



ARSD College, University of Delhi

Course Name: Multi-Disciplinary courses of study with two core disciplines (Computer Science)						
Semester	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credit (C)
I	DSC 01	Programming fundamentals using C++	3		1	4
Teacher/Instructor(s)		Veer Sain Dixit				
Session		2022-23				

Course Objective: This course is designed to introduce programming concepts using C++ to students. The course aims to develop structured as well as object-oriented programming skills using C++ programming language. The course also aims to achieve competence amongst its students to develop correct and efficient C++ programs to solve problems spanning multiple domains.

Course Learning Outcomes:

On successful completion of the course, students will be able to:

- Write simple programs using built-in data types of C++.
- Implement arrays and user defined functions in C++.
- Write programs using dynamic memory allocation, handling external files, interrupts and exceptions.
- Solve problems spanning multiple domains using suitable programming constructs in C++.
- Solve problems spanning multiple domains using the concepts of object oriented programming in C++.

Lesson Plan:

Unit No.	Learning Objective	Lecture No.	Topics to be covered
1.	Introduction to C++: Need and characteristics of Object-Oriented Programming, Structure of a C++ Program (main () function, header files, output, input, comments), compile and execute a simple program	1	Introduction to programming
		2	Procedural, modular and object oriented programming
		3	Preprocessor directives and header files
		4	translators
		5	Input Output statements
		6	Comparison between different programming languages
		7	Properties of C++
2.	Data types and Expressions: Keywords, built in data types, variables and constants, naming convention, Input-Output statements, operators and their precedence, expressions, typecasting, library functions	8	Understanding Data, data types, variables, keywords
		9	Naming convention of variables, operators
		10	Expressions, operator and precedence
		11	Problems
		12	
		13	
		14	
3.	Control Constructs in C++: Decision making using selection constructs, iteration using looping constructs	16	Decision making constructs
		17	Selection statements
		18	Iterative statements
		19	Problems
		20	Problems
		21	Problems
4.	Unit 4 Arrays, Pointers and User defined functions: Defining and initializing single and multi-dimensional arrays, user defined functions, passing arguments to functions, returning values from functions,	22	Arrays
		23	Pointer and reference variables, void pointers, pointer arithmetic
		24	Pointer to function, array of pointers
		25	Pointer to multidimensional arrays.
		26	Functions
		27	Passing arguments to functions, returning values from functions
		28	Inline functions, default arguments, recursion

	inline functions, default arguments, introduction to pointers		
5.	Need and implementation of abstraction creating classes, objects as function arguments, modifiers and access control, constructors and destructors.	29	Robust programming
		30	File handling
		31	Error and types of errors
		32	Exception Handling
		33.	Properties of oops, creation of classes, access modifiers, implementation of inheritance, constructors and destructors

Evaluation Scheme:

No.	Component	Duration	Marks
1.	Internal Assessment		30
	• Class Test		
	• Attendance		
	• Assignment		
2.	End Semester Examination	3 hr	90

Suggested Books:

Sl. No.	Name of Authors/Books/Publishers	Year of Publication/Repr int
1.	Stephen Prata, C++ Primer Plus, 6th edition, Pearson India, 2015.	2015
2.	2. E Balaguruswamy, Object Oriented Programming with C++, 8 th edition, McGraw-Hill Education, 2020	2020
3.	Robert Lafore, Object Oriented Programming in C++, 4 th edition, SAMS Publishing, 2008.	2008
Mode of Evaluation:		Internal Assessment / End Semester Exam