Self-Evaluation Manual
for the Education Assessment Exercise (EAE)
KTH Royal Institute of Technology 2011

I. Introduction to the Education Assessment Exercise

Aim of the exercise

KTH Royal Institute of Technology aims to provide quality education, so that its graduates will be equipped to take leading roles in technological and societal development, in Sweden as well as globally.

Quality assurance at KTH is based on the principle of continuous improvement. One aspect of this is the cyclical internal review of education programmes, as here manifested in the 2011 KTH-wide Education Assessment Exercise (EAE).

The main aim of the EAE is to provide a platform for discussion and self-reflection and thus contribute to quality enhancement. The exercise also provides an opportunity to highlight and remedy possible shortcomings. Further, it may serve as preparation for external evaluations, including that of the Swedish National Agency for Higher Education (*Högskoleverket*) scheduled to take place in 2012.

Methodology

In the EAE, an internationally recognised methodology comprising self-evaluation, site visit, panel report and follow-up is used. An international asessment panel is charged with the task of making general recommendations with regard to KTH programmes, as well as providing feedback to individual programmes. The panel will identify examples of best practice and, if applicable, shortcomings which require corrective action. Thus, the panel report may form the basis for subsequent KTH management decisions.

At the centre of the exercise are the expected learning outcomes of the following qualifications attached to KTH programmes: Master of Science in Engineering (*civilingenjörsexamen*), Bachelor of Science in Engineering (*högskoleingenjörsexamen*), Master of Architecture (*arkitektexamen*), Bachelor of Arts/Science (*kandidatexamen*), Master of Arts/Science (60 credits) (*magisterexamen*) and Master of Arts/Science (120 credits) (*masterexamen*). See appendix for qualification descriptors as specified in the Higher Education Ordinance.

II. Guide to the self-evaluation exercise

Requirements for the self-evaluation process

The self-evaluation exercise conducted at programme level is the most important part of the EAE. Through self-evaluation, an opportunity for reflection is provided which in turn may be used in the continuous improvement of the education programme.

Experience shows that taking an open and analytical approach to the self-evaluation process will achieve the best results. The analysis of strengths, weaknesses, opportunities and threats therefore forms an essential part of the exercise. Descriptive information such as statistics and programme syllabi provides a starting point for discussions.

KTH encourages the establishment of Quality Circles/Kaizen groups (*förbättringsgrupper*). Thanks to the emphasis on broad participation, such groups are not only appropriate fora for the self-evaluation exercise but also for the long-term enhancement of programmes.

Ideally, the self-evaluation process should engage and empower those involved in the programme including staff, students and other stakeholders. Each self-evaluation group may cover one or several education programmes, and may therefore vary in size from 5 (minimum) to 12 people. At least one student should take part. In the case of professional programmes in Engineering and Architecture, industry stakeholders should be involved. The involvement of other stakeholders such as former students and external peers is also encouraged.

Support in the self-evaluation process

The EAE including the self-evaluation exercise is supported by a central project team. Apart from organising seminars and instruction sessions, the project team is responsible for the collation and distribution of support material so as to facilitate the process at programme level. This material includes advice on the self-evaluation exercise, examples of good practice and a list of references.

The project team also provides a set of statistics relating to the programme in question. This data may aid the discussions in self-evaluation groups, and support the conclusions made.

Towards the end of the process, the project team will facilitate a peer review exercise in which draft self-evaluation reports are read and commented on by colleagues.

Discussions between self-evaluations groups as well as communication with the project team is encouraged and enabled through the *KTH Social* platform.

Formal requirements for the self-evaluation report

All final versions of programme self-evaluation reports should be submitted by e-mail to Project Manager Sara Karlsson at sarak2@kth.se **no later than 15th June 2011.**

Reports should be seen and approved by the School management, and thus accompanied by a **cover letter signed by the Dean**.

The generic report template (applicable to the self-evaluation of one programme) is outlined in part III of this manual.[1]

The text should be typed into the box beneath each heading, as indicated. In order to facilitate the task of the assessment panel and to enable comparison, it is important that the template is adhered to. (If self-evaluation groups wish to make additions/alterations they can may only do so for internal use.)

For the benefit of the international assessment panel, the report should be written **in English**. If Swedish is used in any part of the document, a translation into English should be made available.

The report shall consist of a maximum of **5,000 words** (excluding template questions/headings).

[1] Special templates will apply to the self-evaluation of newly established programmes and of a group of programmes. The project team will furnish the relevant self-evaluation groups with such tailor-made templates.

III. Template for the self-evaluation report

Please provide analytical responses, focusing on strengths and weaknesses, opportunities and threats.

SELF-EVALUATION GROUP REPORT

1. Name of programme

2. Name of KTH School

3. The self-evaluation process

3.1. Please describe and analyse how the self-evaluation was conducted

3.2. Please describe who was involved (staff, students, other stakeholders), how they were selected and what their role was

4. Regular quality assurance procedures

4.1. Please describe and analyse how quality assurance at programme level is organised, in particular

- **the collation and use of course/programme evaluation and other student feedback**
- **the processes for reviewing course content and programme syllabus**
- **the existence of Quality Circles/equivalent**

5. Prerequisites

5.1. Please describe and analyse the provision of teachers, e.g. with regard to competence profile (scientific and pedagogical), recruitment situation and gender balance.

5.2. Please describe and analyse the student population, e.g. with regard to prior knowledge, recruitment situation and gender balance.

Stastitics

- ***number of first choice applicants***
- ***number of entrants***

6. Processes

6.1. Please describe and analyse the teaching and learning approach and its connection to

- **professional practice (engineering/architecture/relevant field)**
- **research and developing knowledge, including KTH research platforms and research areas**
- **new developments in teaching and learning**

6.2. Please describe and analyse how e.g. literature, programme/course outlines, teaching methods, feedback mechanisms and assessment methods ensure that students meet the expected learning outcomes. Please refer to specific learning outcomes.

References

- ***qualification descriptors as per Higher Education Ordinance***
- ***qualification descriptors as per local KTH regulations***

7. Results: Learning outcomes

7.1. Please describe and analyse the results of the programme, in terms of students' learning outcomes on completion of the programme.

7.2. Please describe and analyse how the independent degree projects enable the students to meet expected learning outcomes. Please state which specific learning outcomes are covered by the degree projects.

7.3. Please describe and analyse other evidence to support that students have met the expected learning outcomes (e.g. portfolios, course analyses). Please refer to specific learning outcomes.

References

- ***qualification descriptors as per Higher Education Ordinance***
- ***qualification descriptors as per local KTH regulations***

8. Results: Student retention

8.1. Please describe and analyse the results of the programme, in terms of student retention and attrition.

Statistics

- ***retention "footprint" comprising: credits after one year of study, credits midway through programme, credits at nominal study time, completion rate one year after nominal study time.***
- ***number of first choice applicants***
- ***number of entrants***
- ***proportion of entrants achieving full credits after one year***
- ***credits at one year after nominal study time***

9. Results: Employability

9.1. Please describe and analyse the results of the programme, in terms of graduate employability.

Statistics

- ***graduate employment rate one year after graduation***

10. Results: Student satisfaction

10.1. Please describe and analyse the results of the programme, in terms of student satisfaction.

Statistics

- ***student satisfaction rates midway through programme***
- ***graduate satisfaction rates 2-3 years after graduation***

11. Strengths and opportunities

11.1. Please make a brief summary statement on the main strengths of the programme including

- **aspects that are particularly innovative**
- **aspects that represent good practice**

12. Weaknesses and threats

12.1. Please make a brief summary statement on the main weaknesses of the programme including

- **aspects that require corrective action**
- **aspects that merit support strategies**

13. Way forward

13.1. Please describe and analyse any actions which will be undertaken in the near future as a result of the self-evaluation exercise and/or regular quality monitoring.

Appendix (excerpts from Qualifications ordinance, Higher Education Ordinance)

Qualification descriptors

Master of Science in Engineering [Civilingenjörsexamen]

Scope

A Master of Science in Engineering is awarded after the student has completed the courses required to gain 300 credits.

Outcomes

For a Master of Science in Engineering the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer.

Knowledge and understanding

For a Master of Science in Engineering the student shall

- demonstrate knowledge of the disciplinary foundation of and best practice in his or her chosen field of technology as well as insight into current research and development work, and
- demonstrate both broad knowledge of his or her chosen field of technology, including knowledge of mathematics and the natural sciences, as well as a considerable degree of specialised knowledge in certain areas of the field.

Competence and skills

For a Master of Science in Engineering the student shall

- demonstrate the ability to identify, formulate and deal with complex issues autonomously and critically and with a holistic approach and also to participate in research and development work and so contribute to the formation of knowledge
- demonstrate the ability to create, analyse and critically evaluate various technological solutions
- demonstrate the ability to plan and use appropriate methods to undertake advanced tasks within predetermined parameters
- demonstrate the ability to integrate knowledge critically and systematically as well as the ability to model, simulate, predict and evaluate sequences of events even with limited information
- demonstrate the ability to develop and design products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to present his or her conclusions and the knowledge and arguments on which they are based in speech and writing to different audiences in both national and international contexts.

Judgement and approach

For a Master of Science in Engineering the student shall

- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects as well as awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including both social and economic aspects and also environmental and occupational health and safety considerations, and

- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Master of Science in Engineering is completion by the student of an independent project (degree project) for at least 30 credits.

Miscellaneous

Specific requirements determined by the each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Master of Science in Engineering.

Bachelor of Science in Engineering [Högskoleingenjörsexamen]

Scope

A Bachelor of Science in Engineering is awarded after the student has completed the courses required to gain 180 credits.

Outcomes

For a Bachelor of Science in Engineering the student shall demonstrate the knowledge and skills required to work autonomously as a graduate engineer.

Knowledge and understanding

For a Bachelor of Science in Engineering the student shall

- demonstrate knowledge of the disciplinary foundation of the engineering field chosen and best practice in this field as well as awareness of current research and development work, and
- demonstrate broad knowledge in the engineering field chosen and relevant knowledge of mathematics and the natural sciences.

Competence and skills

For a Bachelor of Science in Engineering the student shall

- demonstrate the ability to identify, formulate and deal with issues autonomously and creatively and to analyse and evaluate technological solutions
- demonstrate the ability to plan and using appropriate methods undertake tasks within predetermined parameters
- demonstrate the ability to use knowledge critically and systematically to model, simulate, predict and evaluate series of events on the basis of relevant information
- demonstrate the ability to design and manage products, processes and systems while taking into account the circumstances and needs of individuals and the targets for economically, socially and ecologically sustainable development set by the community
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences.

Judgement and approach

For a Bachelor of Science in Engineering the student shall

- demonstrate the ability to make assessments informed by relevant disciplinary, social and ethical aspects
- demonstrate insight into the possibilities and limitations of technology, its role in society and the responsibility of the individual for how it is used, including social and economic aspects as well as environmental and occupational health and safety aspects
- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Bachelor of Science in Engineering is completion by the student of an independent project (degree project) for at least 15 credits.

Miscellaneous

Specific requirements determined by each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Bachelor of Science in Engineering.

Master of Architecture [Arkitektexamen]

Scope

A Master of Architecture is awarded after the student has completed the courses required to gain 300 credits.

Outcomes

For a Master of Architecture the student shall demonstrate the knowledge and skills required to work autonomously as an architect.

Knowledge and understanding

- For a Master of Architecture the student shall
- demonstrate knowledge of the disciplinary and artistic foundation of the field and insight into relevant research and development work, and
- demonstrate both broad knowledge and understanding of architectural theory and history as well as specialised knowledge of architectural design, planning and the development of built environments and also the processes, methods and statutory provisions that affect them.

Competence and skills

For a Master of Architecture the student shall

- demonstrate the ability to plan, design, maintain and renew built environments and buildings in complex contexts and with a holistic approach informed by various demands, in particular the sustainable development required by the community
- demonstrate the ability to use appropriate architectonic methods and syntheses to undertake and evaluate advanced and creative tasks autonomously and critically and within predetermined parameters in the field of architecture and urban planning
- demonstrate the ability to apply knowledge about physical circumstances and technological principles to the erection and alteration of buildings
- demonstrate the capacity for teamwork and collaboration with various constellations, and
- demonstrate the ability in dialogue with different audiences in both national and international contexts to present and discuss, using images and models, his or her conclusions and the knowledge and reasoning on which they are based in speech, writing or some other way and so contribute to the development of the profession and professional practice.

Judgement and approach

For a Master of Architecture the student shall have:

- demonstrate the ability to adopt a holistic view in making judgements and appraisals informed by the relevant disciplinary, social, aesthetic and ethical aspects and which at the same time take into account the different needs and functional abilities of communities and individuals as well as the interaction between individuals and their physical settings, including occupational health and safety
- demonstrate the disposition to base his or her work on high-quality, well-designed long-term functional solutions, and

- demonstrate the ability to identify the need for further knowledge and undertake ongoing development of his or her skills.

Independent project (degree project)

A requirement for the award of a Master of Architecture is completion by the student of an independent project (degree project) for at least 30 credits.

Miscellaneous

Specific requirements determined by the each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Master of Arts/Science in Architecture.

Bachelor of Arts/Science

Scope

A Bachelor of Arts/Science is awarded after the student has completed the courses required to gain 180 credits in a defined specialisation determined by each higher education institution itself, of which 90 credits are for progressively specialised study in the principal field (main field of study) of the programme.

Outcomes

Knowledge and understanding

For a Bachelor of Arts/Science the student shall

- demonstrate knowledge and understanding in the main field of study, including knowledge of the disciplinary foundation of the field, understanding of applicable methodologies in the field, specialised study in some aspect of the field as well as awareness of current research issues.

Competence and skills

For a Bachelor of Arts/Science the student shall

- demonstrate the ability to search for, gather, evaluate and critically interpret the relevant information for a formulated problem and also discuss phenomena, issues and situations critically
- demonstrate the ability to identify, formulate and solve problems autonomously and to complete tasks within predetermined time frames
- demonstrate the ability to present and discuss information, problems and solutions in speech and writing and in dialogue with different audiences, and
- demonstrate the skills required to work autonomously in the main field of study.

Judgement and approach

For a Bachelor of Arts/Science the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues
- demonstrate insight into the role of knowledge in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the need for further knowledge and ongoing learning.

Independent project (degree project)

A requirement for the award of a Bachelor of Arts/Science is completion by the student of an independent project (degree project) for at least 15 credits in the main field of study.

Miscellaneous

Specific requirements determined by each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Bachelor of Arts/Science with a defined specialisation.

Master of Arts/Science (60 credits) [Magisterexamen]

Scope

A Master of Arts/Science (60 credits) degree is awarded after the student has completed the courses required to gain 60 credits with a defined specialisation determined by each higher education institution itself, of which at least 30 credits are for specialised study in the principal field (main field of study) of the study programme. In addition the prior award of a Bachelor's degree, Bachelor's degree in fine arts, professional or vocational qualification of at least 180 credits or a corresponding qualification from abroad is required.

The requirement of the prior award of a qualification may be waived for a student admitted to the programme without the basic entry requirement in the form of a qualification. This does not, however, apply if a waiver was granted during admission pursuant to the second paragraph of Section 28 of the Chapter 7 of the Higher Education Ordinance (1993:100) on the grounds that the qualification had not yet been issued.

Outcomes

Knowledge and understanding

For a Master of Arts/Science (60 credits) degree the student shall have:

- demonstrate knowledge and understanding in the main field of study, including both an overview of the field and specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Master of Arts/Science (60 credits) degree the student shall

- demonstrate the ability to integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues autonomously as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames
- demonstrate the ability in speech and writing to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or employment in some other qualified capacity.

Judgement and approach

For a Master of Arts/Science (60 credits) degree the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Independent project (degree project)

A requirement for the award of a Master of Arts/Science (60 credits) is completion by the student of an independent project (degree project) for at least 15 credits in the main field of study.

Miscellaneous

Specific requirements determined by each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Master of Arts/Science with a defined specialisation.

Master of Arts/Science (120 credits) [Masterexamen]

Scope

A Master of Arts/Science (120 credits) is awarded after the student has completed the courses required to gain 120 credits with a defined specialisation determined by each higher education institution itself, of which at least 60 credits are for specialised study in the principal field (main field of study) of the study programme. In addition the prior award of a Bachelor's degree, Bachelor's degree in fine arts, professional or vocational qualification of at least 180 credits or a corresponding qualification from abroad is required.

The requirement of the prior award of a qualification may be waived for a student admitted to the programme without the basic entry requirement in the form of a qualification. This does not, however, apply if a waiver was granted during admission pursuant to the second paragraph of Section 28 of the Chapter 7 of the Higher Education Ordinance (1993:100) on the grounds that the qualification had not yet been issued.

Outcomes

Knowledge and understanding

For a Master of Arts/Science (120 credits) the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Master of Arts/Science (120 credits) the student shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- demonstrate the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a Master of Arts/Science (120 credits) the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Independent project (degree project)

A requirement for the award of a Master of Arts/Science (120 credits) is completion by the student of an independent project (degree project) for at least 30 credits in the main field of study. The degree project may comprise less than 30 credits, however no less than 15 credits, if the student has already completed an independent project in the second cycle for at least 15 credits in the main field of study or the equivalent from a programme of study outside Sweden.

Miscellaneous

Specific requirements determined by the each higher education institution itself within the parameters of the requirements laid down in this qualification descriptor shall also apply for a Master of Arts/Science (120 credits) with a defined specialisation.