



National Computing Education Accreditation Council NCEAC



NCEAC.DOC.001-E

COURSE DESCRIPTION

NAME OF INSTITUTION	Lahore Garrison University
PROGRAM (S) TO BE EVALUATED	Computer Science , Fall 2022

Course Description : This module will provide the students with a solid theoretical understanding of, as well as practical skills in, object-oriented programming. Practical skills will be learnt using the C++ programming language. The primary aim of the module is to enable the students to tackle complex programming problems, making good use of the object-oriented programming paradigm to simplify the design and implementation process. Laboratory sessions and tutorials will be provided to encourage acquisition of practical problem-solving skills.

Course Code	CSC321																		
Course Title	Object Oriented Programming																		
Credit Hours	3+1																		
Prerequisites by Course(s) and Topics	Programming Fundamentals																		
Assessment Instruments with Weights (homework, quizzes, midterms, final, programming assignments, lab work, etc.)	SESSIONAL (Quizzes, Assignments, Presentations) =25 % Midterm Exam =25 % Final Exam = 50%																		
Course Coordinator	MS. Rabia Khan																		
URL (if any)	-----																		
Current Catalog Description	----																		
Textbook (or Laboratory Manual for Laboratory Courses)	C++ Programming from Problem Analysis to Program Design by D.S. Malik 5th Edition.																		
Reference Material	• Object Oriented Programming in C++ by Robert Lafore 4th edition • C++ How to Program by Deitel & Deitel																		
Course Goals	Introduction to object oriented design, history and advantages of object oriented design, Structures introduction to object oriented programming concepts, classes, objects, data encapsulation, constructors, destructors, access modifiers, const vs non-const functions, static data members & functions, function overloading, operator overloading, identification of classes and their relationships, composition, aggregation, inheritance, multiple inheritance, polymorphism, abstract classes and interfaces, generic programming concepts, function & class templates, standard template library, object streams, data and object serialization using object streams, exception handling, file handling.																		
Course Learning Outcomes (CLOs):	<table><tr><th>At the end of the course the students will be able to:</th><th>Domain</th><th>BT Level*</th></tr><tr><td>Understand principles of object oriented paradigm.</td><td>C</td><td>2</td></tr><tr><td>Identify the objects & their relationships to build object oriented solution</td><td>C</td><td>3</td></tr><tr><td>Model a solution for a given problem using object oriented principles</td><td>C</td><td>3</td></tr><tr><td>Examine an object oriented solution.</td><td>C</td><td>4</td></tr><tr><td colspan="3">* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain</td></tr></table>	At the end of the course the students will be able to:	Domain	BT Level*	Understand principles of object oriented paradigm.	C	2	Identify the objects & their relationships to build object oriented solution	C	3	Model a solution for a given problem using object oriented principles	C	3	Examine an object oriented solution.	C	4	* BT= Bloom's Taxonomy, C=Cognitive domain, P=Psychomotor domain, A= Affective domain		
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Topics Covered in the Course, with Number of Lectures on Each Topic (assume 15-week instruction and one-hour lectures)	Week	Lecture	Topics Covered
	Week 1	1	Implementation of Loops and their conversion and Arrays
		2	Implementation of different types of Arrays
	Week 2	3	Review of Functions (Built in and User Defined)
		4	User Defined Functions
	Week 3	5	Structures , Structures Vs Arrays
		6	Nested Structures
	Week 4	7	Structures with Functions
		8	File Handling
	Week 5	9	Const vs non constant functions, static data members and functions
		10	Structures with file handling
	Week 6	11	Classes and Objects
		12	Class member functions and data members, Access specifiers
	Week 7	13	Access Specifiers , classes vs structures
		14	Classes with public, private and protected Access Specifiers
	Week 8	1 hours	Mid Term
	Week 9	15	Mid Term Exams
		16	
	Week 10	17	Constructors
		18	Types of constructor (default and parameterized)
	Week 11	19	Types of constructor (copy constructor)
		20	Destructor
	Week 12	21	Friend Functions
		22	Inheritance: Class inheritance
	Week 13	23	Inheritance (Single level, multiple inheritance syntax and implementation)
		24	Inheritance (Multilevel level, hierarchical inheritance syntax and implementation)
	Week 14	25	Inheritance (hybrid inheritance syntax and implementation)
		26	Function overloading (Simple)
	Week 15	27	Polymorphism
		28	Polymorphism (Compile time polymorphism, function overloading)
	Week 16	29	Polymorphism (Compile time polymorphism, operator overloading)
		30	Polymorphism (Run Time polymorphism, operator overriding)
	Week 17	2 hours	Final Term
Laboratory Projects/Experiments Done in the Course			
Programming Assignments Done in the Course			

Instructor Name	MS. Rabia Khan
Instructor Signature	
Date	