

Degree	Type	Year
Management of Smart and Sustainable Cities	FB	1

## Contact

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## Teachers

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## Teaching groups languages

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

## Prerequisites

There are not.

## Objectives and Contextualisation

In this area, the basic concepts related to Information Technology and Communications (ICT) as tools for the development of city management applications will be introduced, as well as basic notions of algorithmics and application programming.

## Learning Outcomes

1. CM05 (Competence) Relate computer knowledge and skills with those provided by other technicians in interdisciplinary teams.
2. KM08 (Knowledge) Explain at a basic level the technological aspects of sustainable and smart city management.
3. SM07 (Skill) Solve simple problems for the management of cities by means of computer applications that process and extract information from geospatial data.
4. SM08 (Skill) Use algorithm and programme analysis techniques to design new algorithmic solutions based on the idea of recursion or specific algorithm design techniques.

## Content

1. Computer applications in different types of environments (web, mobile, cloud) for the management of cities: concepts and examples.
2. Basic concepts of computers: structure, programming languages, operating systems, communications, interconnection of systems.
3. Algorithms and programming: concept and representation of an algorithm. modular design.
4. Basic data types.
5. Basic programming structures.
6. Representation of data.
7. Data input and output.

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Autonomous work	76	3.04	
Exercises and laboratories	24	0.96	
Theory classes	26	1.04	

The teaching methodology will be based on three types of activities:

- Guided activity: theoretical classes, laboratory, and exercise analysis.
- Supervised activity: attendance to tutorials and completion of exercises with scheduled follow-up.
- Autonomous activity: part of student study and case resolution, individually or in groups.

The preferred form of communication with students will be the virtual campus combined with the institutional mail of the UAB.

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

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## Assessment

### Continuous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Evaluation tests	60%	4	0.16	CM05, KM08
Laboratory activities	30%	10	0.4	SM08
Supervised activities	10%	10	0.4	SM07

### 1. Evidence of continuous evaluation

There are two tests that include the seven blocks of matter (1,2,3 in the first test and 4,5,6,7 in the second test).

Continuous evaluation tests	Weight note continuous assessment	Minimum mark to make an average
1-2 Computer applications and basic systems	50%	3,5
3-7 Algorithms, data, structures, and representation	50%	3,5

### 2. Final evaluation mark

Final mark	Weight final mark
Continuous evaluation	60%
Class Picks	10%
Laboratory	30%

### 3. It is considered approved by anyone:

- have a final mark equal to or greater than 5 and
- have approved the laboratory activities (minimum 5) i
- there is no evidence of continuous evaluation below the minimum mark (4.0) to do the average.

### 4. Assessment of practices

There will be a total of 5 laboratory activities where the algorithm will be asked to bring home prepared for each one of them, which will count 10% of the laboratory activities mark. Attendance is mandatory.

### 5. Class picks cannot be retrieved.

6. There will be a final exam of the two blocks of theory aimed at recovering the not surpassed part of the continuous evaluation.

7. If possible, at the beginning of the academic year, it will be notified if there is a validation of laboratory activities. In the case of being, the validation of laboratory activities will only be realized for the students who request it and have approved the laboratory activities in the previous course. The weight of the continuous evaluation in the final mark for the students with the validation of laboratory activities, becomes 90%.

8. Continuous evaluation dates are set at the beginning of the course and do not have alternative recovery dates in case of non-attendance. If there is any change in programming due to the adaptation to possible incidents, the virtual campus will always be informed about these changes.

9. Notwithstanding other disciplinary measures deemed appropriate, and following the current academic regulations, irregularities committed by a student that can lead to a variation of the qualification will be classified as zero (0). For example, plagiarizing, copying, copying, ..., an evaluation activity, will imply suspending this evaluation activity with zero (0). Assessment activities qualified in this way and by this procedure will not be recoverable. If it is necessary to pass any of these assessment activities to pass the subject, this course will be suspended directly, without an opportunity to recover it in the same course.

### 10. Non-evaluable cases

In case no delivery is made, it will not be included in any laboratory session and no exam will be carried out, the corresponding grade will be "not evaluable". In any other case, "not presented" counts as a 0 for calculating the weighted average, which will be a maximum of 4.5. Then, participation in an activity evaluated implies that

"not presented" in other activities such as zeros are taken into account. For example, an absence in a laboratory session involves a note for that activity.

#### 11. Pass de course with honors

To pass the course with honors will be awarded to those who obtain a mark greater than or equal to 9.5 in each part, up to 5% of those enrolled in descending order of final grade. At the discretion of the teaching staff, they may also be granted in other cases.

#### 12. Examination by a single assessment

Single assessment is not foreseen

13. In this course, using Artificial Intelligence (AI) technologies is not allowed in any of its phases. Any work that includes fragments generated with AI will be considered a lack of academic honesty and may lead to a partial or total penalty in the grade of the activity, or greater sanctions in cases of severity.

## Bibliography

- A. Prieto, A. B. Prieto. Conceptos de informática. Ed. Mc Graw Hill, 2005.
- Mark Lutz. Learning Python, Fourth Edition. Ed. O'Reilly Media, Inc., 2009.
- Guía de uso del MIT App Inventor. Escuela superior de informática de Castilla la Mancha.  
<http://webpub.esi.uclm.es/img/upload/plugin/ESI-TechLab-AppInventor2-2015beta.pdf>

## Software

MIT App Inventor

## 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.

Name	Group	Language	Semester	Turn
(PAUL) Classroom practices	611	Catalan	first semester	morning-mixed
(PAUL) Classroom practices	612	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	611	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	612	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	613	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	614	Catalan	first semester	morning-mixed
(TE) Theory	61	Catalan	first semester	morning-mixed