Solid State Chemistry (C002562)

Valid as from the academic year 2014-2015

Course Specifications

Lecturers in academic year 2017-2018

Hens, Zeger
Van Der Voort, Pascal
Van Driessche, Isabel

Course offerings and teaching methods in academic year 2017-2018

A (semester 2)
practicum 5.0 h
lecture 27.5 h
seminar: coached exercises 25.0 h

Offered in the following programmes in 2017-2018

Master of Science in Chemistry 6 A
Master of Science in Chemical Engineering 6 A
Master of Science in Sustainable Materials Engineering 6 A
Master of Science in Chemical Engineering 6 A
Exchange Programme in Chemistry (master's level) 6 A

Teaching languages

English

Keywords

Solid state chemistry, synthesis, physical and chemical properties, chemistry of surfaces, analysis techniques

Position of the course

Solid state chemistry is one of the major courses of the master in chemistry program. It is based on a number of courses taught at the bachelor level like chemical thermodynamics and crystallography. The course makes up a starting point for a number of optional courses in the master program. The course gives an overview of solid state chemistry starting with the crystalline structure of solids and finishing with the applications of solids in chemistry. It aims at giving students an understanding in the physical and chemical properties of solids and the solid surface and in the analysis of solid state properties.

The course addresses the following competences: M.1.1, M.1.3, M.1.4, M.2.2, M.2.5, M.3.2, M.3.6, M.4.1

Contents

1. Crystal structures - overview of crystal structures, closed packed structures, common crystals structures of compounds, defects.
2. Synthesis of solids.
4. Physical properties - electrical properties, interaction with light, magnetic properties, thermal properties, mechanical properties.
5. Semi-crystalline and amorphous materials - silica, zeolites.
6. The solid surface - gas adsorption, adsorption-isotherms.

Initial competences

- General chemistry and physics courses at the bachelor level.
Final competences
http://www.ugent.be

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, seminar: coached exercises

Learning materials and price
English language course book. Cost: 15 EUR

References

Course content-related study coaching
Interactive support by means of Minerva. Possibility for questions and discussions following each classroom lecture.

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, skills test

Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible

Extra information on the examination methods
Non-periodic evaluation: lab sessions. periodic evaluation: theory and exercises.

Calculation of the examination mark
The parts refer to the sectioning in the course content
Part 1-2 – 30%
Part 3-4 – 35%
Part 5-6 – 35%