

Course Specifications

From the academic year 2018-2019 up to and including the

Materials Science (F000265)

Course size (nominal values; actual values may depend on programme)
Credits 3.0 Study time 90 h Contact hrs 30.0 h

Course offerings and teaching methods in academic year 2019-2020

Offering	Language	Teaching Method	Hours
A (semester 2)	Dutch	lecture	15.0 h
		group work	15.0 h
E (semester 2)	English	guided self-study	15.0 h
		group work	15.0 h

Lecturers in academic year 2019-2020

Verleysen, Patricia	TW08	lecturer-in-charge
Kersemans, Mathias	TW11	co-lecturer

Offered in the following programmes in 2019-2020

Programme	crdts	offering
Bachelor of Science in Economics	3	A
Bachelor of Science in Business Engineering	3	A
Master of Science in Economics	3	A
Preparatory Course Master of Science in Business Engineering	3	A, E

Teaching languages

Dutch, English

Keywords

Materials, material testing, polymers, composites, ceramics, metals

Position of the course

Understanding the process of material selection and technical terms referring to material properties. Quantifying material properties.
Overview of common materials in the following classes : metals, composites, synthetic polymers and ceramics.

Contents

The material selection process : definition of the problem, classification of materials and formulation of design criteria. Basic notions concerning the mechanical behavior of materials.

Chemical structure, properties, methods of fabrication and possible applications of synthetic polymers, composites and technical ceramics.

Initial competences

Elementary principles of chemistry and physics.

Final competences

- 1 Definition of the material selection process.
- 2 Learning the terminology used to describe materials and their properties.
- 3 Being able to explain the methods currently used to test materials.
- 4 Gaining insight into the limitations and the use of materials.

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

Guided self-study, group work, lecture

Extra information on the teaching methods

Ex cathedra, with multimedia and demonstrations.

Learning materials and price

Syllabus Cost: 8 EUR

References

- “Materials Selection and Process in Mechanical Design” from M. Ashby (Cambridge University)“
- Materials Science and Engineering : an Introduction” from Callister W. D.. John Wiley & Sons, Inc. 1996.

Course content-related study coaching

Professor and assistants are at the disposal of the students.

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination

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

Written examination

Examination methods in case of permanent evaluation

Report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Theory, written examination, closed books.

Their knowledge concerning materials and testing techniques will be examined.

The insight the students have gained into the use of materials, their application in structures and the problems related with this, will be checked.

Calculation of the examination mark

Permanent (33%) and End-of-Term (67%) evaluation.