MASTER OF SCIENCE IN PHYSICAL LAND RESOURCES

MAIN SUBJECTS: SOIL SCIENCE • LAND RESOURCES ENGINEERING

Master's Programme organised jointly by Ghent University (Faculty of Sciences/Faculty of Bioscience Engineering), Vrije Universiteit Brussel (VUB) (Faculty of Engineering)

120 ECTS CREDITS – LANGUAGE: ENGLISH – DEGREE: MASTER OF SCIENCE

COURSE CONTENT

The list of challenges facing humanity and the planet is huge: climate change, food and water insecurity, environmental degradation, a projected global population of 9 billion by 2050, and resulting from this, conflict, war and migration. These challenges are strongly linked with physical land resources, and soil and water in particular. A thorough understanding of physical land resources and how to manage and engineer soil and water is thus essential in addressing current and future challenges, and particularly to increase biomass production while minimizing environmental hazards. This is acknowledged by the international scientific community and policy makers, and resulted in international conventions such as the United Nations (UN) Convention to Combat Desertification, International Panel for Food Security, UN Convention for Biodiversity, International Panel on Climate Change. At the World Climate Summit 2015 held in Paris, soil management was considered as a formal part of the global response to the climate crisis.
We offer a top-rated, unique and international programme that was ranked first in recent programme evaluations by students. It is one of the few programmes worldwide with such a strong focus on soils in relation to climate change, food and water insecurity, environmental degradation and engineering applications and thus addressing directly and indirectly most of the new 17 UN Sustainable Development Goals. The programme is taught in English and is followed by students from all continents, resulting in a unique international experience. The programme is research-based with specific training on how to write and defend a research proposal, and with an important part of the programme being allocated to the master dissertation. Students thus get the opportunity to be involved as junior researchers in cutting-edge research.

COURSE STRUCTURE

The two-years (120 credits) interfaculty and interuniversity programme combines in-depth knowledge on soil materials from an agricultural, hydrological and geotechnical perspective, which is rather unique. The curriculum is tailor-made in that students have a great flexibility in developing their curriculum to their personal needs and interests. 80 (out of the total 120) credits are to be achieved by taking up elective courses and activities (including a master dissertation, on a research topic of choice). Students can also choose to follow a preparatory summer school. We offer an attractive, balanced and coherent programme (from theory to laboratory to practice) with a wide range of different teaching methods including field work, excursions, laboratory work, computer workshops, group discussions, microteaching, scientific communication, classroom lectures and internship. Our students really appreciate this applied and practical approach to teaching, in combination with a solid academic and theoretical formation. Attention is not only given to the latest technological developments and equipment, but also to low-tech alternative solutions encouraging self-reliance.

The first year provides a fundamental basis in physical land resources, with a main subject in either Soil Science or Land Resources Engineering. The second year offers specialised courses in one of the two main subjects.

> Main Subject: Soil Science

This main subject has a strong focus on agricultural use and applications. Graduates acquire the knowledge and skills to understand the development and evolution of soils under natural conditions or following human interference using field, map, laboratory and remote sensing data. They have the scientific knowledge to use and manage soil and water in a sustainable way, and to optimise land use under different natural and environmental conditions.

> Main subject: Land Resources Engineering

This main subject offers training in non-agricultural use and application of soil and includes geotechnical aspects (use of soil as a building material or for foundations, slope stability and stability of excavations). It also offers training in the role of soil- and groundwater for water management and supply, soil management in relation to environment and land use (erosion, sediment transport, coastal development and protection).

> Master dissertation

An important part of the program (30 credits) is allocated to the master dissertation. Guided visits to the research units of all lecturers are organised in semester 1 to offer students a full picture of all relevant research activities and the existing infrastructure. Students start collecting data and conduct field and lab work between semester 2 and 3 (summer holiday). In the 2nd year, students avail of the full 2nd semester for all the work related to the master dissertation. They have to integrate the acquired knowledge with (guided) self-study, which involves experimental work, data analysis and interpretation, writing and communication. The master dissertation is an important measure of the final competences obtained by the student. It has to be defended orally before a jury and an audience of peers.

CAREER PERSPECTIVES

There is a great demand for experts in physical land resources to address the many challenges ahead of us, particularly resulting from the lack of similar programmes worldwide. Implementation of various environmental and climate change related directives and addressing the sustainable development goals, demands well-trained personnel in physical land resources, both in the 'North' and 'South'. A recent alumni survey showed that the great majority of alumni were very satisfied with the programme and with the opportunities it created for their current jobs. Most alumni are employed in education/training, public service/government or agriculture/agro-industry/water resources/environment sector. The graduates have the competence to be active in both basic and applied research at universities, research institutes and other government institutions and non-governmental organisations, and to apply their knowledge and skills as required by the overall development policy of their country.

FACULTY OF BIOSCIENCE ENGINEERING

2018–19

BW14

MASTER OF SCIENCE IN PHYSICAL LAND RESOURCES

120 ECTS CREDITS – LANGUAGE: ENGLISH – DEGREE: MASTER OF SCIENCE

TOELATINGSVOORWAARDEN VOOR HOUDERS VAN EEN VLAAMS DIPLOMA

Rechtstreeks:

- Ba bio-ingenieurswetenschappen
- Ba chemie
- Ba biologie
- Ba geologie
- Ba geografie en geomatica
- Ba geografie
- Ba fysica
- Ba fysica en sterrenkunde
- Ba biochemie en biotechnologie
- Ba ingenieurswetenschappen (alle)
- Ba industriële wetenschappen
- Ba biowetenschappen
- Ba Environmental Technology (Incheon)
- Ba Food Technology (Incheon)
- Ba Molecular Biotechnology (Incheon)

TAAL

Je voldoet aan de taalvoorwaarden op basis van je Vlaams diploma.

PRAKTISCHE INFORMATIE

Studieprogramma:
https://studiegids.ugent.be
> faculteiten > opleidingstypes > ga naar de opleiding van je keuze

Alternatieve trajecten
Vrijstellingen / Doorstroomprogramma's

Ben je in het bezit van een relevant bachelor- en/of masterdiploma (zie toelatingsvoorwaarden categorie "rechtstreeks") en denk je in aanmerking te komen voor studieduurverkorting via vrijstellingen, contacteer de trajectbegeleider.
Ben je in het bezit van een masterdiploma waarvan het bachelorvoortraject bij de toelatingsvoorwaarden vermeld staat onder de categorie "via voorbereidingsprogramma", dan kan je eventueel – na toelating op basis van dossieronderzoek – onmiddellijk starten in de betreffende masteropleiding (horizontale instroom). Je volgt dan een geïndividualiseerd traject van minstens 120 sp. De trajectbegeleider is je contactpersoon.
Meer info: www.ugent.be/bw/start-een-master

Infomomenten

Masterbeurs - www.ugent.be/masterbeurs

ADMISSION REQUIREMENTS FOR INTERNATIONAL DEGREE STUDENTS

For programme specific academic and language requirements consult www.ugent.be/bw/en/education/master-programmes.

PRACTICAL INFORMATION

Study programme
www.ugent.be/coursecatalogue
> by Faculty > Programme types > select your programme

Application deadline
For programme specific application procedures and deadlines consult www.ugent.be/bw/en/education/master-programmes.

Enrolling institution
Ghent University (Soil Science) and Vrije Universiteit Brussel (VUB) (Land Resources Engineering)

Tuition fee
More information is to be found on:
www.ugent.be/tuitionfee and www.itc.ugent.be.
More information about scholarship opportunities:
www.ugent.be/bw/en/international-training-centre/scholarship

Trajectbegeleiding/Learning path counsellor
Mevr. Isabelle Vantornhout
studietraject.coupure.bw@ugent.be - www.ugent.be/bw

Contact
Ghent University - Faculty of Bioscience Engineering
International Training Centre
Campus Coupure, Coupure Links 653 - 9000 Gent
www.itc.ugent.be - applications.itc@ugent.be

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