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Study Abroad
INTERNATIONAL PROGRAMMES
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Faculty: Science and Technology

Course: **Databases and interoperability with C#**

Program: Study Abroad in Engineering

Semester: 2 - Spring

ECTS credits: 6

Duration: 45 hours

Language of instruction: English

Instructor: Iban Ricart

Course Description

The first part of this course builds advanced notions of C# using the concepts Object-Oriented programming, such as classes/objects, encapsulation, composition, inheritance, abstract classes, interfaces, serialization.

After that, the second part of the course builds on the fundamentals of design and creation of databases and how we can access to the data using C#. You will familiarize yourself with relational databases and how to manage the data using SQL language.

Prerequisites

Basic knowledge about programming and C# language.

Attendance policy

Attendance is mandatory for all classes, including study visits. Any exams, tests, presentations, or other work missed due to student absences can only be rescheduled in cases of certified medical or family emergencies.

Learning outcomes

By the end of the course, students should be able to design, create and manage relational databases and access data using C# programming language.

Method of presentation

- Students will prepare a Game using the contents of the subject.

Required work and assessment methods

- The game will be divided in different evaluable parts. (75% final grade)
- Validation test (25% final grade)

Unit One: Introduction to object oriented programming.

Week 1. Course presentation. Classes and objects. UML. Attributes and methods. (E1)

Week 2. How to manage classes and objects with C#. Creating attributes and methods. Visibility(E2)

Week 3. Encapsulation and Inheritance. (E3 - UML of the Game and C# Game's classes creation).

Week 4. Abstract classes and interfaces.

Unit Two: Introduction to relational databases

Week 5. Introduction to relational databases. MariaDB.

Week 6. Introduction to Entity Relationship Diagrams (ERD). Sample exercises.

Week 7. ERD individual exercises. (E4)

Week 8. ERD to Relational Model. Normalization. Sample exercises.

Week 9. E2. ERD to Relational Model individual exercises and Relational model of the game(E5)

Week 10. SQL. DDL

Week 11. SQL DML. (E6)

Week 12. SQL DCL.

Week 13. Joining C# and MariaDB. Continuing the game.

Week 14. Finalizing the game. (E7)

Week 15. Final Test (T1)

Activities weight. Ordinary evaluation

	E1	E2	E3	E4	E5	E6	E7	T2
%	10	10	10	10	10	10	15	25

Retake exams and activities

The student must present the activities pending to delivery (E1 from E8).
If the student passed the test T1, it is not necessary to take the retake test. It is only mandatory to take the retake test if the student fails it.

The activities weight in the retake evaluation is the same as activities weight in the ordinary evaluation (see the percentages table), but the maximum grade is 5.