Course Specifications
Valid as from the academic year 2014-2015

Course

Solid State Chemistry (C002562)

Lecturers in academic year 2017-2018
Hens, Zeger WE06 co-lecturer
Van Der Voort, Pascal WE06 co-lecturer
Van Driessche, Isabel WE06 co-lecturer

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

<table>
<thead>
<tr>
<th>Programme</th>
<th>crdts</th>
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<tbody>
<tr>
<td>Master of Science in Chemistry</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Chemical Engineering</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>Master of Science in Sustainable Materials Engineering</td>
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<tr>
<td>Master of Science in Chemical Engineering</td>
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<tr>
<td>Exchange Programme in Chemistry (master's level)</td>
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<td>A</td>
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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.

(Approved)
• fysische chemie I: chemische thermodynamica.
• kristallografie.
• kwantum chemie.

**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**

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**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**


**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%