

Sustainability Thinking (K001339)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size	<i>(nominal values; actual values may depend on programme)</i>		
Credits 5.0	Study time 150 h	Contact hrs	45.0 h

Course offerings and teaching methods in academic year 2022-2023

A (year)	Dutch	Gent		
			seminar	10.0 h
			group work	15.0 h
			PDE tutorial	5.0 h
			lecture	10.0 h
			microteaching	5.0 h

Lecturers in academic year 2022-2023

Block, Thomas	PS03	lecturer-in-charge
Paredis, Erik	PS03	co-lecturer

Offered in the following programmes in 2022-2023

	crdts	offering
Bachelor of Arts in African Languages and Cultures	5	A
Bachelor of Arts in Archaeology	5	A
Bachelor of Science in Business Administration	5	A
Bachelor of Science in Business Economics	5	A
Bachelor of Science in Economics	5	A
Bachelor of Science in Public Administration and Management	5	A
Master of Science in Teaching in Social Sciences (main subject Communication Science)	5	A
Bridging Programme Master of Science in Industrial Engineering and Operations Research	5	A
Bridging Programme Master of Science in Industrial Engineering and Operations Research	5	A
Master of Science in Electrical Engineering Technology (main subject Automation)	5	A
Master of Science in Communication Science (main subject Communication Management)	5	A
Master of Science in Electrical Engineering (main subject Communication and Information Technology)	5	A
Master of Science in Electromechanical Engineering (main subject Control Engineering and Automation)	5	A
Master of Science in Business Engineering (main subject Data Analytics)	5	A
Master of Science in Electrical Engineering Technology (main subject Electrical Engineering)	5	A
Master of Science in Electromechanical Engineering (main subject Electrical Power Engineering)	5	A
Master of Science in Electrical Engineering (main subject Electronic Circuits and Systems)	5	A
Master of Science in Communication Science (main subject Film and Television Studies)	5	A
Master of Science in Business Engineering (main subject Finance)	5	A
Master of Science in Communication Science (main subject Journalism)	5	A
Master of Science in Industrial Engineering and Operations Research (main subject Manufacturing and Supply Chain Engineering)	5	A
Master of Science in Electromechanical Engineering (main subject Maritime Engineering)	5	A
Master of Science in Electromechanical Engineering (main subject Mechanical Construction)	5	A
Master of Science in Electromechanical Engineering (main subject Mechanical Energy Engineering)	5	A

Master of Science in Communication Science (main subject New Media and Society)	5	A
Master of Science in Business Engineering (main subject Operations Management)	5	A
Master of Science in Industrial Engineering and Operations Research (main subject Transport and Mobility Engineering)	5	A
Master of Science in Biomedical Sciences	5	A
Master of Science in Biology	5	A
Master of Science in Bioscience Engineering: Forest and Nature Management	5	A
Master of Science in Chemical Engineering	5	A
Master of Science in Chemical Engineering	5	A
Master of Science in Civil Engineering	5	A
Master of Science in Civil Engineering	5	A
Master of Science in Complementary Studies in Economics	5	A
Master of Science in Computer Science Engineering	5	A
Master of Science in Computer Science Engineering	5	A
Master of Science in Conflict and Development Studies	5	A
Master of Science in Electromechanical Engineering Technology	5	A
Master of Science in Engineering Physics	5	A
Master of Science in Engineering Physics	5	A
Master of Science in Fire Safety Engineering	5	A
Master of Science in Geography and Geomatics	5	A
Master of Science in Geology	5	A
Master of Science in Industrial Engineering and Operations Research	5	A
Master of Science in Sustainable Materials Engineering	5	A
Postgraduate Programme in Innovation and Entrepreneurship in Engineering	5	A
Postgraduate Programme in Innovation and Entrepreneurship in Engineering – Foundations	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A
Ghent University Elective Courses	5	A

Teaching languages

Dutch

Keywords

Sustainable development, Sustainability transitions, Multiperspectivism, Multi- and transdisciplinarity

Position of the course

Over the last years, we have increasingly been confronted with fascinating, often complex and urgent challenges of sustainability: climate change, food crises, poverty, urbanization and gentrification, loss of biodiversity, etc. Expert knowledge concerning these sustainability issues is incomplete, fragmented, and uncertain, giving rise to scientific controversies. Furthermore, social and political controversy arises due to a lack of agreement on norms and values at stake and on the acceptability of goals and solutions. As such, sustainability issues are increasingly characterised and interpreted as so-called complex or 'wicked' problems, as problems without clear-cut solutions. Acknowledging this complexity and taking it into account in decision-making and actions is not self-evident, neither inside nor outside the academic world.

In this course, we confront students with different perspectives on a sustainability issue and

encourage them to explore the complexity, ambiguity and controversies this brings about - yet without falling into undue anything-goes-relativism. Students will experience that, in general, experts from the exact sciences use another framing than social scientists, and that the knowledge of academics, policy-makers, business leaders and representatives of NGO's is complementary, but often diverges. Some are predominantly concerned with ecological limits, while others prioritise poverty and social exclusion. Sometimes a global perspective dominates, at other times a local one. Etc. This course aims to familiarise students with the multi- and transdisciplinary character of topical sustainability problems and with multiperspectivism, and as such, to lay bare the politics of these issues.

Due to COVID-19 and because of the choice of multiple activating teaching methods, a maximum of 50 students will be able to follow the course "Sustainability Thinking" in the academic year 2022-2023. The order of registration will serve as a selection criterion (i.e. the first 50 registrations).

Contents

This course consists of several introductory lessons that focus on (1) the basic concepts concerning sustainability, (2) the most important perspectives on sustainability (e.g. Brundtland report, UN/Rio Conferences, Ecological modernization, Limits to growth, Factor four, Ecological Economics, Environmental justice, Degrowth, etc.), (3) the difference between multi-, inter- and transdisciplinary (incl. Mode 1 vs. Mode 2 Science), and (4) transition thinking and how the connection can be made with the ambition of realising sustainable development: What are transitions? How can structural, technological and cultural changes be understood? Can sustainability transition be influenced? Which perspectives and methods are proposed for that? Also student-led lessons will be organised.

To show how a sustainability topic can be approached in an inter- and multidisciplinary way (in which knowledge from different scientific disciplines is used) as well as a transdisciplinary way (in which not only academic knowledge, but also knowledge from e.g. policy, business and the NGO-world is valued) the students have to accomplish group writing assessments on the annual theme 'sustainable consumption'. Using different research techniques and methods, they will scrutinise this issue. During interactive seminars the lecturers will explain each technique, e.g. niche analysis or discourse analysis. We will also develop an experiment in which breaking through routines is at the forefront.

Intensive guidance and a customised approach is foreseen, but all groups have to accomplish the group works independently and write group papers. All groups focus on the same annual issue. It is possible that one or more experts on sustainable consumption (e.g. from a university, a company, a NGO, etc.) will be invited to contribute with a guest lecture.

De final results of all group assignments will be presented and discussed at a final seminar.

Initial competences

None

Final competences

- 1 Students understand the central concepts, main perspectives and analytical frameworks of sustainability and transition theories, and know how to apply them.
- 2 Students are capable to formulate in a inter- and transdisciplinary way and also in a critical and substantiated way the problem statement of the annual themes.
- 3 Students are capable to outline the contours of sustainability issues taking into account multiple perspectives.
- 4 Students are capable to develop and substantiate their own normative position on the annual themes.
- 5 Students are capable to make a report and presentation about a sustainability issue.

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, lecture, microteaching, PDE tutorial, seminar

Extra information on the teaching methods

Lectures: cf. introductory lessons with PowerPoint presentations and guest lectures. We will also use relevant papers and spread these via Ufora. Students should deal with some papers independently.

Seminars: to conduct and accomplish the group works students will learn to apply a research techniques to investigate a sustainability issue (e.g. niche analysis, experiential learning, discourse analysis, etc.), to use knowledge and insights offered during the lectures (e.g. transdisciplinarity, multiperspectivism, the multi-level perspective on sustainability transitions), and investigate a specific case in small groups. An experiment around breaking routines will also be developed. During the interactive seminars, each group will be supported, supervised and encouraged by the lecturers to conduct their assignments in a scientifically sound way, to think critically, be open-minded, discuss preliminary results and reflectively plan the next steps. PBL-tutorial: the lecturers discuss the preliminary results of each group, reflect on the (possible) conclusions and steer the further research process. Students are encouraged to work in a scientific way, to leave room for different perspectives, to dive into concrete practices (if relevant).

Group work: students will accomplish the group writing assessments, partly independently, and partly with help from the lecturers (cf. 'seminars'). Besides the seminars, if needed students can request further feedback throughout the whole research and writing process.

Microteaching: Besides the student-led lessons, this concerns the presentation of the final results (group work) to all students during an open/public congress.

Learning materials and price

No costs:

- Dutch or English publications of lecturers, guest lecturers or other authors(downloadable online)
- Slides of lecturers (downloadable online)
- Students' personal lecture notes.
- Group work, seminars and microteaching: students have to search, find, download and/or copy relevant materials (e.g. articles, blogs, books, etc.) on their own.

References

Following publications are recommended:

- Block T., Paredis E. (2019), Het politieke karakter van duurzaamheidsvraagstukken. In: Coene J., Raeymaeckers P., Hubeau B., Marchal S., Remmen R. en Van Haarlem A. (red.) *Armoede en Sociale Uitsluiting, Jaarboek 2019*, Acco: Leuven/Den Haag.
- WCED/World Commission on Environment and Development (1987), *Our Common Future*. Oxford/New York: Oxford University Press.
- Grin, J., Rotmans, J., Schot, J. (eds.) (2010), *Transitions to Sustainable Development. New Directions in the Study of Long Term Transformative Change*. New York: Routledge.

Course content-related study coaching

Intensive support during seminars en PBL-tutorial, but extra consultation is possible by appointment.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions

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

Written examination with open questions

Examination methods in case of permanent evaluation

Participation, assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Extra information on the examination methods

Periodical evaluation (first and second exam period): written exam consists of

- One or more survey and comparative questions regarding the lectures' subject matter
- One essay question probing the student's capability to relate the subject matter to a concrete sustainability issue and/or one question to test whether the student is able to develop an unsubstantiated normative position on the annual themes.

Non-periodical evaluation:

- First exam period: scoring on interim assignments and on participation in group assessments, quality of paper and presentations, taking into account the assimilation of received suggestions and critiques. Attendance required during group work, PBL-tutorial and the presentations of the (own) group work.

- Second exam period: only possible in modified form, i.e. scoring on a short individual paper dealing with the annual themes dealt with in the group writing assessments.

Calculation of the examination mark

Periodical : 40%

Non-periodical: 60%

Facilities for Working Students

This course is difficult for working students to follow because attending workshops and presentation moments is mandatory and no substitute assignments are possible.