



(Shri Ramkrishna Seva Mandal's)
ANAND COMMERCE COLLEGE

An Autonomous College (2025-26 to 2034-35)
(Affiliated to Sardar Patel University)
NAAC ACCREDITED "A" GRADE (3.04 CGPA)
ISO 9001:2015



Syllabus As Per Nep 2020 With Effect from the Academic Year 2025-2026

**Bachelor of Computer Applications
BCA Semester – II**

Course Code	UCA02MABCA01	Title of the Course	Problem Solving Techniques-II
Total Credits of the Course	4	Hours per Week	4

Course Objectives	<ol style="list-style-type: none">1. To understand the need, structure, and usage of user-defined functions, including recursion and parameter passing.2. To develop proficiency in using pointers for memory access, pointer arithmetic, and advanced pointer applications with functions and arrays.3. To work with structures, unions, and command-line arguments for handling complex data in C programs.4. To implement dynamic memory allocation, file handling operations, and explore basic computer graphics using C.
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Course Content		
Unit	Description	Weightage* (%)
1.	User-Defined Functions Introduction and need of user defined Functions, Components of user defined functions, Categories of Unfeathers of passing parameters to functions, Recursion	20% 12 Hr.
2.	Usage of Pointers Introduction, usage and understanding of pointers, Declaration and initialization of pointer variables, accessing variables through Pointers, Chain of Pointers (Pointer to Pointer), Pointer arithmetic expression, Pointers and arrays, Pointers and Character String, Array of Pointer, Pointers as function arguments, Functions that return Multiple Values	20% 12 Hr.
3.	Structures, Unions and Command Line Arguments Introduction to structures, Defining, Declaring, Accessing Structure Variable, Structure Initialization, Array of Structure, Array within	20% 12 Hr.

	structures, Structures within structures, Structures and functions, Pointer and structure, Unions Dynamic Memory Allocation Functions – malloc() – calloc()– realloc() – free()	
4.	Usage of File Handling Introduction to File Handling, Basic File Operations, Defining, Opening, Closing a File, File Access Modes, Input Output Operations on files (getc, putc, getw, putw, fprintf, fscanf), EOF-End of File, Error Handling during I/O operations, Random Access to files(ftell() and fseek() and rewind ())	20% 12 Hr.
5.	Graphics In C What Is Computer Graphics, Real Life Application (Games,GUIs, Data Visualization), Graphics.h, Drawing Shapes, Setcolor(), Setbkcolor()	20% 12 Hr.

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classrooms teaching as well as usage of ICT tools.
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Course Outcomes: Having completed this course, the learner will be able to	
CO1	To understand the need for and structure of user-defined functions in C.
CO2	To apply pointers for efficient memory and data manipulation.
CO3	To use structures unions and dynamic memory allocation to manage complex data types.
CO4	To implement file handling operations.
CO5	To explore basic graphics programming using graphics in C.

Suggested References	
Sr.No.	References
1.	E. Balagurusami: Programming in ANSI C., Eighth Edition, Tata McGraw Hill Publication, 2019.
2.	Kernighan B., Ritchie D.: The C Programming Language, Prentice Hall, 1988
3..	Cooper H. & Mullish H: The spirit of C, Jaico Publication House, New Delhi, 1988.
4.	The C Programming Language – Brian W. Kernighan & Dennis M. Ritchie, 2nd Edition
5.	Yashavant Kanetkar: "Let Us C"
Digital resources to be used if available as reference material	
Digital Resources	
https://www.w3schools.com/c/c_intro.php	
https://www.geeksforgeeks.org/c/c-language-introduction/	



Chairman
BOS of Computer Science
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Academic Coordinator
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Principal
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