

INDUSTRIAL AND URBAN ECOLOGY

Coordinator: Laura Talens Peiró, Laura.Talens@uab.cat

This specialization aims to introduce students to the field of Industrial Ecology (EI), with special attention to urban systems that concentrate most of the population and, consequently, where environmental impacts are intensified. EI is a multidisciplinary field that aims to evaluate anthropogenic systems, minimizing their negative effect on our planet. Students are taught EI strategies to recreate our urban and industrial system in a way that is more sustainable and in harmony with the rest of the natural ecosystem. The student will learn about EI tools and methods, such as Material Flow Analysis (MFA), Ecodesign, Life Cycle Analysis (LCA) and some of the EU standards and regulations that make use of them. The student will be able to apply these tools to evaluate systems at various scales: product, process or region to quantify environmental impacts such as Greenhouse Gases (GHG), toxics, use of materials, water among others. Special emphasis is placed on the urban scale, where students will learn the basic principles of urban metabolism. This specialization also introduces the student to new paradigmatic tools to evaluate and suggest new urban scenarios where sustainable means of transport play a leading role.

In addition to the three compulsory subjects on "Interdisciplinary Concepts of Environmental, Economic and Social Sustainability" ("Theory and Practice of Interdisciplinarity" -3 ECTS-, "Interdisciplinary Project" -9 ECTS- and "Scientific Communication and Dissemination" -3 ECTS-) and the "Master's Final Thesis" (10 ECTS), this specialization has two compulsory subjects: "Industrial Ecology" (9 ECTS) and "Waste Management" (6 ECTS). While "Industrial Ecology" goes into more depth on environmental assessment tools and methods, "Waste Management" focuses more specifically on how to manage waste as a resource, while saving energy and reducing impact.

Students must complete the remaining credits of the program with a combination of four elective subjects (all 5 ECTS), such as "Corporate Social Responsibility", "Geographic Information Systems", "Sustainable Transport and Mobility Policies", "Urban Ecology", "Water Management" or "Internships in Institutions". You can consult [the complete list of electives on the website](#).

Regarding the "Final Master's Thesis" (TMF), an example of the project topic can be consulted [here](#). The TFM can be developed within any of the UAB research groups, preferably in the [Sostenipra group](#), dedicated to research in the field of EI with tools such as ecodesign and LCA, or waste management, urban agriculture, and in the [GEMOTT group](#) that develops projects in mobility, transport and territory, and studies the effects of territorial dynamics on mobility. Some research work is also carried out with entities external to the UAB, such as [Eco Intelligent Growth SL](#), [Inèdit Innovació SL](#), [Institut Català de Recerca de l'Aigua](#), [Institut de Recerca i Tecnologia Agroalimentàries](#) among others. You can find more information on the master's website.