Faculty of Science, Leiden University

and

Faculty of Applied Sciences, Delft University of Technology

Implementation Regulations

September 1st, 2012 till August 31st, 2013

Masters’ Programme Industrial Ecology

Corresponding to the Course and Examination Regulations of the master’s programme Industrial Ecology

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Section 1 - General

Article 1.1 - Semesters and start of the study
The academic year is divided into two semesters. Students can start in the programme at two moments, at the beginning of the first semester or at the beginning of the second semester.

Article 1.2 - Admission Requirements
1. A bachelor's degree in any of the Natural Sciences, Engineering Sciences, or Social Sciences from an accredited university programme and comparable with three years of Dutch Academic Education. The application for admission shall be reviewed by the Board of Admissions.
2. For Dutch HBO students, the grade point average of the entire curriculum has to be 7.5 or higher.
3. The student has a demonstrable affinity with multi-disciplinary education and research by showing course modules, summer courses, internships, or other relevant experiences that are within the endterms of the bachelor’s degree, or at least at sufficient academic level, but clearly outside the main field of the bachelor’s degree.
4. The student has a demonstrable interest in the field of Industrial Ecology and can show in a motivation letter to the admission committee at least one relevant example of the relation between his/her bachelor’s education or previous experience and an academic contribution to the field of Industrial Ecology.
5. Students from abroad must also show proficiency in English, to be demonstrated by IELTS, TOEFL or Cambridge Certificate of Proficiency in English with the levels as prescribed at www.mastersinleiden.nl.

Article 1.3 - Special tracks
The master’s programme does not offer special tracks
Section 2 - Description of the master’s programme

Article 2.1 - General
Industrial Ecology is an interdisciplinary scientific field aiming at analysing sustainability problems and designing and implementing solutions for such problems. Industrial Ecology field studies the technosphere, also known as the physical economy. In almost all cases, flows of energy and materials are the connection between economic activities and environmental problems. These energy and material flows are the core object of Industrial Ecology, as well as the technologies generating those flows and the socio-economic context driving technology development. The educational programme focuses on the analysis, design, and implementation of industrial systems on the analogy of ecological systems and with the least possible adverse sustainability impacts.

The master’s programme Industrial Ecology consists of three parts, providing basic concepts and theories:
1. Natural Sciences of Industrial Ecology - Environmental science, Industrial Ecology 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.

Article 2.2 - Overview of the two-year curriculum
1. Core Modules (54 EC)
2. Interdisciplinary Project Groups (12 EC)
3. Specialisation Modules (18 EC)
4. Master’s Thesis Research Project (36 EC)

<table>
<thead>
<tr>
<th>Coursecode</th>
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<th>Level</th>
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<td>General Introduction to Industrial Ecology</td>
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<td>Fundamentals of Systems, Data, Models and Computational Thinking</td>
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<td>Analytical Methodologies and Tools</td>
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<td>Social Systems - Policy and Management</td>
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<td>Renewable Energy Systems</td>
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<td>Design of Sustainable Technological Systems</td>
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</table>
Article 2.3 - Core modules
These form the central part of the programme and are compulsory for every student.

Article 2.4 - Interdisciplinary Project Groups (12 EC)
In the second year, students join project groups in which they are trained to solve real-life Industrial Ecology problems, by integrating the knowledge and insights they have acquired from studying different disciplines. Students can only participate in the Interdisciplinary Project Groups if they have finished at least 48 EC of the core modules.

Article 2.5 - Specialisation Modules (18 EC, level 400/500/600)
1. Specialisation modules are at master education level, i.e. for Leiden University with a level 400 or higher, or for Delft University of Technology a course from a master’s programme or comparable.
2. The knowledge and skills obtained from Specialisation Modules have to be relevant for the field of Industrial Ecology, and preferably, to the topic of the Master’s Thesis Research Project.
3. The master’s programme Industrial Ecology some specialisation course modules as presented in Article 2.2.
4. The Board of Examiners will provide a list, from which students can make their choice. Students that select courses from this list do not need individual approval.
5. Students can send a request to the Board of Examiners for Specialisation Modules that are not on the list via uSis.

Article 2.6 - Master’s Thesis Research (36 EC, level 600)
Students of the master’s programme Industrial Ecology have to select, depending on their interest and background, a research topic in deliberation with staff members of one or more of the research groups involved. Students has to work independently on a research project. The Master’s Thesis Research Project is composed of two modules as described in Article 2.2. As preparation to the research topic, the involved staff member can ask the student to successfully finish specific
Specialisation Modules, this has to be discussed with the student before the Master’s Thesis Research starts.

**Article 2.7 – Composition of the individual study programme**

1. Each student shall propose an individual study programme (ISP) after having consulted with the study advisor. An ISP must satisfy the final terms as described in the Course and Examination Regulations (OER) and is subject to the approval by the Board of Examiners.
2. Each individual study programme must be submitted via uSis for approval by the Board of Examiners.
3. Amendments to the individual study programme throughout the academic year are likewise subject to approval.

**Article 2.8 – Approval of Specialisation Modules and other individual adaptations of the study programme**

The Board of Examiners makes a decision with regard to the students’ Specialisation Modules and other individual adaptations of the programme within 20 working days following the submission of the proposal.
Section 3 - Date of commencement

These regulations come into force on September 1st, 2012. These regulations have been decreed by the Deans of the respective faculties together with the Course and Examination Regulations of the Master's Programme Industrial Ecology.