

Circular Cities (I002772)

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

Credits 3.0

Study time 90 h

Course offerings and teaching methods in academic year 2023-2024

A (semester 1)

English

Gent

excursion

lecture

group work

seminar

peer teaching

independent work

Lecturers in academic year 2023-2024

Du Laing, Gijs

LA24

lecturer-in-charge

Offered in the following programmes in 2023-2024

[International Master of Science in Sustainable and Innovative Natural Resource Management](#)

3

A

[Exchange Programme in Bioscience Engineering: Environmental Technology \(master's level\)](#)

3

A

Teaching languages

English

Keywords

Sustainability, sustainable cities, circular cities, circular economy

Position of the course

In the yearly CIRCU-CITY course, a group of international students from multiple disciplines (e.g., environmental technology, energy, industrial/civil/environmental engineering, architecture and urban planning, chemistry, materials sciences) is trained and challenged to co-develop novel solutions for sustainable circular cities.

Contents

The course combines an online trajectory with an on campus week in Ghent. It consists of a series of online lectures and workshops given by experts in the field related to a variety of aspects of the circular economy, and a field visit, workshops and a tournament in the on campus week. In the tournament, multidisciplinary groups of 4-6 students are challenged to design a new city district, meanwhile working towards sustainable development goals, and dealing with scenario's and challenges with respect to food, energy, materials, water, urban planning and mobility. They should develop a masterplan and visualize their design. Students learn to analyse water, energy and food cycles, and make them more sustainable, to create synergies between various urban cycles and to learn and apply key concepts for sustainable circular cities. Moreover, a lot of focus is laid on generic skills, such as systems thinking (multi-, inter- & transdisciplinary thinking), teamwork, leadership & intercultural competencies, multiperspectivism, problem- & challenge-based learning, critical, creative and innovative thinking and social and communication skills.

Initial competences

Basic knowledge of chemistry, mathematics and physics

Final competences

- 1 Identify the short- and long-term future consequences of plans and decisions along the entire value chain from an integrated scientific, economical, ethical and intergenerational perspective, and merge this into a solution-focused approach, moving towards a sustainable society
- 2 Have awareness regarding global and long-term dimensions of sustainability and a capacity to identify sustainability issues at local, regional and global scales, involving different stakeholder perspectives
- 3 Assess risks related to different approaches that can be used to increase resource sustainability in the value chain, develop scenarios and mitigation strategies, and assess environmental and social impacts, as well as technical and economic feasibility of these approaches and strategies.
- 4 Think beyond the boundaries of a single (research) domain or economic sector, and systematically explore and generate new ideas to evolve towards a more sustainable society.
- 5 Use knowledge, ideas and technology to create new or significantly improved products, services, processes, policies, new business models or jobs.
- 6 Express openness to innovative scientific developments and their applications in a broad scientific, economic and social context.
- 7 Have the ability to make decisions and show leadership, based on a holistic understanding of the contributions of higher education, research, and business to value creation, in limited sized teams and contexts
- 8 Have intercultural competences, social and communicative skills which are essential to work in an international team and communicate with stakeholders, take leadership positions in the academic as well as non-academic sector, and to collaborate with a variety of stakeholders involved in the raw materials supply chain.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, Seminar, Excursion, Lecture, Independent work, Peer teaching

Extra information on the teaching methods

The course combines an online trajectory with an on campus week in Ghent. It consists of a series of online lectures and workshops given by experts in the field related to a variety of aspects of the circular economy, and a field visit, workshops and a tournament in the on campus week. In the tournament, multidisciplinary groups of 4-6 students are challenged to design a new city district, meanwhile working towards sustainable development goals, and dealing with scenario's and challenges with respect to food, energy, materials, water, urban planning and mobility. They should develop a masterplan and visualize their design.

Learning materials and price

English lecture slides will be distributed to students. All course material, including background reading material, is distributed electronically by means of Ufora.

References

Course content-related study coaching

The lecturers are available during and directly after lectures and workshops for questioning, feedback and guidance.

Assessment moments

continuous assessment

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

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

Examination methods in case of permanent assessment

Written assessment with multiple-choice questions, Participation, Written assessment with open-ended questions, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Calculation of the examination mark