

URBAN AND INDUSTRIAL ECOLOGY

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This specialization aims to introduce master's students to the field of Industrial Ecology (IE), with a special focus on urban systems which concentrate most of the population, and consequently, where environmental impacts are intensified. IE is a multidisciplinary field aiming to evaluate anthropogenic systems, minimizing their negative effect on our planet. The students are taught the strategies of IE, to recreate our urban and industrial system in such a way that it can be more sustainable and in harmony with the rest of the natural ecosystem. The student will learn about IE tools and methods, such as Material Flow Analysis (MFA) and Life Cycle Assessment (LCA) and 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), pollution, water, land, toxics, materials use. Special emphasis is placed on the urban scale, where students will learn the basic principles of urban metabolism, such as food-water-energy nexus. This specialization also introduces the student to new paradigm tools to evaluate and suggest new urban scenarios where sustainable means of transport have a leading role.

In addition to the course "*Interdisciplinary Concepts on Environmental, Economic and Social Sustainability*" obligatory for all students in the master's program (15 ECTS), this specialization has two compulsory courses: "*Industrial Ecology*" (9 ECTS) and "*Waste Management*" (6 ECTS). Whereas "*Industrial Ecology*" is a general introduction to the field and methods, "*Waste Management*" centres more specifically on one of the biggest urban challenges: how to manage waste as a resource, while saving energy and reducing impact, through a circular economy framework. The student can then complete the remaining 15 program credits by completing a combination of the following courses: "*Corporate Social Responsibility*" (6 ECTS), "*Geographical Information Systems*" (6 ECTS), "*Sustainable Mobility and Ecocities*" (9 ECTS); or a "*Work Placement*" (internship) (9 ECTS).

The "*Master's Degree Dissertation*" (15 ECTS) should preferably be chosen before January and can be carried out within any of the research groups of the UAB. The Sostenipra research group is dedicated to research in the field of IE and offers many different topics for the master's thesis, from LCA, to waste management, urban agriculture, and more (visit the [sostenipra](http://sostenipra.uab.cat) website to find out more about its research lines and current projects).