Course Specifications
Valid as from the academic year 2015-2016

Analytical Chemistry (E070410)

Vanhaecke, Frank
WE06 lecturer-in-charge

Offered in the following programmes in 2018-2019
Bachelor of Science in Chemical Engineering and Materials Science 3 A

Teaching languages
Dutch

Keywords
Chemical analysis, titration, atomic absorption spectrometry (AAS), ICP - optical emission spectrometry (ICP-OES), gas (GC) and liquid chromatography (LC), CHNSO elemental analysis, mass spectrometry (MS), nuclear magnetic resonance spectrometry (NMR)

Position of the course
This course aims at providing some insight into the basic operating principles of some widely used analytical techniques and their application areas. Also applications are paid attention to.

Contents
• Volumetric analysis: Acid-base titrations, Redox titrations
• Atomic absorption spectrometry: AAS
• ICP optical emission spectrometry: ICP-OES
• Introduction to mass spectrometry: MS
• Introduction to chromatography: Chromatography
• Gas chromatography: GC
• Liquid chromatography: LC
• CHNSO elemental analysis: CHNSO
• Nuclear Magnetic Resonance Spectrometry: NMR

Initial competences
The end competences described for General Chemistry.

Final competences
1 Have insight into capabilities and limitations of the most important techniques for chemical analysis (selection after consultation of OC).
2 Understand and be able to explain the operating principles of the analytical techniques discussed.
3 Select the best suited analytical technique(s) out of the list of techniques discussed to address a given analytical problem.
4 Solving problems in the context of the techniques for chemical analysis discussed.

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

(Approved)
Teaching methods
Lecture, seminar

Learning materials and price
Dutch syllabus.

References

Course content-related study coaching
Professor Vanhaecke is available after the lectures and/or after appointment for further explanation. Alternately, an appointment can be asked for via e-mail.

Evaluation methods
end-of-term evaluation

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions, written examination with multiple choice questions, open book examination

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions, written examination with multiple choice questions, open book examination

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation
not applicable

Extra information on the examination methods
During examination period: written closed-book exam for theoretical part (50%) and written open-book exam for problem-solving part (50%).

Calculation of the examination mark
50% theoretical part/ 50% problem-solving

(Approved)