Programme syllabus

Degree Programme in Chemical Science and Engineering
Civileingenjörsutbildning i kemivetenskap
300.0 credits

Valid for students admitted to the education from autumn 08 (HT - Autumn term; VT - Spring term).

This is a translation of the Swedish, legally binding, programme syllabus.

Programme objectives

To receive a Degree of Master of Science in Chemical Science and Engineering, the students should:

Knowledge and understanding

- demonstrate knowledge of the scientific basis for physical and chemical processes, different kinds of energy and their conversion, the properties and use of different material, and to assess the applicability of the used models in different contexts.
- demonstrate knowledge of the importance of chemical, thermodynamic and kinetic aspects of chemical reaction and process routes
- be able to apply knowledge of mathematics, numerical analysis and other sciences in chemistry and chemical engineering field
- demonstrate in-depth knowledge in a chemical or chemical engineering focus area, and insight into current research and development

Skills and abilities

- demonstrate the ability to develop chemical products and to design, operate and control the processes by applying a systematic thinking in terms of raw materials, energy, security, environment, economy, human conditions and needs, and goals of society for sustainable development
- demonstrate the ability to identify, formulate and manage current and real problems drawn from industry, society and research, taking into account the potential and limitations
- demonstrate the ability to make assessment of the reasonableness of the obtained solutions, and compare and evaluate alternative solutions
- demonstrate laboratory skills and knowledge of safe chemical managing, and the ability to implement and evaluate experiments on a laboratory scale and on a larger scale plan
- demonstrate the skills to use computer tools for simulation, technical calculations and information retrieval
  - demonstrate the ability to orally and in writing, in Swedish and English, present and discuss ideas and outcomes and communicate with persons with or without the technical- scientific background
  - demonstrate ability to effectively work as a team and plan and implement projects within a given framework

Ability to make judgements and adopt a standpoint

- demonstrate the ability to critically review the literature and technologies in areas related Chemistry and Chemical Engineering.
- demonstrate the ability to take a stand on issues of ethical nature in their professional field
• demonstrate an understanding for the fact that chemistry and chemical engineering problems can be complex, incompletely defined and contain contrarious conditions, and also consider social, economic, commercial, environmental and working-environmental aspects
• demonstrate the ability to rapidly acquire knowledge in new areas and to apply new knowledge for innovation and development of chemical products and chemical engineering processes

**Extent and content of the programme**

Nominal study period is 5 years, which corresponds to 300 credits (hp). 180 hp is at the basic level and 105 hp is at advanced level. The remaining 15 credits are optional, and thereby can be at both basic and advanced level. The above applies with the reservation of transition plans.

The programme is given in Swedish during the first three years and some of the courses in the higher grades 4 and 5 are given in English.

**Eligibility and selection**

In order to be admitted to the programme, basic eligibility and specific competence in Mathematics Course D, Physics course B, Chemistry course A, is required. In each subject, the passing grade G or (3) is the minimum requirement. For Chemistry and Chemical Engineering with an international focus, corresponding English course B, and C-language B / step 3 studies in German, French or Spanish are required. In each subject the passing grade G or (3) is the minimum requirement.

The grade selection (BG and BF) is applied to two thirds of the seats. Seats are distributed proportionally, based on the number of qualified applicants in two groups.

**Implementation of the education**

**Structure of the education**

The school year is normally divided into 4 study periods and two or three courses are taken simultaneously at each study period. Teaching and examination methods vary between courses. Normally, a proportion of the course is lectures, which gives an introduction with the concepts and theories.

Exercises, seminars and laboratory work enhance the understanding of the theoretical relationship. In order to create a continuity of the program, collaboration between courses is emphasized.

The programme’s first two years are devoted mainly to courses in mathematics and chemistry. Chemical engineering courses are the dominating subjects in the third year. The courses in year three are completed by doing a project course that can be used as bachelor's thesis and consequently the completing course for the Bachelor's degree. All courses in year 1-3 are compulsory with the exception of the introductory courses in mathematics, chemistry and computer use during the preparation weeks.

Courses at advanced level in the focus areas are studied in year four and five.

The study programme also includes optional courses of 15 ECTS. These courses are entirely optional and the students will choose which courses they want to study. The programme is completed by doing a Master's thesis equivalent to 30 credits.

The courses that are included in the Degree Programme in Chemical Science and Engineering are listed in the course list for year 1-3.

**Masters programmes available for Chemical Science and Engineering students 2010/2011**

- Molecular Science and Engineering
- Chemical Engineering for Energy and the Environment
- Macromolecular Materials
The list of masters programmes is subject to change. Updated lists of all masters programmes can be found in the study handbook for the respective study year.

Separate course list is presented for Chemical Science and Engineering with an international focus, including language courses.

For courses in the programme, a seven scaled grading system from A-E, F and Fx is used. To receive a Degree of Master of Science in Chemical Science and Engineering, the students should have passing grades in all the mandatory and optional courses, which including the thesis will comprise 300 ECTS. The student must have fulfilled the selected specialization profile. The courses included in the Chemical Science and Engineering Programme are listed in the course list for year 1-3 and for the specialization profiles.

**Courses**

The programme is course-based. Lists of courses are included in appendix 1.

**Grading system**

Courses in the first and the second cycle are graded on a scale from A to F. A-E are passing grades, A is the highest grade. The grades pass (P) and fail (F) are used for courses under certain circumstances.

**Conditions for participation in the programme**

*Enrolment notification and term registration*

Before every term (1-15th May and 1-15th November), a term enrolment must be submitted via to the study advisor at the programme office for Chemical Science, CHE students office.

Your enrolment notification constitutes the foundation for the office’s planning and that you are registered for the programme.

Term registration is required in order for you study results to be registered and for CSN to distribute student aid.

*Temporary Postponement*

Temporary postponement means that the student does not participate in the programme during at least one study period. If temporary postponement is approved, the student has the right to return to the studies at a pre-determined point in time. During the temporary postponement, the student is able to complete and participate in examinations in incomplete courses.

Notification of temporary postponement is done on a form which is submitted to the students office which processes it. When the student intends to resume the studies, it is necessary for the student to submit a separate notification.

*Course Selection*

*Application to courses*

The student is responsible from study year 1 and on to apply to compulsory, conditionally elective and optional courses which are included in the programme which he/she is studying. Application for admission to courses will be made at the web at Studera.nu, at the latest:

- 15th of May for the fall term
- 15th of November for the spring term.

Applications which are submitted after the deadline are only taken into consideration with regards to space considerations. Before course selection of language courses, a test must be taken to determine the appropriate level study.

*Course registration*

Registration of a course requires that the course has been selected in Ladok. The course selection is done whether via the course selection routine on the web, or via the CHE students office. Registration of a course is done by the course’s department.
The student must, at the first scheduled lecture, register him/herself in the course. Course registration in both compulsory and optional courses must be done individually (at the department). If the student registers a course and then decides to not continue with the course, then the student must notify the corresponding department as soon as possible.

**Conditions for being promoted to the next level**
The following promotion requirements apply in order to participate in the next level of the education.

**Requirements for promotion from grade 1 to grade 2:**
A total of at least 45 higher education credits from study year 1 to be completed.

**Requirements for promotion from grade 2 to grade 3:**
A total of at least 90 higher education credits from study years 1 and 2 must be completed at least 50 higher education credits from study year 1.

**Requirements for promotion from grade 3 to grade 4:**
A total of at least 150 higher education credits from study years 1-3 must be completed, and at least 110 higher education credits from study year 1-2, and a degree project, first level.

**Requirements for promotion from grade 4 to grade 5:**
In addition to what applies for promotion to grade 4, at least 45 higher education credits from study year 4 must be completed.

Students who have not fulfilled the above requirements must consult with their study advisor to construct an individual study plan for the continuation of studies.

**Choice of Masters Program**
Study year 3, during the fall term (1-15 November), the students applies for a Masters programme he/she intends to follow study year 4 and 5

*For more information about the Masters programme given within the degree programme, in Chemical Science and Engineering, see descriptions in appendix 2, and programme plans for the masters programme.*

**Admission for Masters programme**
Before the fall term starts, the student must have achieved following to start a Masters programme.

- **Requirements for promotion from grade 3 to grade 4, Masters programme:**
  A total of at least 150 higher education credits from study years 1-3 must be completed, and at least 110 higher education credits from study year 1-2, and a degree project, first level, for a degree of bachelor of science.

Students who have not fulfilled the above requirements must consult with their study advisor to construct an individual study plan for the continuation of studies.

**Recognition of previous academic studies**
The student has the right to transfer course credits from the college/university within or outside the country. The precondition is that the course/courses are of such a nature and have such an extent that they basically correspond to the qualification criteria for the programme.

In the case of whole courses, it must be checked by the programme director. Part of a course is checked by the examiner.

**Studies abroad**
Students in the program have the opportunity to study one academic year or one semester abroad at a foreign institution, which KTH is cooperating with. The students don’t need to pay the fees which would otherwise be charged by foreign students. Exchange studies can be done in the third, fourth and fifth year of the programme. It is also possible to do the Master’s thesis abroad.
Information about studying abroad is given by the international coordinators at the student office of CHE, which also provide information on current application period. The students can find the application forms at the student Office.

After evaluation, the exchange studies can count as part of the programme. The outgoing student must set up a "Learning Agreement" with the programme director, which implies the prior approval of the exchange studies. The studies are normally given in the language spoken in the selected country/region. There are opportunities, for those who are accepted to the exchange programme in German-, French-, Spanish- and Italian-speaking countries, to follow a preparatory language course before the regular semester begins.

**Degree project**

The program include a Degree Project of 30 credits. That means about 20 weeks of full-time studies.

The Degree project must be done in the chosen area of the programme. The Degree project should provide the students an insight into a research and development projects. It may also be of investigative nature. In the Degree project students should demonstrate the ability to independently apply the knowledge they have acquired during the studies.

The student may start with the thesis when 230 credits are achieved. Exemption can be granted after a checkup by the programme director. It is the responsibility of the examiner to ensure that students have the in-depth studies in the focus area, as regarded above.

The project may be carried out either in an academic environment or in an industrial setting. It can also be carried out abroad. Examiner for the thesis is appointed by the programme director and should always be a teacher, who is employed at the KTH. Supervisors are appointed by the examiner. Several supervisors can be appointed. If the thesis is performed in a company, a supervisor should also be appointed at the company.

Before the thesis is started, it must be approved by the examiner and recorded by the School of Chemical Sciences, when an application, “Degree projects and Project courses”, is handed in to the Student Office CHE.

The Degree project will consist of literature search, experimental and/or theoretical work. It will be presented both in a written statement in English, and orally at a seminar. It is the responsibility of the examiner to ensure that the thesis is performed and presented as above.

The degree project in Chemical Science and Engineering can be performed in any of the following areas:

Chemistry

Chemical Engineering

Pulp Technology and Polymer Technology

The degree project can be done in another subject area, after agreement with the programme director and the concerned institution and the examiner.

**Degree**

To receive a Degree of Master of Science in Chemical Science and Engineering, passing grades in all courses included in the student's study plan, are required. The study plan consists of the mandatory courses, the recommended and/or conditionally elective courses that the students have followed and the thesis. The study plan should include at least 300 credits.

For receiving a degree certificate, the student need to apply for it on an application form and provide a copy of a student union card, copy of receipts or a certificate from the student union for paid union fee.

Appendix 1 - Course list
Appendix 2 - Programme syllabus descriptions
Appendix 1: Course list

Degree Programme in Chemical Science and Engineering (CKEMV), Programme syllabus for studies starting in autumn 2008

**General courses**

**Year 1**

**Mandatory courses (61.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>KD1020</td>
<td>Introductory Chemistry</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1090</td>
<td>Organic Chemistry 1</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1150</td>
<td>Chemical Equilibria</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>KE1050</td>
<td>Introduction to Chemical Engineering</td>
<td>12.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1643</td>
<td>Numbers and Functions</td>
<td>4.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1644</td>
<td>Calculus in one Variable</td>
<td>8.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1645</td>
<td>Linear Algebra</td>
<td>4.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1646</td>
<td>Calculus in Several Variable</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SG1102</td>
<td>Mechanics, Smaller Course</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Optional courses**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>KE1040</td>
<td>Oral and Written Presentation for Chemists</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KE1110</td>
<td>Introductory Course in Chemistry</td>
<td>1.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1611</td>
<td>Introductory Course in Mathematics I</td>
<td>1.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Study year 1 consists of mandatory courses.
### Year 2

#### Mandatory courses (60.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DN1212</td>
<td>Numerical Methods and Basic Programming</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1040</td>
<td>Chemical Thermodynamics</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1070</td>
<td>Molecular Structure</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1080</td>
<td>Chemical Dynamics</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1100</td>
<td>Organic Chemistry 2</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>KE1030</td>
<td>Transport Phenomena and Engineering Thermodynamics</td>
<td>10.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>SF1633</td>
<td>Differential Equations I</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>SK1111</td>
<td>Electromagnetism and Waves</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

#### Supplementary information

Study year 2 consists of mandatory courses.

### Year 3

#### Mandatory courses (59.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB1050</td>
<td>Biotechnology</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KA1010</td>
<td>Technology for Sustainable Development</td>
<td>5.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KA101X</td>
<td>Degree Project in Chemical Science and Engineering, First Cycle</td>
<td>15.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1130</td>
<td>Inorganic Chemistry</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KD1190</td>
<td>Chemical Measuring Techniques</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>KE1020</td>
<td>Reaction and Separation Engineering</td>
<td>10.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>KF1010</td>
<td>Polymer Technology with Cellulose Technology</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

#### Supplementary information

Study year 3 consists of mandatory courses and ends with a degree project, first level.

### Year 4

#### Supplementary information

During study year 4 and 5 one of the three Masters programme should be taken:

- Chemical Engineering for Energy and the Environment
- Macromolecular Materials
- Molecular Science and Engineering

For more detailed information about the programme, see:
• Master (Two years) - Chemical Engineering for Energy and the Environment, see http://www.kth.se/student/kurser/program/tkemm/?l=en_UK
• Master (Two years) - Macromolecular Materials, see http://www.kth.se/student/kurser/program/tmvtm/?l=en_UK
• Master (Two years) - Molecular Science and Engineering, see http://www.kth.se/student/kurser/program/tmmmm/?l=en_UK

Year 5
Supplementary information
During study year 4 and 5 one of the three Masters programme should be taken:
Chemical Engineering for Energy and the Environment
Macromolecular Materials
Molecular Science and Engineering

Study year 5 ends with a degree project, second level, 30 credits.

Master, Chemical Science and Engineering (KEM)

Year 1

Year 2

Year 3

Year 4
Supplementary information
For more detailed information about the Master programme (Two Years), Chemical Engineering for Energy and Environment, see link below

http://www.kth.se/student/kurser/program/tkemm/?l=en_UK

Year 5

International Profile (KINT)

Year 1
Mandatory courses (22.5 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1323</td>
<td>German, Advanced Beginners Level</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>DS1339</td>
<td>French, Advanced Beginners Level</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
<tr>
<td>DS1344</td>
<td>Spanish, Advanced Beginners Level</td>
<td>7.5</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information
Those students who study the international profile will study the mandatory courses, study year 1 with the other students at the Degree programme in Chemical Science and Engineering.

The student will study one of the language courses below, in the selected language.
### Year 2

**Mandatory courses (27.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1324</td>
<td>Technical German, Intermediate Level</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>DS1334</td>
<td>Technical French, Intermediate Level</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
<tr>
<td>DS1348</td>
<td>Technical Spanish, Intermediate Level</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Those students who study the international profile will study the mandatory courses, study year 2 with the other students at the Degree programme in Chemical Science and Engineering.

The student will study one of the language courses below, in the selected language.

### Year 3

**Mandatory courses (27.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS2326</td>
<td>Technical German, Advanced Level</td>
<td>9.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DS2336</td>
<td>Technical French, Advanced Level</td>
<td>9.0</td>
<td>Second cycle</td>
</tr>
<tr>
<td>DS2349</td>
<td>Technical Spanish, Advanced Level</td>
<td>9.0</td>
<td>Second cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Those students who study the international profile will study the mandatory courses, study year 3 with the other students at the Degree programme in Chemical Science and Engineering.

The student will study one of the language courses below, in the selected language.

Study year 3 ends with a Degree project, first level.

### Year 4

### Year 5

### International Profile, Japanese (KJAP)

### Year 1

**Mandatory courses (6.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1381</td>
<td>Elementary Japanese and Japanese Studies</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>
**Supplementary information**

Those students who study the international profile Japanese will study the mandatory courses, study year 1 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the Japanese language course below.

**Year 2**

**Mandatory courses (6.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1383</td>
<td>Japanese, Advanced Beginners Level I</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Those students who study the international profile Japanese will study the mandatory courses, study year 2 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the Japanese language course below.

**Year 3**

**Mandatory courses (9.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1384</td>
<td>Japanese, Advanced Beginners Level II</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Those students who study the international profile Japanese will study the mandatory courses, study year 3 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the Japanese language course below.

Study year 3 ends with a Degree project, first level.

**Year 4**

**Mandatory courses (9.0 credits)**

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1386</td>
<td>Japanese, Intermediate Level</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

**Supplementary information**

Those students who study the international profile Japanese will study the courses within the chosen Masters Programme study year 4, as well as the Japanese language course below.
Year 5

International Profile, Chinese (KKIN)

Year 1

Mandatory courses (6.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1390</td>
<td>Elementary Chinese and Chinese Studies</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

Those students who study the international profile in Chinese will study the mandatory courses, study year 1 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the Chinese language course below.

Year 2

Mandatory courses (6.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1393</td>
<td>Chinese, Advanced Beginners Level I</td>
<td>6.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

Those students who study the international profile in Chinese will study the mandatory courses, study year 2 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the Chinese language course below.

Year 3

Mandatory courses (9.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1394</td>
<td>Chinese, Advanced Beginners Level II</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

Those students who study the international profile in Chinese will study the mandatory courses, study year 3 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the Chinese language course below.

Study year 3 ends with a Degree project, first level.
Year 4

Mandatory courses (9.0 credits)

<table>
<thead>
<tr>
<th>Course code</th>
<th>Course name</th>
<th>Credits</th>
<th>Edu. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1396</td>
<td>Chinese, Intermediate Level</td>
<td>9.0</td>
<td>First cycle</td>
</tr>
</tbody>
</table>

Supplementary information

Those students who study the international profile chinese will study the mandatory courses at the selected Masters Programme, study year 4 with the other students at the Degree programme in Chemical Science and Engineering.

The students will also study the japanese language course below.

Year 5

Master, Macromolecular Materials (MMM)

Year 1

Year 2

Year 3

Year 4

Supplementary information

For more detailed information about the Master programme (Two Years), Macromolecular Materials, se link below

http://www.kth.se/student/kurser/program/tmmmm/?l=en_UK

Year 5

Master, Molecular Science and Engineering (MVT2)

Year 1

Year 2

Year 3

Year 4

Supplementary information

For more detailed information about the Master programme (Two Years), Molecular Science and Engineering, se link below

http://www.kth.se/student/kurser/program/tmvtm/?l=en_UK

Year 5
Appendix 2: Specialisations

Degree Programme in Chemical Science and Engineering (CKEMV), Programme syllabus for studies starting in autumn 2008

Master, Chemical Science and Engineering (KEM)

For more detailed information about the Master programme (Two Years), Chemical Engineering for Energy and Environment, se link below

http://www.kth.se/student/kurser/program/tkemm/?l=en_UK

International Profile (KINT)

International Profile, Japanese (KJAP)

International Profile, Chinese (KKIN)

Master, Macromolecular Materials (MMM)

For more detailed information about the Master programme (Two Years), Macromolecular Materials, se link below

http://www.kth.se/student/kurser/program/tmmmm/?l=en_UK

Master, Molecular Science and Engineering (MVT2)

For more detailed information about the Master programme (Two Years), Molecular Science and Engineering, se link below

http://www.kth.se/student/kurser/program/tmvtm/?l=en_UK