, compare, concatenate, copy	T1(186-196)	BB/LCD
8	Selection sort		BB/LCD
9	linear and binary search		BB/LCD
Content beyond syllabus covered (if any):			
Course Outcome 1: Upon completion of the course, the students will be able to design and implement applications using arrays and strings			

UNIT III
FUNCTIONS AND POINTERS

Introduction to functions: Function prototype, function definition, function call, Built-in functions (string functions, math functions) – Recursion – Example Program: Computation of Sine series, Scientific calculator using built-in functions, Binary Search using recursive functions – Pointers – Pointer operators – Pointer arithmetic – Arrays and pointers – Array of pointers – Example Program: Sorting of names – Parameter passing: Pass by value, Pass by

reference – Example Program: Swapping of two numbers and changing the value of a variable using pass by reference.

Objective: To develop applications in C using functions, pointers

Session No	Topics to be covered	Text/Ref& Page No.	Teaching Method
1	Introduction to functions: Function prototype, function definition, function call	T1(101-110)	BB/LCD
2	Built-in functions (string functions, math functions)		BB/LCD
3	Recursion – Example Program: Computation of Sine series	T1(19-24) T1(117-120)	BB/LCD
4	Scientific calculator using built-in functions		BB/LCD
5	Binary Search using recursive functions		BB/LCD
6	Pointers – Pointer operators – Pointer arithmetic	T1(214-221)	BB/LCD
7	Arrays and pointers – Array of pointers	T1(223-227) T1(232-234)	BB/LCD
8	Example Program: Sorting of names –Parameter passing: Pass by value, Pass by reference	T1(111-114)	BB/LCD
9	Example Program: Swapping of two numbers and changing the value of a variable using pass by reference		BB/LCD
Content beyond syllabus covered (if any):			
Course Outcome 1: Upon completion of the course, the students will be able to develop and implement applications in C using functions and pointers.			

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Objective: To develop applications in C using functions, pointers

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1	Introduction to functions: Function prototype, function definition, function call	T1(101-110)	BB/LCD
2	Built-in functions (string functions, math functions)		BB/LCD
3	Recursion – Example Program: Computation of Sine series	T1(19-24) T1(117-120)	BB/LCD
4	Scientific calculator using built-in functions		BB/LCD
5	Binary Search using recursive functions		BB/LCD
6	Pointers – Pointer operators – Pointer arithmetic	T1(214-221)	BB/LCD
7	Arrays and pointers – Array of pointers	T1(223-227) T1(232-234)	BB/LCD
8	Example Program: Sorting of names –Parameter passing: Pass by value, Pass by reference	T1(111-114)	BB/LCD
9	Example Program: Swapping of two numbers and changing the value of a variable using pass by reference		BB/LCD
Content beyond syllabus covered (if any):			
Course Outcome 1: Upon completion of the course, the students will be able to develop and implement applications in C using functions and pointers.			

UNIT IV
STRUCTURES

Structure - Nested structures – Pointer and Structures – Array of structures – Example Program using structures and pointers – Self referential structures – Dynamic memory allocation - Singly linked list - typedef.

Objective: To develop applications in C using structure

Session	Topics to be covered	Text/Ref&	Teaching Method

No		Page No.	
1	Structure	T1(259-264)	BB/LCD
2	Nested structures	T1(265-266)	BB/LCD
3	Pointer and Structures	T1(268-275)	BB/LCD
4	Array of structures	T1(266-272)	BB/LCD
5	Example Program using structures and pointers		BB/LCD
6	Self-referential structures	T1(276)	BB/LCD
7	Dynamic memory allocation	T1(240-244)	BB/LCD
8	Singly linked list -	T1(348,281	BB/LCD
9	typedef		BB/LCD
Content beyond syllabus covered (if any):			
Course Outcome 1: Upon completion of the course, the students will be able to develop applications in C using structures.			

UNIT V
FILE PROCESSING

Files – Types of file processing: Sequential access, Random access – Sequential access file - Example Program: Finding average of numbers stored in sequential access file - Random access file - Example Program: Transaction processing using random access files – Command line arguments

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Objective: To do input/output and file handling in C

Session No	Topics to be covered	Text/Ref& Page No.	Teaching Method
1	Files	T1(290-294)	BB/LCD
2	Types of file processing: Sequential access,	T1(294-300)	BB/LCD
3	Random access		BB/LCD

4	Sequential access file		BB/LCD
5	Example Program: Finding average of numbers stored in sequential access file -	T1(316-320)	BB/LCD
6	Random access file		BB/LCD
7	Example Program: Transaction processing using random access files	T1(302-316	BB/LCD
8			BB/LCD
9	Command line arguments		BB/LCD
Content beyond syllabus covered (if any):			
Course Outcome 1: Upon completion of the course, the students will be able to Design applications using sequential and random access file processing.			

TEXT BOOKS:
1. Reema Thareja, ―Programming in C‖, Oxford University Press, Second Edition, 2016.
2. Kernighan, B.W and Ritchie,D.M, ―The C Programming language‖, Second Edition, Pearson Education, 2006

REFERENCES:
1. Paul Deitel and Harvey Deitel, ―C How to Program‖, Seventh edition, Pearson Publication
2. Juneja, B. L and Anita Seth, ―Programming in C‖, CENGAGE Learning India pvt. Ltd., 2011
3. Pradip Dey, Manas Ghosh, ―Fundamentals of Computing and Programming in C‖, First Edition, Oxford University Press, 2009.
4. Anita Goel and Ajay Mittal, ―Computer Fundamentals and Programming in C‖, Dorling Kindersley (India) Pvt. Ltd., Pearson Education in South Asia, 2011.
5. Byron S. Gottfried, "Schaum's Outline of Theory and Problems of Programming with C", McGraw-Hill Education, 1996.

	Prepared by	**Approved by**
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