

Degree	Type	Year
Management of Smart and Sustainable Cities	OP	4

Contact

Name: Juan Carlos Valle López

Email: juancarlos.valle@uab.cat

Teachers

Asier Ibeas Hernandez

Teaching groups languages

You can view this information at the [end](#) of this document.

Prerequisites

There are no prerequisites. However, for a good understanding of the subject, knowledge of programming fundamentals and databases is recommended.

Objectives and Contextualisation

We will learn the fundamentals of mobile programming and the tools used for application development. A class project will be carried out where we will develop our own application from MVP (Minimum Viable Product) planning to functional prototype design. Additionally, we will work on practical projects to address specific needs, studying the impact and roles of applications in the use of new technologies such as databases or artificial intelligence.

- Fundamentals of professional tools in application development.
- Demonstrate ability to learn interfaces/tools in the cloud.
- Ability to identify and implement digital solutions in businesses.
- Develop and validate with proper software architecture.
- Demonstrate motivation for quality in objectives and work development.
- Propose, analyze, validate, and maintain IT solutions within a business organization context.
- Enable students to communicate information, ideas, problems, and solutions to both specialized and non-specialized audiences.
- Find algorithmic solutions and use appropriate programming tools to implement them within an organizational environment.

Learning Outcomes

1. CM05 (Competence) Relate computer knowledge and skills with those provided by other technicians in interdisciplinary teams.
2. KM09 (Knowledge) Understand the functioning and correct management of databases.
3. SM08 (Skill) Use algorithm and programme analysis techniques to design new algorithmic solutions based on the idea of recursion or specific algorithm design techniques.
4. SM09 (Skill)

Content

1. Programming fundamentals: HTML, CSS, and JavaScript
2. Work methodologies and design tools: GitHub and Figma
3. Use of software with frameworks: React (Meta) or Angular (Google)
4. Development of the prototype: technical and non-technical
5. Integration of data into the database for application functionality
6. Documentation and correct compilation of the final application

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
In-class: Developing mobile applications	26	1.04	
Type: Autonomous			
Developing mobile applications	104	4.16	

The teaching methodology of the course focuses on project-based learning. To achieve this objective, the course will be structured around the development of tutored projects aimed at consolidating the subject matter.

There will be no in-person classes; only tutoring sessions for repeating students will be offered, intended to guide project development and address specific questions related to the content and its practical application.

This approach requires special commitment from students, both in making the most of the tutoring sessions and in the directed activities of the course. Teamwork and collaborative exchange will be encouraged when possible. However, the final learning process must be individual, reflected in each student's autonomous work, who must complement and enrich the work started in the tutored sessions. Supervised activity - through scheduled tutoring sessions and occasional consultations during the course - is also an essential tool for acquiring the knowledge provided by the course.

Assessment will be carried out through individual follow-up via tutoring sessions and the submission of the final project, according to the criteria established for the course.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Develop computer applications	100	20	0.8	CM05, KM09, SM08, SM09

The final qualification of the subject will be obtained based on the valuations of the different evidences, taking into account that each one of the parts has a different specific weight:

25% (project1) + 25% (project2) + 25% (project3) + 25% (project4)

The grade of the subject will be calculated from this weighted sum.

A student who performs at least one of the components of the continuous evaluation can no longer be considered as NOT Evaluable.

There is no single assessment procedure.

Calendar of evaluation activities

The dates of the evaluation activities (midterm exams, exercises, assignments ...) will be announced well in advance during the semester.

The date of the final exam is scheduled in the assessment calendar of the Faculty.

"The dates of evaluation activities cannot be modified, unless there is an exceptional and duly justified reason why an evaluation activity cannot be carried out. In this case, the degree coordinator will contact both the teaching staff and the affected student, and a new date will be scheduled within the same academic period to make up for the missed evaluation activity." Section 1 of Article 115. Calendar of evaluation activities (Academic Regulations UAB). Students, who in accordance with the previous paragraph need to change an evaluation activity date must process the request by filling out an Application for exams' reschedule at

https://eformularis.uab.cat/group/deganat_feie/application-for-exams-reschedule Grade revision process

After all grading activities have ended students will be informed of the date and way in which the course grades will be published. Students will be also be informed of the procedure, place, date and time of grade revision following University regulations.

Retake Process

"To be eligible to participate in the retake process, it is required for students to have been previously been evaluated for at least two thirds of the total evaluation activities of the subject." Section 3 of Article 112 ter. The recovery (UAB Academic Regulations). Additionally, it is required that the student to have achieved an average grade of the subject between 3.5 and 4.9.

The date of the retake exam is posted in the calendar of evaluation activities of the Faculty. Students taking this exam and passing will get a grade of 5 for the subject. For the students that do not pass the retake, the grade will remain unchanged, and hence, will fail the course.

Irregularities in evaluation activities

Despite other disciplinary measures deemed appropriate, and in accordance with current academic regulations, *"whenever a student makes any irregularity that could lead to a significant variation in the grade of an evaluation activity, it will be graded with a 0, regardless of the disciplinary process that can be instructed. In case of occurrence of various irregularities in the evaluation of the same subject, the final grade of this subject will be 0".* **Section 10 of Article 116. Results of the evaluation. (UAB Academic Regulations).**

Regulations on the Use of AI

For this course, the use of Artificial Intelligence (AI) technologies is permitted exclusively for support tasks, such as bibliographic or information search, text correction, translations, assistance with graphic or interface design, the creation of diagrams or mock-ups, or help with programming and code debugging; in specific activities indicated by the instructor, and in other specific situations where its use is considered justified.

The student must clearly identify which parts have been generated using this technology, specify the tools used, and include a critical reflection on how these tools have influenced both the process and the final outcome of the activity.

Lack of transparency regarding the use of AI in this graded activity will be considered academic dishonesty and may result in a partial or total penalty on the activity's grade, or more severe sanctions in serious cases.

Bibliography

[HTML Tutorial \(w3schools.com\) Copyright 1999-2024 by Refsnes Data](#)

[CSS Tutorial \(w3schools.com\) Copyright 1999-2024 by Refsnes Data](#)

[Developer tools by MDN contributors.](#)

<https://react.dev/learn>

Software

The following programs will be used in the practical sessions of the course: Node.js, Visual Studio Code, GitHub, Figma, SQL.

Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.