UAB
Universitat Autònoma de Barcelona

Sustainable Cities and Communities

Code: 106947
ECTS Credits: 6

2025/2026

Degree	Type	Year
Management of Smart and Sustainable Cities	OB	3

Contact

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Teachers

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Teaching groups languages

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document.

Prerequisites

- Basic knowledge of sustainability, climate change, and sustainable development.

- Familiarity with concepts of urban planning, territorial development, and public policies.

- Ability to analyse urban challenges from a systemic and interdisciplinary perspective, identifying interdependencies between physical, social, and environmental dimensions.

- Proficiency in Microsoft Office tools (especially Excel and PowerPoint) and basic knowledge of environmental data analysis software (such as SimaPro or similar).

Objectives and Contextualisation

- Describe the concept of sustainability and the Sustainable Development Goals (SDGs), with special focus on SDG 11: Sustainable Cities and Communities, and analyse its application in the urban context.
- Identify and explain the main environmental and social impacts affecting European cities, particularly those in the Mediterranean region, as well as the structural and systemic causes that generate them.
- Understand and apply the concept of urban metabolism as a tool to analyse the flows of materials and energy within the urban system and identify opportunities for improvement in terms of sustainability.
- Develop and carry out holistic material balance assessments of cities, incorporating the main flows and cycles-water, materials, energy, waste, and emissions-in order to understand interdependencies and overall environmental impact.
- Conduct a carbon footprint analysis associated with the urban metabolism of a city, identifying the main sources of emissions and proposing mitigation strategies.

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- Promote critical and proactive thinking aimed at formulating concrete and realistic proposals to improve the environmental, social, and economic sustainability of cities.

Learning Outcomes

1. CM04 (Competence) Make decisions that take into account sustainability and the ethical responsibility they entail.
2. KM04 (Knowledge) Interpret technical documents and specification sheets of electronic components.
3. KM07 (Knowledge) Understand the consumption requirements of cities and of the information and communication technology devices used in the smart city environment.
4. SM04 (Skill) Analyse the characteristics of the different technological and infrastructural components of the different systems in urban environments.

Content

Topic 1. Dimensions of urban sustainability

Topic 2. Urban metabolism and LCA

Topic 3. Introduction to Circular Economy: citizens, businesses and public administrations

Topic 4. Cities and territory

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Problem-solving classes, use of software, and reports	12	0.48	CM04, KM04, KM07, SM04, CM04
Theoretical Classes: Lectures	26	1.04	CM04, CM04
Type: Supervised			
Tutorial Class	3	0.12	CM04, KM04, CM04
Type: Autonomous			
Autonomous learning	63	2.52	CM04, KM04, KM07, SM04, CM04
Colaborative Learning	39	1.56	CM04, KM04, KM07, SM04, CM04

1. Theoretical classes: Students acquire the core knowledge of the subject by attending in-person classes and complementing them with personal study of the topics covered. Additionally, the case study method will be applied, using examples of successful initiatives.

2. Problem-solving workshops: The knowledge acquired in the theoretical classes is applied through the resolution of problems and/or practical cases. These sessions require strong interaction between students and teaching staff in order to complete and deepen the understanding of the content discussed

in lectures. Activities may be carried out individually or in groups, depending on the instructor's criteria. The use of SimaPro LCA software will be practiced to enable students to work autonomously on the final project.

3. Tutorials: Up to three one-hour tutorial sessions will be scheduled to review project progress and address any issues that may arise.

4. Preparation of a final report and progress reports: Practical cases will be developed and solved in groups. Students must submit two interim progress reports (written and/or multimedia) and one final report on the dates set by the teaching staff.

5. The course is supported by a Moodle classroom, available through the UAB Virtual Campus platform, where students can access content, exercise instructions, complementary materials, and suggested activities.

Note: 15 minutes of one class session will be reserved, according to the official academic calendar, for students to complete surveys evaluating both the instructor's performance and the course itself.

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

Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Final report (grupal activity)	30%	2	0.08	CM04, KM04, KM07, SM04
First written partial exam	35%	2.5	0.1	CM04, KM04, KM07
Second written partial exam	35%	2.5	0.1	CM04, KM04, KM07, SM04

- Continuous assessment

  - Two partial exams (70% of the final grade, equally weighted):

    - Exam 1: Topics 1 and 2

    - Exam 2: Topics 3, 4, and 5
      These tests will include theoretical questions and practical problem-solving. A minimum score of 3.5 out of 10 is required in each exam to calculate the average.

  - Submission of progress reports and final report (30% of the final grade):
    This activity is not subject to resit; therefore, failing it with a score lower than 4 out of 10 means the student cannot pass the course.

Resit exam

Students who do not pass the course (minimum grade: 5 out of 10) through continuous assessment may take a resit only for the exams they failed (score lower than 5 out of 10). Reports (progress and final) are not recoverable.Each resit exam will count for the same percentage as in the continuous assessment. Grades from passed exams and the 30% corresponding to the reports will be retained. Students who have passed through continuous assessment cannot take the resit exam to improve their

grade.
Repeating students will follow the same continuous assessment system.

Planned dates for the exams

To be confirmed on the School's website.
Under no circumstances will exams (evaluative tests) be held on dates or times other than those officially published on the School's website.
A minimum final grade of 5 out of 10 is required to pass the course.

Important note

Without prejudice to other disciplinary measures deemed appropriate and in accordance with current academic regulations, any irregularity committed by the student that may affect the grade of an evaluation will be graded with a zero. Therefore, plagiarising, copying, allowing others to copy, or falsifying any evaluative activity will result in a zero for that activity, and it cannot be recovered during the same academic year.
If the activity has a minimum grade requirement, the course will be failed.

Review of grades procedure

For each evaluative activity, a location, date, and time will be provided for grade review, during which the student may review the activity with the instructor.
Within this context, the student may submit grade appeals, which will be evaluated by the course coordinator.
If the student does not attend the scheduled review, no further review of the activity will be granted.

Grading

Honours distinctions:
Awarding honours is at the discretion of the course instructor. According to UAB regulations, honours distinctions can only be granted to students with a final grade of 9.00 or higher, and may not exceed 5% of enrolled students.

A student will be considered "Not Assessable" (NA) if they have not submitted enough activities to account for at least two-thirds of the total course grade.

This course does not include a single assessment option.

Permitted use of Artificial Intelligence (AI)

The use of Artificial Intelligence (AI) tools is allowed as part of the development of coursework (progress and final reports), provided that the final result clearly reflects the student's own analysis and personal reflection.
The student must clearly identify which parts were generated with AI, specify the tools used, and include a critical reflection on how they influenced the process and the final outcome.
Lack of transparency in the use of AI will be considered academic dishonesty and may result in a penalty on the grade for the activity, or more severe sanctions in serious cases.

Bibliography

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Software

MS Office (word, power point, excel...)

Simapro - LCA software

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	1	Catalan	first semester	afternoon
(TE) Theory	1	Catalan	first semester	afternoon