DEPARTMENT OF INFORMATION TECHNOLOGY				*CLASS: I B.Sc. Information Technology*				
Sem.	**Course Type**	**Course Code**	**Course Title**	**Credits**	**Contact Hours/week**	**CIA**	**Ext**	**Total**
I	Major Core-1	20U1FMC1	C Programming	2	3	25	75	100

Course Objectives:

1. To acquire knowledge on the basis of C programming and train them to develop user friendly application code using C.
2. To familiarize the concept of Decision making and looping.
3. To understand the concepts of Arrays its declaration and uses.
4. Be familiar with programming environment with C programming structure.
5. To learn the concept of file structure and pointers used in code development.

Unit-I: Overview of C History of C – Basic Structure of C Programs – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Operators and Expressions: Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions.

Unit-II: Managing I/O Operations Reading and Writing a Character – Formatted Input, Output – Decision Making & Branching: if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – the while statement – do statement – the for statement.

Unit-III: Arrays

One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays. Strings: Declaration, Initialization of string variables – reading and writing strings – string handling functions.

Unit-IV: User-defined functions and Structures Elements of user defined functions – function calls– all types of arguments and return values – nesting of functions – scope visibility and life time of variables. Structures and Unions: Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – unions.

Unit-V: Pointers and Files Accessing the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – pointers as function arguments – pointers and structures. Files: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Books for Study

1. E.Balagurusamy, Programming in ANSI C, 7th Edition,2007, Tata McGraw Hill Publishers.

   Chapters:

   Unit I: 1, 2, 3.

   Unit II: 4, 5, 6.

   Unit III: 7, 8.

   Unit IV: 9, 10.

   Unit V: 11, 12.

Books for Reference

1. Gottfried , Programming with C, Schaum's Outline Series, , 2006,Tata McGraw Hill.
2. Ashok N.Kamthane , Programming with ANSI and Turbo C , 2006, Pearson Education.
3. Kanetkar Y., Let us C, 1999, BPB Pub., New Delhi.

Web Resources

1. https://www.tutorialspoint.com/cprogramming/
2. https://www.programiz.com/c-programming/
3. https://www.geeksforgeeks.org/c-language-set-1-introduction/

Pedagogy

Chalk and talk, Materials, PPT, Assignment, Seminar, Problem solving, Group discussion, Interaction and Demonstration.

Course Learning Outcomes:

On the completion of the course the student will be able to

CLO No.	Course Learning Outcomes	K – Level
CLO1	Demonstrate the types of variables ,Constants, data types, operators, Expressions	Up To K2
CLO2	Examine the concept of Looping and Conditional statements for developing the code.	Up To K4
CLO3	Implement the various types of Arrays and operations related with strings	Up To K3
CLO4	Develop the code for various types of user defined functions and the scope of visibility lifetime variables and apply Structures and Unions for complicated problems	Up To K3
CLO5	Describe about the Pointers and the impact of address of pointers used in code development, Explain the usage of File concepts in C coding	Up To K4

Mapping of CLOs with POs:

CLOs/POs	PO1	PO2	PO3	PO4	PO5
CLO1	3	2	1	1	3
CLO2	3	3	N/A	N/A	3
CLO3	3	2	N/A	N/A	3
CLO4	2	2	N/A	N/A	2
CLO5	2	2	N/A	N/A	2

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

Mapping of CLOs with PSO:

CLOs / PSOs	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CLO1	3	1	2	1	2	2
CLO2	3	1	3	1	3	2
CLO3	2	3	3	N/A	1	2
CLO4	3	2	3	N/A	1	2
CLO5	2	3	3	N/A	3	1

3- Advanced Application; 2- Intermediate Level; 1- Basic Level; N/A- Not Applicable

Learning Outcome Based Education & Assessment (LOBE)
Blue Print for Summative Examination - C Programming
Articulation Mapping – K Levels with Course Learning Outcomes (CLOs)

S.NO	CLOs	K- Level	Section A		Section B		Section C (Either/or Choice)	Section D (Open Choice)
			MCQs		Short Answers			
			No Of Questions	K - Level	No Of Questions	K – Level		
1	CLO1	Up to K2	2	K1 & K2	1	K1	2(K1&K1)	1(K2)
2	CLO2	Up to K4	2	K1 & K2	1	K1	2(K3&K3)	1(K4)
3	CLO3	Up to K3	2	K1 & K2	1	K2	2(K2&K2)	1(K3)
4	CLO4	Up to K3	2	K1 & K2	1	K2	2(K3&K3)	1(K3)
5	CLO5	Up to K4	2	K1 & K2	1	K2	2(K4&K4)	1(K4)
No. of Questions to be asked			10		5		10	5
No. of Questions to be answered			10		5		5	3
Marks for each question			1		2		5	10
Total Marks for each section			10		10		25	30

K1 – Remembering and recalling facts with specific answers
K2 – Basic understanding of facts and stating main ideas with general answers
K3 – Application oriented – Solving Problems
K4 – Examining, analyzing, presentation and make inferences with evidences

Distribution of Section – wise Marks with K Levels *

K Level	Section A (No Choice)	Section B (No choice)	Section C (Either/or)	Section D (Open choice)	Total Marks	% of Marks without choice	Consolidated
K1	5	4	10	-	19	15.83	42%
K2	5	6	10	10	31	25.83	
K3	-	-	20	20	40	33.33	33%
K4	-	-	10	20	30	25	25%
Total Marks	10	10	50	50	120	100	100%

Lesson Plan:

Units	Topics to be Covered	Hours	Mode
I	History of C – Basic Structure of C Programs – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables.	3	Lecture
	Operators and Expressions: Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators.	4	Lecture & GD
	Arithmetic Expressions- Evaluation of Expressions.	2	Lecture & GD
II	Reading and Writing a Character – Formatted Input, Output.	3	Lecture
	Decision Making & Branching: if statement - if else statement - nesting of if else statements - else if ladder.	3	Lecture
	switch statement – the ?: operator – the while statement – do statement – the for statement – go to statement.	3	Lecture
III	One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays.	5	Lecture
	Strings: Declaration, Initialization of string variables – reading and writing strings – string handling functions.	4	Lecture
IV	Elements of user defined functions – function calls– all types of arguments and return values – nesting of functions – scope visibility and life time of variables.	4	Lecture
	Structures and Unions: Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – unions.	5	Lecture
V	Accessing the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – pointers as function arguments – pointers and structures.	5	Lecture
	Files: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.	4	Lecture, Assignment

Name of the Course Designers:

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