

## Aquatic Ecotechniques (1002709)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits 4.0**

**Study time 120 h**

**Course offerings and teaching methods in academic year 2025-2026**

A (semester 1)

English

Gent

independent work

lecture

seminar

**Lecturers in academic year 2025-2026**

Goethals, Peter

LA22

lecturer-in-charge

**Offered in the following programmes in 2025-2026**

**crdts**

**offering**

[Master of Science in Bioscience Engineering: Land, Water and Climate](#)

4

A

[Exchange Programme in Bioscience Engineering: Land and Forest management \(master's level\)](#)

4

A

**Teaching languages**

English

**Keywords**

ecodesign of ponds, wetlands, reservoirs, rivers and channels; nature-sound banks; fish ladders; reproduction zones; integrated ecosystem management; building with nature; habitat monitoring and assessment; habitat modelling

**Position of the course**

This course aims to make students familiar with the construction and restoration of aquatic systems, with a particular emphasis on nature development and conservation.

**Contents**

*1. Introduction: Overview on aquatic ecotechniques and current needs and trends (building with nature, sustainable aquaculture, relation with ecosystem functions and services and SDG's); 2. Physical habitat (and use) monitoring: habitat conditions, (field inventarisatation, (underwater)drones and remote sensing, coupling with habitat models and GIS; 3. Habitat assessment tools for sites and system analysis; 4. Habitat protection and restoration: techniques (construction of reproduction areas, fish ladders, natural banks); 5. Management and policy context: legislation and (maintenance) management; 6. Case study: field inventory and habitat design exercise; 7. Practical exercises on habitat modelling*

**Initial competences**

*Basic knowledge of general ecology and chemistry are sufficient to follow this course.*

**Final competences**

- 1 The student is able to define and explain habitat restoration and protection methods
- 2 The student is able to monitor and assess physical habitats of aquatic systems
- 3 The student is able to provide methods to restore an aquatic ecosystem
- 4 The student can provide an overview of the policy context of physical habitats and indicate relevant maintenance options
- 5 The student is able to apply physical habitat models on aquatic ecosystems
- 6 The student is able to make an ecosdesign study in a practical setting

**Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

**Conditions for exam contract**

This course unit cannot be taken via an exam contract

**Teaching methods**

Seminar, Lecture, Independent work

**Extra information on the teaching methods**

Hoorcollege (theory), werkcollege (modelling), practicum (design exercise)

**Study material**

None

**References****Course content-related study coaching**

individuele begeleiding op verzoek, begeleide oefeningen (modellering en designoefening), ondersteuning en communicatie via Ufora

**Assessment moments**

end-of-term and continuous assessment

**Examination methods in case of periodic assessment during the first examination period**

Written assessment

**Examination methods in case of periodic assessment during the second examination period**

Written assessment

**Examination methods in case of permanent assessment**

Assignment

**Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible in modified form

**Extra information on the examination methods**

Exam consisting of questions related to theory and (insight)exercises

**Calculation of the examination mark**

exam: 2/3 of the score ; Design study: 1/3 of the score