University of Engineering and Technology Lahore - New Campus (Kala Shah Kaku)

Section Course Outline Report

Department: Computer Science (KSK) **Printed Date:** January 20, 2024

Section Course Detail	
Semester	SPRING 2024
Department	Computer Science (KSK)
Section	D
Subject Title	CSC-103 Object Oriented Programming
Subject Domain	Engineering
Subject Knowledge	Computing
Contact	shehzad.asef@gmail.com

Measureable Student Learning Outcomes

CLOs	Description	PLOs	Domain	Domain Level	Assessments
CLO1	Explain OOP concepts like object, class, data & function members, friend functions, message, abstraction,	PLO01	Cognitive	2. Understand	null
CLO2	Design objects from description implementing their structure and behavior by defining data members, and	PLO03	Cognitive	3. Apply	null
CLO3	Appraise optimal static and dynamic usage of memory and protecting memory breach and wastage.	PLO02	Cognitive	4. Analyze	null
CLO4	Interpret lifespan of objects defined as entry into, computational collaboration through messages and exit from logical	PLO03	Cognitive	3. Apply	null
CLO5	Express an object-oriented design in a clear and lucid manner.	PLO03	Cognitive	2. Understand	null
CLO6	Apply principles of encapsulation, abstraction, reusability and extensibility to support collaborative development.	PLO02	Cognitive	3. Apply	null

Class Timings

Grading Policy
Qui1 10.0
Quiz 2 10.0

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Grading Policy
Assignment 10.0
Midterm 30.0
Final 40.0

Section Content

Week (Lec)	Topics	CLO's
week1	Revision of pointers and dynamic memory allocation. Difference between non-structured programming, structured programming and Object Oriented Programming and problem solving. Where to store Structural, Behavioral and Capabilities with limitation and constraints. Object oriented approach to programming with Concepts of Object Orientation, e.g, Protection, Encapsulation, Abstraction, Messaging.	CLO1
week2	Migration from modular program having structures and functions to Classes & Object: syntax and semantics. Implicitly available member functions. Default constructor, copy constructor, destructor, = assignment operator, & address-of operator. Access modifiers: public, private.	CLO2
week3	Programmer defined constructor, copy constructor, destructor, assignment operator(=). Overloading constructors. Shallow and deep objects. Constructor’s initializer list.	CLO2
week4	Separate declaration and definition of member functions. Accessors, utility methods, objects as argument and return type. Cascaded calls to functions;	CLO2, CLO3
week5	Static members, const members, objects members; Constructor’s initializer list revisited; uses of implicit this pointer/reference or me reference	CLO3
week6	Arrow (->) operator, dynamic memory allocation with new operator to instantiate objects in the system heap and de-allocation of object memory with delete operator.	CLO3
week7	Operator Overloading: operator as member functions; operators as friend functions; Cascaded calls to operator functions; Restriction on friend operator functions [],(), ->	CLO5, CLO4
week8	Midterm	CLO4, CLO5, CLO3, CLO2, CLO1

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Section Content		
Week (Lec)	**Topics**	**CLO's**
week9	Composition and related concepts; Has-a relationship. Complex object. Partial classes	CLO4
week10	Composition and related concepts; Has-a relationship. Complex object. Partial classes	CLO4
week11	Inheritance: private and protected access modifiers. Is-a Relationship of base class and derived classes, Derived class functions overloading. Data member domination.	CLO5
week12	Inheritance: Member function overriding; virtual functions; pure virtual functions.	CLO6
week13	Abstract classes; Concrete classes; Class hierarchy. Multiple inheritance; Diamond head problem;	CLO6
week14	Polymorphism: how to implement; compilation advantage.	CLO6
week15	Template functions and classes - 1	CLO6
week16	Template functions and classes - 2	CLO6