

**DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS  
KURUKSHETRA UNIVERSITY, KURUKSHETRA**

<b>Session: 2023-24</b>			
<b>Part A - Introduction</b>			
Subject	COMPUTER SCIENCE/ COMPUTER APPLICATIONS		
Semester	III		
Name of the Course	Programming with C		
Course Code	B23-CSE-303		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/ VAC)	MDC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	<p>After completing this course, the learner will be able to:</p> <ol style="list-style-type: none"> <li>1. understand the concepts of problem solving on computer</li> <li>2. understand the basics of C programming along with various I/O functions</li> <li>3. understand various operators and branching statements in C</li> <li>4. understand loops, functions and arrays in C</li> </ol> <hr/> <p>5*. to design programs based on theoretical concepts of C.</p>		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
<b>Max. Marks:75(50(T)+25(P))</b>		<b>Time: 3 Hrs.(T), 3Hrs.(P)</b>	
<b>Internal Assessment Marks:20(15(T)+5(P))</b>			
<b>End Term Exam Marks: 55(35(T)+20(P))</b>			
<b>Part B- Contents of the Course</b>			
<b><u>Instructions for Paper- Setter</u></b>			
Unit	Topics		Contact Hours
I	Overview of C: History, Importance, Structure of C Program, Character Set, Constants and Variables, Identifiers and Keywords, Data Types, Assignment Statement, Symbolic Constant.		6

	Input/output: Unformatted & Formatted I/O Function, Input Functions viz. scanf(), getch(), getche(), getchar(), gets(), output functions viz. printf(), putchar(), puts().	
II	Operators & Expression: Arithmetic, Relational, Logical, Bitwise, Unary, Assignment, Conditional Operators and Special Operators Operator Hierarchy & Associativity. Arithmetic Expressions, Evaluation of Arithmetic Expression, Type Casting and Conversion.	6
III	Decision making with if statement, if-else statement, nested if statement, else-if ladder, switch and break statement, goto statement Looping: for, while, and do-while loop, jumps in loops.	6
IV	Functions: definition, prototype, function call, passing arguments to a function: call by value, call by reference, recursive functions. Arrays: Definition, types, Initialization, multidimensional arrays, Processing on Arrays.	6
V*	The following activities be carried out/ discussed in the lab during the initial period of the semester. Programming Lab: <ul style="list-style-type: none"> <li>• Write a C Program to read radius and find area and volume of a sphere</li> <li>• Write a C Program to read three numbers and find the biggest of three</li> <li>• Write a C Program to demonstrate library functions in math.h (at least 5)</li> <li>• Write a C Program to read a number, find the sum of the digits, reverse the number and check it for palindrome</li> <li>• Write a C Program to read numbers from keyboard continuously till the user presses 999 and to find the sum of only positive numbers</li> <li>• Write a C Program to read percentage of marks and to display appropriate grade (using switch case)</li> <li>• Write a C Program to find the roots of quadratic equation (if else ladder)</li> <li>• Write a C program to read marks scored in 3 subjects by n students and find the average of marks and result (Demonstration of single dimensional array)</li> <li>• Write a C Program to remove Duplicate Element in a single dimensional Array</li> <li>• Program to perform addition and subtraction of Matrices</li> <li>• Write a C Program to generate n prime number by defining isprime () function</li> <li>• Write a C Program to find the trace of a square matrix using function</li> <li>• Write a C Program to read, display and multiply two matrices using functions</li> </ul>	25

<b>Suggested Evaluation Methods</b>	
<p><b>Internal Assessment:</b></p> <p>➤ <b>Theory</b></p> <ul style="list-style-type: none"> <li>• Class Participation: 4</li> <li>• Seminar/presentation/assignment/quiz/class test etc.:4</li> <li>• Mid-Term Exam: 7</li> </ul> <p>➤ <b>Practicum</b></p> <ul style="list-style-type: none"> <li>• Class Participation: 2</li> <li>• Seminar/Demonstration/Viva-voce/Lab records etc.:3</li> <li>• Mid-Term Exam: NA</li> </ul>	<p><b>End Term Examination:</b></p> <p><b>A three hour exam for both theory and practicum.</b></p>
<b>Part C-Learning Resources</b>	
<p><b>Recommended Books/e-resources/LMS:</b></p> <ul style="list-style-type: none"> <li>• Gottfried, Byron S., Programming with C, Tata McGraw Hill.</li> <li>• Balagurusamy, E., Programming in ANSI C, Tata McGraw-Hill.</li> <li>• Jeri R. Hanly &amp; Elliot P. Koffman, Problem Solving and Program Design in C, Addison Wesley.</li> <li>• Yashwant Kanetker, Let us C, BPB.</li> <li>• Rajaraman, V., Computer Programming in C, PHI.</li> <li>• Yashwant Kanetker, Working with C, BPB</li> </ul>	

\*Applicable for courses having practical component.