



Ministry Of Higher Education and Scientific Research
Mustansiriyah University, College of Science, Department of Computer Science



Course Plan

Course No.:

Course Name: Object Oriented Programming

Time Division:

3hrs Theoretical and 2hrs Practical

Course Website:

Semester & Year:

First , 2018/2019

(3 credit hours)

Prerequisite: Visual C# language

Course Description

This subject provides the concepts and techniques of object-oriented programming by using Microsoft Visual C#. These techniques help students to build simple object-oriented programs using visual C# .Net platform to build robust and flexible systems.

Course Aims:

To increase students' capabilities in order to develop high levels and robust computer systems.

Course Objective(s):

At the end of the course, students are expected to learn:

- Identify the differences between structural and object oriented programming language.
- Analyze and construct simple program with OOP technique using VC# language.
- Identify classes and objects to formulate the design of problem class diagram considering different relationships provided by UML notations. Define a class structure (e.g., fields and methods).
- Working with OOP pillars (e.g., *Abstraction, inheritance, encapsulation, and polymorphism*). Working with Constructors.

Course Outline

Week	Description	
	Theoretical	Practical
1	Introduction: Introduction to O.O. paradigm, Genealogy of object oriented languages: structured programming, procedural programming, Advantages of OOP.	Visual C# review: Conditional and Looping statements Variables and data types.
2	Object Oriented Analysis (OOA): Defining abstract data type (ADT) Pillars of OOP: Abstraction, encapsulation, inheritance, and polymorphism Unified Modeling Language (UML)	Visual C# review: Methods with and without parameters.
3, 4	Concepts: Classes and Objects, Class members: Data members (fields) and member functions (methods), Class member visibility (private, public, protected), Class variables and instance variables, Class methods and instance methods, Formulate Class Diagram Assignment (1)	Working with Classes Construct a class, Add/del/access data, members (get, set), Instance variables, Class methods, Access class methods, Array of class objects
5	Concepts: Constructors Single and multiple constructors Constructors with and without parameters Object initialization Assignment (2)	Work with Constructors single and multiple, constructor(s) with or without parameters
6	First exam	First exam
7, 8	Concepts: Methods: Method and operator overloading, Method overriding, Method visibility (public, private, protected), Abstract classes, Define relationships: associations, aggregation, Assignment (3)	Working with Methods Method Overriding and Overloading, working with multiple classes
9	Concepts: Class Hierarchy Single inheritance, Polymorphism Assignment (4)	Working with single and multiple inherent classes.

10	Second Exam	Second Exam
11, 12	Concepts: Class Hierarchy Multiple inheritance, Subclasses (derived classes) and Super classes, (base classes), Assignment (6)	Class Hierarchy Multiple inheritance, Aggregation, association relations, super class command
13	Concepts: Objects Creating and deleting objects (instances) Creating array of objects	Creating and deleting objects, array of objects.
14, 15	Concepts Invocation of superclass methods and constructors. Objects vs. variables Classes vs. types Collection classes and Class libraries	Examples for Programs to produce OO program

Textbooks:

1. Troelsen, Andrew. *Pro C# 5.0 and the .NET 4.5 Framework*. Apress, 2012.
2. Kolling, Michael, and David J. Barnes. *Objects first with Java: A practical introduction using BlueJ*. (2005).

Other References:

1. Simon Kendal, *Object oriented programming using C#*, © 2011 Simon Kendal & bookboon.com, ISBN 978-87-7681-814-2
2. Bennett, Simon, Steve McRobb, and Ray Farmer. *Object-oriented systems analysis and design using UML*. McGraw Hill Higher Education, 2005.
3. Grady Booch, *Object-Oriented Analysis and Design with Applications*, 2nd edition, Benjamin / Cummings publishing company (1994).

Marking

First Exam	10 marks	Second Exam	10 marks
Assessments	6 marks	Final Exam	45 marks

Instructor(s) information

Section: 1 **Lecture Room:** 40 **Time:**

Instructor's Names:

Dr. Bassam Basim AlKindy,
Dr. Mustafa Dhia,
Dr. Athraa J. Jani

E-Mail:

Dr.balkindy@uomustansiriyah.edu.iq

Office No.: 402

Athraa.jj@gmail.com

Office Hours: Posted on office door

Last Updated : 5/10/2018

Important: The content of this syllabus may not be changed during the current semester.

Lecturer's Signature



Dr. Bassam Basim AlKindy

Chair Signature

Dr. Mustafa Dhia Al-Hassani

Dr. Athraa J. Jani