

Synthesis Project I

2023 - 24

Teaching staff

Course coordinator

Ernest Valveny	Ernest.Valveny@uab.cat	Dept. Computer Science
----------------	--------------------------------------------------------------------	------------------------

Teaching staff

Glòria Estapé-Dubreuil	gloria.estape@uab.cat	Dept. Business
Pilar Dellunde	pilar.dellunde@uab.cat	Dept. Philosophy
Laura Cervi	laura.cervi@uab.cat	Dept. Journalism and Communication Studies
Josep Lladós	Josep.Lladós@uab.cat	Dept. Computer Science
Lluís Gómez	Luis.Gomez@uab.cat	Dept. Computer Science
Marc Codina Barberà	Marc.Codina@uab.cat	Dept. Microelectronics and Electronic Systems

Context and objectives

Objective of the course:

The main objective is to **develop a project** in groups that requires applying the knowledge acquired in the rest of the subjects to the design and implementation of an AI solution to a real challenge.

- **Implementation of a software prototype** delivered to the final user implementing a solution to the challenge according to the user needs and the requirements defined at the beginning of the project
- **Project development:** analysis of the challenge, design of the solution, selection of the methodology and the necessary tools, project follow-up, implementation of the solution, analysis of the results and the conclusions.
- Techniques for **project management** and teamwork organization.
- **Communication skills** to expose, argue and show the result of the project.
- Analyse potential **ethical implications** of the proposed solution.

Context:

The proposed solution will be based on skills and competences acquired in previous subjects, mainly: Fundamentals of Programming I and II, Data Engineering, Problem Solving, Fundamentals of Machine Learning, and Ethics

Challenges

We will have two different real challenges. Each team of students will have to address only one of them:

1. **Smart UAB Campus Challenge** on the analysis of data of energy consumption and environmental sensors.
2. **Challenge** on the analysis of **internet security threats** based on the log information of web accesses.

Methodology and organization

- The course is organized around the development of the project. This is the central part of the subject that will have to be done autonomously, apart from class hours.
- During the project students will work in teams of 4-5 members that will be maintained throughout all the course.
- Each team will have a mentor who will guide and help the team throughout the whole process.
- During the development of the project, we will introduce in some class sessions several concepts related to project management, ethical audit and communication skills.
- Class activities will be organized in two types of sessions:
 - Practical sessions to work and monitor the development of the project: analysis of the problem, design of the solution, follow-up of the work, oral presentations, ...
 - Theoretical sessions to introduce some concepts that will be necessary to complete the project about project management, design thinking, ethical aspects and communication.

Temptative Schedule

DATE	CONTENTS	GROUPS
16/2/2024	Presentation - Introduction to challenges	1 group 15h-17h
23/2/2024	Design Thinking	2 groups
1/3/2024	Introduction to Project Management	1 group 14h – 17h
8/3/2024	Project planning. Tools for Software Management	1 group 14h – 17h
15/3/2024	Presentation of proposals. Follow-up	2 groups
22/3/2024	Introduction to Communication	1 group 15h-17h
29/3/2024	Easter holidays	
5/4/2024	Project follow-up	2 groups
12/4/2024	Project follow-up	2 groups
19/4/2024	Partial presentations	2 groups
26/4/2024	Communicative skills for project presentation	1 group 15h-17h
3/5/2024	Project follow-up. Ethical aspects	2 groups
10/5/2024	Communicative skills for project presentation	1 group 15h-17h
17/5/2024	Project follow-up	2 groups
24/5/2024	Communicative skills for project presentation	1 group 15h-17h
31/5/2024	Final presentations	2 groups

Group organization

- Sessions with 1 group will be with the whole class group from 15h to 17h (two-hour sessions) or from 14h to 17h (three-hour sessions)
- In sessions with 2 groups, the group class will be divided in two groups, one for each of the 2 challenges.
 - One group will be from 14h to 16h and another one from 16h to 18h
 - The two groups will swap times in alternate weeks
 - We will provide the final schedule once groups for each challenge had been determined

Teams formation

- Teams (4-5 people) will be formed by the students
 - We will open a group selection task on campus virtual to form the teams.
- Challenges will be assigned to each of the teams by the teachers

Assessment

Final grade = Individual assessment * Project grade

Project grade: Continuous assessment based on the evidences collected in each of the following activities:

- **Follow-up sessions** (20%): monitor and assess the progress of the work.
- **Written report** (10%): final report describing the solution and presenting and discussing the main results.
- **Oral presentation** (15%): final oral presentation presenting the work done.
 - 25% partial presentation – 75% final presentation
 - 80% group mark – 20% individual mark
- **Technical quality** of the solution (50%): design, implementation and testing of the proposed solution.
- **Class attendance** (5%)

The **minimum mark** for all activities is 4, except for the technical quality of the solution, that is 5.

Individual assessment: intra-group evaluation where each member of the group will assess the contribution of the other members of the group.