

**Course: Bachelor of Computer Application (BCA)
(As per GU-FYUGP)**

Paper code:

Paper name: Introduction to C-Programming

Course Instructor: Masud Alam Rofi

Paper Credit: 3+1 (T+P)

Period: August'23 – December'23

Total number of classes required as per syllabus = 60 (T + P)

Theory (T) - 45 Hours

Practical (P) – 15 Hours

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Unit 1: Getting started with C programming			(10 Lectures)
1	Introduction to programming languages- High-level vs low level languages, compiled vs interpreted languages. Structure of a C program.	Classroom Teaching + ICT Tools	Quiz, Class Test and Sessional Examination (Syllabus for Sessional Exam-1)
2 and 3	Introduction to Header files. Main function and a simple program execution. Compiling and executing a program.	Classroom Teaching + ICT Tools	
4 and 5	C tokens - keywords, identifiers, constants, operators. Statements and expressions in C.	Classroom Teaching + ICT Tools	
6 and 7	Basic data types in C - integers, floats, doubles, characters. Void. Size and range of values of data types. Variables. Constants - integer constant, real constant, character constant, string constant	Classroom Teaching + ICT Tools	
8	Declaration and initialization of variables and constants. Assigning values to variables. Operators in C - binary and unary operators. Arithmetic, assignment, logical, comparison, bitwise and conditional operators	Classroom Teaching + ICT Tools	
9	Order of precedence of operators. Associativity of operators, Typecasting	Classroom Teaching + ICT Tools	
10	Input and output statements - getchar(), getc(), getch(), putchar(), putc(), puts(), scanf(), printf(), format specifiers	Classroom Teaching + ICT Tools	

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Unit 2: Control Structures in C		(9 Lectures)	
11	Control Structures in C. Basic programming constructs- Sequence, selection and iteration. Conditional statements - if, else	Classroom Teaching + ICT Tools + Lab Demonstration.	Quiz, Class Test and Sessional Examination (Syllabus for Sessional Exam-1)
12 and 13	If-else ladder, switch case. Nested conditions	Classroom Teaching + ICT Tools + Lab Demonstration.	
14,15 and 15	Loops - for loop, while loop, do- while loop.	Classroom Teaching + ICT Tools + Lab Demonstration.	
16 and 17	Using loops for counting iterations - Different problems solving as example.	Classroom Teaching + ICT Tools + Lab Demonstration.	
18	Nested loops. Break and continue statements.	Classroom Teaching + ICT Tools	
19	Revision.	Classroom Teaching + ICT Tools	

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Unit 3: Arrays and Strings		(8 Lectures)	
20	Introduction to Arrays. Declaration and initialization of arrays.	Classroom Teaching + ICT Tools + Lab Demonstration.	Quiz, Class Test and Sessional Examination (Syllabus for Sessional Exam-1)
21 and 22	Accessing array elements. Writing program to declare, initialize and access 1D arrays.	Classroom Teaching + ICT Tools + Lab Demonstration.	
23	Multidimensional arrays. Writing program to declare, initialize and access n-D arrays.	Classroom Teaching + ICT Tools + Lab Demonstration.	
24 and 25	Introduction to Strings. Declaration and initialization of strings. String input and output in C	Classroom Teaching + ICT Tools + Lab Demonstration.	
26	String Manipulation using library Functions/without library functions.	Classroom Teaching + ICT Tools	
27	Problem solving using arrays- 1D,2D and strings	Classroom Teaching + ICT Tools	

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Unit 4: Functions and Pointers		(9 Lectures)	
28 And 29	Introduction to Pointers. Pointer declaration and initialization. Pointers and addresses.	Classroom Teaching + ICT Tools + Lab Demonstration.	Quiz, Class Test and Sessional Examination (Syllabus for Sessional Exam-1)
30	Pointers(arithmetic) and Arrays(Address Translition).	Classroom Teaching + ICT Tools + Lab Demonstration.	
31	Basic concept of dynamic memory allocation, reallocation, deallocation-stdlib.h - malloc(), calloc(), realloc(), free().	Classroom Teaching + ICT Tools + Lab Demonstration.	
32 and 33	Introduction to functions. Function declaration and definition. Return types of function. Function arguments. Function calling	Classroom Teaching + ICT Tools + Lab Demonstration.	
34	call by value vs call by reference. Passing an array as argument to a function.	Classroom Teaching + ICT Tools + Lab Demonstration.	
35	Basic concept of recursion. Revision	Classroom Teaching + ICT Tools + Lab Demonstration.	
36	Problem solving	ICT Tools + Lab Demonstration.	

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Unit 5: Introduction to Structures and Unions			(4 Lectures)
37	Basic concept of Structures and Unions in C. Structure declaration and initialization.	Classroom Teaching + ICT Tools + Lab Demonstration.	Quiz, Class Test and Sessional-2 Examination 1.Surprise Test-I,II,III 2.Class Test I, II, III 3.Practical Assignments
38	Union declaration and initialization.	Classroom Teaching + ICT Tools + Lab Demonstration.	
39	Difference between structures and unions.	Classroom Teaching + ICT Tools + Lab Demonstration.	
40	Revision and Problem solving	ICT Tools + Lab Demonstration.	

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Unit 6: File Processing in C		(5 Lectures)	
41	Basic concept of file handling. Opening and closing file using fopen() and fclose()	Classroom Teaching + ICT Tools + Lab Demonstration.	Quiz, Class Test and Sessional-2 Examination 1.Surprise Test-I,II,III 2.Class Test I, II, III 3.Practical Assignments
42	Binary vs text files.	Classroom Teaching + ICT Tools + Lab Demonstration.	
43 And 44	Reading and writing files - fgets(), fscanf(), fprintf(). Random access to files.	Classroom Teaching + ICT Tools + Lab Demonstration.	
45	Revision and Problem solving	ICT Tools + Lab Demonstration.	

Lecture No (s) .	Topics	Mode of Teaching	Assessment Method
Laboratory Sessions:		(15 Lectures - 30 Hours)	
1 to 15	1. Assignments from list. 2. Other basic to advanced problem solving (Extended). 3. Special lab sessions for both advance and slow learners. 4. Laboratory copy verification.	ICT Tools + Lab Demonstration.	Hands on problem solving.

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Date: 01/08/2023



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