GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2026-2027

Sustainable Development and Multicriteria Decision-making (I002919)

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

Credits 3.0 **Study time 75 h**

Course offerings in academic year 2026-2027

A (semester 1)	English	Gent

Lecturers in academic year 2026-2027

Du Laing, Gijs	LA24	lecturer-in-charge

Offered in the following programmes in 2026-2027	**crdts**	**offering**
International Master of Science in Sustainable and Innovative Natural Resource Management	3	A
Master of Science in Geology	3	A

Teaching languages

English

Keywords

Multicriteria decision making, sustainability, sustainable development, social license to operate, raw materials value chain,
circular economy

Position of the course

This course is taught in the first semester of the SINReM programme (International Master of Science in Sustainable and
Innovative Natural Resource Management), with the aim to introduce concepts such as sustainability and sustainable
development, and offer tools for decision-making based on multiple criteria (e.g. social, economic and environmental
impact).

Contents

In the first part of this course, sustainability is defined and the concept of sustainable development, sustainable development goals, its history and conceptual framework are briefly introduced. The second part focuses on how this concept is operationalized. Environmental, social and economic impacts and problems that may arise in different parts of the raw materials value chain, at local, regional and global scales, are identified. Tools, criteria and indicators used to assess sustainability of goods and services as well as methodology to take decisions based on multiple criteria and concepts such as social license to operate are introduced. The course is based on a number of real cases. In these cases, students will assess the sustainability of different technological solutions and strategies that can be followed to meet increasing demands of raw materials and optimize material flows in the value chain. They will take decisions based on multiple criteria, dealing with associated trade offs.

Initial competences

Initial competences of the SINReM Master programme.

Final competences

1 have the ability to identify environmental, technical, social and economic problems that may arise in the raw materials value chain
2 have insights in factors affecting the sustainable supply of raw materials and (technological) solutions for optimising material flows in the different parts of

the value chain, and be able to compare them, taking technical and economic aspects as well as social and environmental impacts into account;
3 be able to 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;
4 have awareness regarding global and long-term dimensions of sustainability and a capacity to identify sustainability issues at local, regional and global scales;
5 be able to assess environmental and social impacts of different approaches that can be used to increase resource sustainability in the value chain;
6 be able to identify the shortand 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;
7 have the ability to make decisions and show leadership

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

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

Extra information on the teaching methods

Participation in the (weekly) on-campus sessions is mandatory (participation is scored as part of the final evaluation). No systematic lecture recordings are provided.

Study material

Type: Slides

Name: -
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes

References

Course content-related study coaching

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

Oral assessment, Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Calculation of the examination mark

- Evaluation of theory (individual - closed book): 50%
- Group assignment on MCDA (includes participation and peer assessment): 50%