

Industrial Ecology

Master of Science

The Master of Science in Industrial Ecology offers talented students from around the world the opportunity to enhance their expertise and work on the grand challenge of achieving global prosperity within planetary boundaries.

Industrial Ecology is a co-operation between Leiden University and Delft University of Technology. Both universities are at the forefront of the field of Industrial Ecology. The master's programme Industrial Ecology is an emerging scientific discipline that takes a systemic approach to sustainability problems. An interdisciplinary approach, integrating an engineering, environmental and social science perspective, is essential for sustainable development.

Why study Industrial Ecology?

- You will learn concepts, methods and tools to help you identify, design and critically evaluate sustainability solutions and their implementation.
- We offer an international multidisciplinary environment, where all students bring their own specific bachelor knowledge and cultural background.
- You will be inspired by professors from two world-class universities, who are at the forefront of the field of Industrial Ecology.



**Universiteit
Leiden**
The Netherlands



Facts and figures

Language	English
Duration	2 years
Degree	Master of Science
Start	September
Admission	1 April non-EU 15 June EU
Tuition fee	€ 2,078 EU/16,500 non-EU

More information

For more information about the programme, entry requirements, admissions procedures, tuition fees and scholarships, please visit our website:

[masters.universiteitleiden.nl/
industrialecology](https://masters.universiteitleiden.nl/industrialecology)

Industrial Ecology: programme overview and courses

The master's programme consists of three pillars, providing basic concepts and theories:

1. Analysis of technosphere systems and their relation with biosphere systems in view of ecological sustainability, using tools such as Life Cycle Assessment, Material Flow Analysis and ecological models.
2. Engineering Sciences of Industrial Ecology – Design of technological systems, with a view on sustainable development, using tools from the realm of Design for Sustainability, Ecodesign, and Complex Adaptive Systems.
3. Social Sciences of Industrial Ecology – Analysis and design of social, economic, policy processes related to the implementation of sustainability solutions.

Programme overview and courses (120 EC)*

First year (60 EC)

Compulsory core courses (6 EC each)

- Closed loop supply chains
- General Introduction to Industrial Ecology
- Renewable Energy Systems
- Fundamentals of Modelling and Data Analysis
- Analytical Methodologies and Tools
- Urban Environments and Infrastructures
- Sustainable Innovation and Social Change
- System Earth
- Design of Sustainable Technological Systems

Specialisation courses (6 EC)

During the programme you have to choose at least 18 EC of Specialisation Modules. 6 EC can be done during the first year, and 12 EC during the second year.

Second year (60 EC)

Interdisciplinary Project Group (12 EC)

In groups, students do an assignment for a client on a real industrial ecology problem. By problem-oriented education, the students are trained to cooperate with various disciplines and come up with real solutions for real problems.

Specialisation courses (12 EC)

Thesis Preparation Module (6 EC)

This module results in a report, containing a research proposal and research plan for the Thesis Research Project.

Thesis Research Project (30 EC)

You define and conduct your own research project, in close consultation with two supervisors. The final product is a written report, which you present during an oral defense.

* Please note that this is an overview of the 2018-2019 courses and that the programme is subject to change.