

2021-2022	Common Trunk	Year 2 - Sem. 4
INFO205	Programming IV	Mandatory
ECTS: 2	Instructors: Dr. Bassam ETER, Eng. Ibrahim Joumaa	Language: English/French
Total hours: 27 h	Period :March-June	

Description:

This course covers the object-oriented programming principles including decomposition of a system into simple task-oriented self-contained objects. It includes identifying the problem areas in a program where we can deploy the object model as a solution. You will also identify the elements that will help you design an object mode including building a class and creating and using objects from the class. It then details many of the C#.NET features such as parameterized constructors, function overloading, static class data, inheritance and polymorphism. It also discusses generic classes, abstract classes, and how to define interfaces and implement those interfaces in other classes.

Learning outcomes:

- Analyze the runtime performance of a (simple) algorithm/program in terms of the size of its inputs, and this in the average, best, and worst cases.
- Choose appropriate algorithms and data structures for storing data, searching and sorting, as well as implement those algorithms.
- Use and implement basic graph algorithms.

Content:

- Procedural vs. object-oriented programming.
- Case study: analyze a system and identify classes and inheritance.
- Classes: members' accessibility and modifiers, properties, constructors and destructors, operators overloading.
- Inheritance: inherited members, base class constructor call, redefining a member in a derived class (new, base).
- Polymorphism: redefining a method (virtual, override), hiding a method (new), sealed class.
- Interfaces: definition and implementation.
- Abstract classes.
- Generics.

References:

Bassam ETER , Langage C#.Net.

Evaluation Method:

Assessment in the following areas will be converted to points, to compute your final grade in this course:

- Mid-Term
- Final Exam
- Home Works

Description :

Ce cours couvre les principes de la programmation orientée objet, y compris la décomposition d'un système en objets autonomes simples orientés tâches. Cela inclut l'identification des zones à problèmes dans un programme où nous pouvons déployer le modèle objet comme solution. Vous identifierez également les éléments qui vous aideront à concevoir un mode objet, notamment la construction d'une classe et la création et l'utilisation d'objets de la classe. Il détaille ensuite de nombreuses fonctionnalités de C#.NET telles que les constructeurs paramétrés, la surcharge de fonctions, les données de classe statique, l'héritage et le polymorphisme. Il aborde également les classes génériques, les classes abstraites et comment définir des interfaces et implémenter ces interfaces dans d'autres classes.