

Geology of Building Stones (C003995)

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

Credits 6.0 Study time 176 h Contact hrs 52.0 h

Course offerings and teaching methods in academic year 2017-2018

A (semester 1)	English	lecture	22.5 h
		fieldwork	15.0 h
		practicum	15.0 h

Lecturers in academic year 2017-2018

Cnudde, Veerle	WE13	lecturer-in-charge
De Kock, Tim	WE13	co-lecturer

Offered in the following programmes in 2017-2018

	crdts	offering
Master of Science in Geology	6	A
Master of Science in Geology	6	A

Teaching languages

English

Keywords

natural stone, macro- and microscopical characteristics, technical characteristics, techniques, weathering

Position of the course

Recognising the discussed natural building stones based on information from several different research domains (petrography, microscopy, engineering ,...) (M. 1.1; M 1.3; M 1.4)

Being able to develop a research plan for the identification of natural building stones (M. 2.1., M. 2.3)

Being able to report the results of the characterization research into a scientific report (M. 3.2)

Being able to define the history of the stone (origin of the stone and weathering processes) and to suggest replacement stones (M. 5.1, M. 6.1)

Contents

Description of the most important characterization techniques and international standards on natural stones.

List of the most used building stones in Belgium.

For every natural stone following aspects are discussed: geological origin, historical meaning, macroscopical and microscopical characteristics, technical characteristics, occurrence, etc.

Weathering and conservation/restoration of natural stones are discussed: the different weathering processes, conservation methods, restoration methods, replacing material. Several case-studies are discussed.

Initial competences

basic knowledge of optical mineralogy and petrography

Final competences

- 1 The student can recognize the most important natural building stones used in Belgium based on microscopical and macroscopical characteristics.
- 2 The student is able to develop a research plan for the identification of natural building stones and characterizing properties.
- 3 The student is able to report the results of the characterization research into a scientific report.

- 4 The student has the knowledge on the most relevant aspects of natural building stones, used in historical buildings: origin, use, macroscopical and microscopical characteristics, technical characteristics, weathering processes and potential replacement stone.
- 5 The student is able to judge in an uncertain context.

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

Lecture, practicum, fieldwork

Extra information on the teaching methods

Practicals: Petrography of natural stones used in Belgium (hand specimens and microscopy); petrophysical testing.

Learning materials and price

Syllabus (mainly based on standard works, a.o. see references)
Estimated cost excursions: 14 euro

References

Publications BBRI
Natuursteen in Vlaanderen, versteend verleden. Duser, M., Dreesen, R., De Naeyer, A., 2009. Wolters Kluwer, Mechelen. ISBN:9783642451553 978-3-642-45155-3
Gent...Steengood!, Cnudde et al., 2009. Academia press, 416 p.
Stone in Architecture: Properties, Durability. Siegesmund, S., Snethlage, R., 2014. Springer, 550 pp. ISBN: 9789046523674

Course content-related study coaching

Interactive support by Minerva (emails)
Personal contact after 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

Skills test

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Written exam + Practical exam petrography

Calculation of the examination mark

- Written exam 65%
- Practical exam + report 35%

Not attending the practical courses, without a justified reason can lead to a failure