Syllabus for Coordination Chemistry, 7.5 higher education credits

1. Basic information
The syllabus was approved by the Education Committee of the Faculty of Science on 12 March 2008 and comes into effect on 1 July 2008. The course is at second-cycle level.

2. General information
The course is included in the main field of Chemistry at the Faculty of Science.
The course is an optional second-cycle course for a degree of Master of Science in Chemistry. The course is given as a programme course and as a single-subject course. The course may be held in English.

3. Learning outcomes
The aim of the course is to provide in-depth knowledge and practical skills within inorganic chemistry, particularly Coordination Chemistry.

The aim of the course is that on its completion students will have acquired the following skills and knowledge:
• the ability to set up inorganic reaction mechanisms and describe kinetic methods for investigating reaction mechanisms
• the ability to describe in detail different models of chemical bonds in transition metal complexes
• the ability to describe in detail the chemistry of d-block elements, commonly occurring oxidation conditions and common compounds with p-block elements, and to describe the occurrence of optical and geometric isomers in coordination complexes
• good familiarity with modern inorganic chemical literature and databases for source searches in chemical literature
• the ability to read and understand primary research reports in coordination, organometallic and, to some extent bioinorganic chemistry

4. Course content
Lectures: The course deals with Coordination Chemistry. In this field, structure and bonding theories, reaction mechanisms and kinetics, as well as characterisation methods (NMR and molecular spectroscopy) are studied. Examples are primarily taken from the coordination and organometallic chemistry of transition metals.
Laboratory work: Practical skills in inorganic synthesis and kinetics are practised through laboratory work. The course will also provide training in the use of chemical databases and in oral and written presentations.

5. Teaching and assessment
Teaching takes the form of lectures, seminars and laboratory work. Participation in seminars and laboratory work is compulsory. Assessment comprises a written or oral examination and oral and written presentations during the course.
A re-sit examination is offered soon after the examination to students who do not pass.

6. Grades
Students are awarded one of the following grades: Pass with Distinction, Pass or Fail.
To be awarded Pass students must pass the examination, pass the laboratory work and participate in all compulsory components.
The examination grades are: Pass with Distinction, Pass or Fail. Grades for the compulsory components are: Pass or Fail.
The final grade for the course is determined by weighting the results of the examination and the oral and written presentations.

Students who wish to have their ordinary grades supplemented with ECTS grades must submit their request to the course convenor no later than a week after the start of the course.

7. Admission requirements
To be eligible for this course students must have basic eligibility and 90 higher education credits in completed Science courses, including passes in courses equivalent to:

- KEMA00 General and Analytical Chemistry 7.5 credits, KEMA01 Organic Chemistry – Basic Course 7.5 credits, KEMA02 Inorganic Chemistry – Basic Course 7.5 credits and KEMA03 Biochemistry – Basic Course 7.5 credits, or
- KEM101 General Chemistry 1 15 credits and KEM102 General Chemistry 2 15 credits, or
- KEM111 Chemistry for Environmental and Biological Sciences – General Course 1 15 credits and KEM122 Chemistry for Environmental and Biological Sciences – General Course 2 15 credits

and

- KEMB09 Physical Chemistry – Basic Course 15 credits or KEM103 General Chemistry 3 15 credits,
- KEMB29 Spectroscopy and Dynamics 7.5 credits and KEMB12 Inorganic chemistry 7.5 credits, or
- KEMB02 Inorganic Chemistry, 15 credits or KEM113 Inorganic Chemistry 15 credits

- one of the courses MATA01 Mathematics for Scientists 1 15 credits, MATA11 Mathematics 1 Alpha 15 credits, MAT015 Mathematics for Scientists 1 15 credits or MAT131 Mathematics 1 Alpha 15 credits.

Equivalent knowledge that has been gained in another way also provides eligibility for the course.

8. Course literature
In accordance with an approved literature list, which will be available on the department website at least five weeks before the start of the course.

9. Further information
The course cannot be credited as part of a degree programme that also includes KEMM02 Inorganic Chemistry – Advanced course, 15 credits, or KEM033 Inorganic Chemistry – Advanced course 15 credits.

10. Reference No
N 2008/199