PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

23BCMAL122: Programming in C

Offered to : B. C. A Honours **Semester: II**
Year of Introduction: 2023 – 2024 **Year of Offering: 2023 – 2024**
Course Type: Theory-Major 4 **60 Hrs** **Credits: 3**

Course Objective:

This course aims to provide exposure to problem-solving through programming and introduce the concepts of the C Programming language.

Course Outcomes (based on BTL):

Course Outcome No.	Outcome	Mapping to
CO1	Understand Tokens and write basic C programs.	PO5
CO2	Understand control structures in C	PO5
CO3	Understand arrays and strings and implement them	PO5
CO4	Understand the right way of using functions, pointers, and structures in C	PO5
CO5	Develop and test programs written in C files	PO5, PO6

Mapping of Course Outcomes (COs) with Programme Outcomes (POs) & PSOs

	CO-PO MATRIX							
	CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
23BCMAL122	CO1					H		
	CO2					H		
	CO3					H		
	CO4					H		

	CO5					H		M

Syllabus Content

UNIT - I: 14 Hrs

Introduction to Algorithms and Programming Languages: Algorithm - Key features of Algorithms - examples of Algorithms, Flow Charts– Pseudo code, Programming Languages – Generation of Programming Languages – Structured Programming Language.

Introduction to C: Introduction – Structure of C Program, Writing the first C Program, File used in C Program – Compiling and Executing C Programs, Using Comments – Keywords – Identifiers, Basic Data Types in C, Variables – Constants, I/O Statements in C, Operators in C, Programming Examples, Type Conversion and Type Casting.

UNIT - II: 14 Hrs

Control Structures and Functions: Decision Control and Looping Statements: Introduction to Decision Control Statements, Conditional Branching Statements, Iterative Statements, Nested Loops, Break and Continue Statement – Go to Statement. Functions: Introduction, Using functions – Function declaration/ prototype – Function definition, Function call – Return statement – Passing parameters, Scope of variables, Storage Classes, Recursive functions.

UNIT - III: 14 Hrs

Arrays: Introduction, Declaration of Arrays, accessing elements of the Array – Storing Values in Array, Calculating the length of the Array, Operations that can be performed on Array, Passing one dimensional array to function. Two dimensional Arrays, accessing two dimensional arrays, Passing two dimensional arrays to functions. Strings: Introduction, String Operations using String functions.

UNIT - IV: 12 Hrs

Pointers, Structures and Unions: Pointers: Understanding Computer Memory – Introduction to Pointers, Declaring Pointer Variable, Pointer Expressions and Pointer Arithmetic – Null Pointers, Passing Arguments to Functions using Pointer, Pointer and Arrays – Passing Array to Function, Memory Allocation in C Programs, Memory Usage – Dynamic Memory Allocation, Drawbacks of Pointers. Structures: Introduction to structures, Nested Structures. Union, and Enumerated Data Types: Introduction to Union – accessing union elements, Enumerated Data Types.

UNIT – V: 6 Hrs

File Handling: Files: Introduction to Files, Using Files in C, Reading Data from Files, Writing Data from Files, Detecting the End-of-file, Error Handling during File Operations.

Textbooks:

1.Computer Fundamentals and Programming in C by REEMA THAREJA from OXFORD UNIVERSITY PRESS

Reference Books:

1. E Balagurusamy, COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.

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MODEL QUESTION PAPER FOR SEM END EXAMINATION 2023-24
23BCMAL122: Programming in C

Offered to: B. C. A Honours **Semester: II**
Max Marks: 70M **TIME: 3 Hrs**

NOTE TO PAPER SETTER: IN SECTION A & SECTION B, FOR EACH QUESTION ONE SUB QUESTION (A) MUST BE A PROGRAM MEANT FOR LOGICAL TESTING AND ANOTHER SUB QUESTION (B) IS MEANT FOR DESCRIPTIVE / LOGICAL.

Section A

Answer all Questions **5 x 4=20M**

1. (A) Explain Structure of C. (CO1,L1)

   OR

   (B) Describe Keywords (CO1,L1)
2. (A) Write about break and continue statements (CO2,L1)

   OR

   (B) Write a c program to print 1 to 10 natural numbers. (CO2, L1)
3. (A) Summarize a one dimensional array with suitable examples. (CO3, L2)

   OR

   (B). Define a string with example program.(CO3, L1)
4. (A) What is scope of variables in functions. (CO4, L1)

   OR

   (B)Define a function and how to declare a function in c . (CO4, L1)
5. (A) Write about Reading data from files. (CO5, L1)

   OR

   (B) How to declare a pointer variable in c. (CO5, L1)

Section B

Answer all Questions **5 x 10=50M**

6. (A) Explain Datatypes in c with example. (CO1,L1)

OR

(B) Explain about Input and Output statements in C. (CO1, L1)

7. (A) Summarize Looping statements in c with example.(CO2, L2)

OR

(B)Summarize iterative statements in c with example. (CO2, L2)

8. (A) Write a program for multiplication of 2 3x3 matrices. (CO3, L1)

OR

(B) Write a program by using string handling functions. (CO3, L1)

9. (A) Explain Storage Classes in c . (CO4, L2)

OR

(B) Explain ‘array of structures’. (CO4, L2)

10 (A) Explain Dynamic memory allocation. (CO5, L2)

OR

(B) How to pass arguments to functions using pointers with example programs. (CO5, L2)

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