Aquatic Ecotechniques (I002709)

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

Credits 4.0   **Study time** 120 h   **Contact hrs** 40.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	English	Gent	seminar	10.0h
			self-reliant study activities	10.0h
			lecture	20.0h

Lecturers in academic year 2022-2023

Goethals, Peter	LA22	lecturer-in-charge

Offered in the following programmes in 2022-2023	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 emphasiz 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 inventarisation, (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, Self-reliant study activities

Extra information on the teaching methods

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

Learning materials and price

A diverse set of books and scientific articles

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 examination

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

Written examination

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