



Al-Al Bayt University
Prince Hussein bin Abdullah Faculty of Information Technology
Computer Science

Course Syllabus

Course Title	Object Oriented Programming	Course Code	901210
Coordinator	Suhair Bani ata	Prerequisite(s)	901133
E-mail	Suhair_bani@aabu.edu.jo	Credit Hours	3
Course Is	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective		

Course Description:

Object-oriented programming (OOP) is a programming paradigm that uses "objects" and their interactions to design applications and computer programs. It is based on several techniques, including inheritance, modularity, polymorphism, and encapsulation. It was not commonly used in mainstream software application development until the early 1990s. Many modern programming languages now support OOP. From this module, the student will learn the art of the object-oriented programming using C++ Programming Language after having a background in the procedural paradigm that was introduced in the module "Programming Fundamentals".

Course Learning Outcomes (CLO):

The module introduces the object-oriented approach and emphasizes on the concepts of classes, templates, friend classes, inheritance, and virtual functions. Program design will be addressed by the use of a number of Lab work and assignments in which complete programs will be developed from informal requirements expressed in English and this development will include the process of identifying objects, classes, and methods.

1. Learn how to create a class (Class Definition; Accessing Data Members and Member Functions. Constructors and Destructors.
2. Learn about Constant Objects and Constant Member Functions. Friend Functions and Friend Classes
3. Illustrate Inheritance: Base Class and Derived Class
4. Using Member Functions; Overriding Base Class Members in a Derived Class
5. Public, Private, and Protected Inheritance
6. Learn about Virtual Functions, Polymorphism, and Overloading. Operator Overloading
7. Generic function and generic class
8. Handling Exceptions

Tentative Topics Covered

Week No	Topic
1+2	<ul style="list-style-type: none"> ● Review of functions, arrays, pointers and strings in C++. ● Introduction to Object Oriented Programming (OOP): <ul style="list-style-type: none"> ● Overview of programming languages. * What is object Oriented? * Benefits of Object Oriented. * What is an object? * What is a class? * Black boxes and interfaces. * Attributes and methods. * What is abstract class (abstraction)?
3+4	<ul style="list-style-type: none"> ● classes Class fundamentals. * A closer look at class member access. * Constructors and destructors. * Parameterized constructors. * Classes and structures are related. * Unions and classes are related. * Inline functions. * Creating inline functions inside a class. * Arrays of object. * Pointers to object. * Object references.
4+5	<ul style="list-style-type: none"> ● Friend functions Friend functions. * Overloading constructor functions. * Dynamic initialization. * Assigning objects. * Passing objects to functions. * Returning objects. * Creating and using copy constructor. * this keyword.
6	<ul style="list-style-type: none"> ● First Exam
7+8	<ul style="list-style-type: none"> ● Operator Overloading Operator Overloading using member functions. * Friend operator functions. * A closer look at the assignment operator. * Overloading other operators.
8+9	<ul style="list-style-type: none"> ● Inheritance Introducing inheritance. * Base class access control. * Using protected members. * Inheriting Multiple Base Classes. * Constructors, destructors, and inheritance. * Granting access. * Virtual base class.
10	<ul style="list-style-type: none"> ● Virtual functions and polymorphism <ul style="list-style-type: none"> ● Pointers to derived class. * Virtual functions. * Virtual functions are inherited. * Pure virtual functions and Abstract classes. * Early versus late binding.
11	<ul style="list-style-type: none"> ● Second Exam
12+13	<ul style="list-style-type: none"> ● Templates and Exception handling Generic functions. * A function with two generic types. * Exception handling. * Options for exception handling. * Generic classes. * Exception Handling. * Using Multiple catch statements. * Catching all exceptions.
14	<ul style="list-style-type: none"> ● Review
15+16	<ul style="list-style-type: none"> ● Final Exam

Textbook(s)			
Title	C++ How to Program		
Author(s)	Author(s) Paul J. Deitel, Harvey M. Deitel	Publisher	Prentice Hall.
Edition	7 th ,	Year	2010

References	
Book Titles (Author(s), Title, Edition, Publisher, Year)	Website URL (if available)
1 . Title : C++ From the GROUND UP Author(s) R. Schildt Edition: 3 rd Pubisher: McGraw-Hill	

Evaluation	
Assessment Tool	Marks
- First Exam*	25
- Second Exam*	25
- Assignments (Reports, Quiz, Seminar, Tutorial, etc.) - Discipline, presence and participation	-
- Lab**	-
- Final Examination	50