General syllabus for third-cycle education in the third-cycle subject area Strategic Sustainable Development

1 Description of the third-cycle subject area at BTH

The subject area Strategic Sustainable Development focuses on leadership and innovation for sustainability from a transdisciplinary perspective where a system- and design science approach constitutes an important foundation. Specifically, it includes studies on methodological support for companies, municipalities and other organizations that want to work strategically with sustainability, i.e., that want to contribute to society's transition to sustainability in ways that strengthen the own organization. For example, the studies include definitions of sustainability and how strategic sustainability thinking can be integrated with methodology for system analysis, risk analysis, strategic planning, transformation and transition, criteria formulation, ideation, concept generation, concept evaluation, business model development, procurement and communication.

It is important to bring in strategic sustainability thinking in change- and innovation processes (e.g. in processes for organizational learning and change, product-service development, transport system development, energy system development, and regional development). Here are great opportunities to create solutions that contribute to sustainable development of society and strengthen the organization. It is important to early on being able to consider, in a coordinated way, e.g., technical, business economic and socio-ecological implications of different solutions so that the best alternatives from a strategic sustainability perspective can be identified and developed further.

Graduates in this subject area have the ability to integrate overarching sustainability science and methodology for strategic sustainable development with specific methodology within different specific areas and with that coordinate collaboration between various disciplines (within, e.g., engineering, natural sciences and social sciences) and between various sectors of society (e.g. industry, transport, energy, education and public administration) for the benefit of sustainable development. The graduate can also in herself/himself represent such a competence combination.

2 Structure of the course/programme

Third-cycle courses and study programmes which finish with a Degree of Licentiate comprise an actual period of study of two years (120 higher education credits) and consist of a course component of minimum 30 higher education credits and a licentiate thesis of minimum 60 higher education credits.

Third-cycle courses and study programmes which finish with a Degree of Doctor comprise an actual period of study of four years (240 higher education credits) and consist of a course

component of minimum 60 higher education credits and a dissertation of minimum 150 higher education credits.

A third-cycle student who is admitted to the Degree of Doctor is given the possibility to take a Degree of Licentiate (according to the above) after having completed minimum 120 higher education credits of the programme that is to be finished with a Degree of Doctor.

For each third-cycle student an individual study plan is set up. The individual study plan describes the individual set-up of the studies. The individual study plan is revised and followed up yearly in accordance with the routines that are established at BTH. The study plan is to show in a convincing way how the goals for the third-cycle student's studies can be attained within the available time period.

In accordance with the Higher Education Ordinance at least two supervisors are appointed for each third-cycle student of whom one is appointed principal supervisor. For examination and grading in the third-cycle education, the Higher Education Ordinance also requires that an examiner is appointed for each third-cycle student. The supervisors and the examiner will be appointed according to BTH's guidelines. A supervisor, who is not the principal supervisor of the two, must have a doctoral degree. In addition, further supervisors may be affiliated to the third-cycle student, e.g., from industry, if this is for the benefit of the third-cycle student's studies. For these additional supervisors there is no demand on having a doctoral degree.

2.1 Purpose of the education
BTH conducts third-cycle education in order to contribute with solutions to the complex challenges in society and to meet the demands of a changeable labour market.

Specifically, the third-cycle courses and study programmes aim at developing the third-cycle student's knowledge in the subject area and her/his capacity to independently carry on research-, development-, teaching- and investigatory work based on a scientific foundation in different areas of society. The purpose of the Degree of Doctor is, in addition, to give the third-cycle student the capacity to critically and independently plan, initiate, and lead such work.

2.2 Goals for the education
According to the System of Qualifications in the Higher Education Ordinance (1993:100) according to enclosure.

2.3 Realization of the education
The third-cycle student carries on research and writes a scientific work (licentiate thesis/doctoral dissertation). In support of this, the education may include lectures, seminars, literature studies, project assignments, group supervision and individual supervision. Courses for each third-cycle student are established individually in consultation with the supervisors and the examiner and are entered into the individual study plan.

The supervision of the education aims at assisting the third-cycle student regarding choice of research domain, scientific method and organization and planning of the scientific work and pertaining studies. The supervisors are to assist with subject competence and see to that the

work holds an international quality level. Furthermore, the supervision aims at introducing the third-cycle student to the scientific community and its demands on, e.g., ethics, honesty and critical thinking.

The third-cycle student is to participate in national and international contexts and present her/his own research.

During the education period, the third-cycle student is to take part of the scientific activities which are conducted in the scientific environment at the department/faculty by attending seminars and guest lectures, and, in the normal case, give one seminar per year about her/his thesis work.

The third-cycle student is to carry out a popular science-based presentation of her/his research before the Degree of Licentiate and public defence of the doctoral dissertation and write a popular science-based summary.

A third-cycle student, employed by the higher education institution as a doctoral student, is recommended to dedicate certain time (not more than 20 per cent of full working hours) to teaching in first- and second-cycle courses and programmes. Such work is financed by the first- and second-cycle courses and programmes and is to be accounted for in the individual study plan.

The education should be organized so that the third-cycle student attains the stipulated qualitative targets. How the knowledge needs of each individual third-cycle student are to be fulfilled in order to attain the qualitative targets is stated in respective individual study plan.

3 Entry requirements and selection

3.1 General entry requirements

According to 7 Chap. 39 § in the Higher Education Ordinance (1993:100).

3.2 Selection

According to 7 Chap. 41 § in the Higher Education Ordinance (1993:100) and the current admission regulations at BTH. Selection is to be made in consideration of the applicants' capacity to profit by the education. The foundation for selection among the qualified applicants is the degree of capacity to profit by the third-cycle education, and the access to supervision and other resources in view of the planned specialization of the licentiate thesis/doctoral dissertation.

Examples of bases of assessment applied at the selection for third-cycle education are constituted by:

- Interest for and familiarity with the theory and applications of the subject,
- Relevant work experience where appropriate,
- Skills in expression of speech and in writing in English,

- Creativity, capacity for initiative, independence, curiosity, tenacity, ability to handle complex issues and problems, and ability to co-operate.

To assess how the applicant fulfils the bases of assessment, the following are used: results from higher education courses, quality of the independent work and possible publications, references, interviews, possible personal knowledge, and a personal letter from the applicant which describes the applicant's expectations on and intentions with the education. In certain cases the applicant may undergo specific work tests.

Admission to third-cycle education is done on a continuous basis.

4 Examinations that form part of the education

The education consists of courses and a scientific work. Examinations that form part of the third-cycle education are assessed with the grades pass/failed. A grade on a course and a licentiate thesis, respectively, is determined by a specially appointed examiner. A grade on a doctoral dissertation is determined by a specially appointed grading committee.

For a possible credit transfer, see the current order for credit transfers and the guidelines for credit transfers.

4.1 Courses

In support of the research work and for the fulfilment of the qualitative targets generally, the third-cycle student takes a number of courses. Courses completed at BTH as well as courses from other higher education institutions can be included.

For third-cycle courses given at BTH there is to be a written course description which, among other things, states the title of the course in Swedish and English, the course objectives, content and credits. The individual study plan is to regulate which courses can form part of the studies and how many higher education credits each course should award (for participation in a course originally intended for first- or second-cycle, see the guidelines for credit transfer of courses in third-cycle education).

Components of the education in the areas below are compulsory. How these are examined, through a course or other component, is regulated in each separate individual study plan.

- Research methodology
- Information search for researchers
- Scientific writing and scientific review
- Ethics in research

At least 10 higher education credits within the field of Strategic Sustainable Development or equivalent should be included if this has not been included in the education at the first- or second cycle. The research student is also encouraged to take courses at other higher education institutions, nationally and internationally.

The choice of courses is to be characterized by flexibility with regard to the third-cycle student's prior knowledge and the specialization of the research work and is to be determined in

consultation between the third-cycle student, supervisors and examiner. The examination format is determined by the examiner in consultation with the supervisors. Goal attainment is tested by the examiner.

All compulsory courses or components are to be completed before the doctoral dissertation is publicly defended at the public defence of the doctoral dissertation. Other courses and components are to be chosen so that the third-cycle student obtains both breadth and depth in the research domain. The courses are also to benefit the third-cycle student's competence and skills, her/his studies or scientific work.

4.2 Scientific work

Scientific work in the form of a licentiate thesis/doctoral dissertation is to be designed as an integrated, connected scientific work (monograph) or as a summary – introductory part – together with pertaining scientific academic papers (compilation), which the third-cycle student has written alone or together with another person or persons. The scientific work is written in English or Swedish.

The licentiate thesis is to be presented orally at a public licentiate seminar. For further information, please see "Regulations for licentiate seminars" established by BTH.

The doctoral dissertation is to be defended orally at a public defence of doctoral dissertation. The dissertation must have been quality assured beforehand as described in "Enclosure – Preliminary assessment of doctoral dissertation in the third-cycle subject area *Strategic Sustainable Development*". For further information, please see "Regulations for the public defence of a doctoral dissertation" established by BTH.

5 Degree

5.1 Qualitative targets

Goals according to the System of qualifications in the Higher Education Ordinance (1993:100) according to "Enclosure – System of qualifications (Higher Education Ordinance 1993:100)".

5.2 Title of qualification

The degree title of third-cycle studies in Swedish at BTH consists of a general degree with the addition of a prefix.

Third-cycle student taking a Degree of Licentiate in Strategic Sustainable Development who has a technical qualifying education[1] normally receives the Swedish degree title teknologie licentiatexamen (Eng. Degree of Licentiate of Technology). In other cases the student receives the Swedish degree title filosofie licentiatexamen (Eng. Degree of Licentiate of Philosophy).

Third-cycle student taking a Degree of Doctor in Strategic Sustainable Development who has a technical qualifying education[1] normally receives the Swedish degree title teknologie doktorsexamen (Eng. Degree of Doctor of Philosophy). In other cases the student receives the

[1] A technical education refers to a Master's Degree in Engineering, Master's Degree in Science, or equivalent in a technical or mathematical-natural science field.

Swedish degree title filosofie doktorsexamen (Eng. Degree of Doctor of Philosophy).

The prefix will be clarified in the individual study plan.

6 Effective date and interim regulations
This general syllabus becomes effective on June 1, 2021.

Third-cycle students admitted before June 1, 2021, will complete, as a general rule, their studies according to the older general syllabus. If a third-cycle student so requests and it is deemed suitable, the relevant examiner may accept a transfer to the new general syllabus. The third-cycle student will then report the transfer to the relevant Dean and attach a copy of an updated individual study plan updated according to the new general syllabus.

Enclosure – Preliminary assessment of doctoral dissertation in the third-cycle subject area Strategic Sustainable Development

Preliminary assessment of a doctoral dissertation in the third-cycle subject area *Strategic Sustainable Development* at BTH means that each ordinary member of the examination committee individually assesses whether or not the dissertation is of sufficient quality to be approved as a Swedish doctoral dissertation and thus is considered appropriate to be presented and defended at a disputation. In case of a positive judgement, it does not need to be followed by any reasoning or comments. In case of a negative judgement, it must be justified. A positive preliminary judgement does not exclude another judgement after the disputation, when also the respondent's oral presentation and defense of the dissertation are considered.

The process is as follows:

1. The preliminary assessment should be completed no later than seven weeks before the disputation. The preliminary assessment should not take more than two weeks and the dissertation (in a nearly final version) should therefore be sent to the members of the examination committee no later than nine weeks before the disputation.

2. If a member of the examination committee is replaced after having completed the preliminary assessment, the replacing member does not need to pre-assess the dissertation.

3. The judgement is sent in the form of a completed preliminary assessment template (see the following page) by email to the principal supervisor. If an examination committee member does not respond, in spite of a reminder, it is interpreted as a positive judgement.

4. If one or more examination committee members judge that the dissertation is not of sufficient quality, the disputation should be postponed. However, the third-cycle student still has the right to go on with the disputation according to the original plan.

The principal supervisor is responsible for ensuring that the preliminary assessment is carried out according to these guidelines.

Template for preliminary assessment of doctoral dissertation in the third-cycle subject area Strategic Sustainable Development at BTH

Name of the third-cycle student

Preliminary title of the dissertation

Judgement
☐ **I consider the dissertation to be of sufficient quality to be approved as a Swedish doctoral dissertation and thus is considered appropriate to be presented and defended at a disputation.**
☐ **I <u>do not</u> consider the dissertation to be of sufficient quality to be approved as a Swedish doctoral dissertation and thus is not considered appropriate to be presented and defended at a disputation.**
In case of a negative judgement, please provide a justification below or in a separate document. Note that the motivation will be public.
Justification:

Signature	
Place and date:	
Signature:	**Name in block letters:**

Enclosure – System of qualifications (Higher Education Ordinance 1993:100)

Degree of Licentiate [Licentiatexamen]

Scope
A Degree of Licentiate is awarded

either after a third-cycle student has completed a study programme of at least 120 credits in a subject in which third-cycle teaching is offered,

or after a third-cycle student has completed one part comprising at least 120 credits of a study programme intended to conclude with the award of a PhD, if a higher education institution decides that a Degree of Licentiate of this kind may be awarded at the institution.

Outcomes

Knowledge and understanding
For a Degree of Licentiate the third-cycle student shall demonstrate knowledge and understanding in the field of research including current specialist knowledge in a limited area of this field as well as specialised knowledge of research methodology in general and the methods of the specific field of research in particular.

Competence and skills
For a Degree of Licentiate the third-cycle student shall

- demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake a limited piece of research and other qualified tasks within predetermined time frames in order to contribute to the formation of knowledge as well as to evaluate this work

- demonstrate the ability in both national and international contexts to present and discuss research and research findings in speech and writing and in dialogue with the academic community and society in general, and

- demonstrate the skills required to participate autonomously in research and development work and to work autonomously in some other qualified capacity.

Judgement and approach
For a Degree of Licentiate the third-cycle student shall

- demonstrate the ability to make assessments of ethical aspects of his or her own research

- 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.

Thesis

For a Degree of Licentiate the third-cycle student shall have been awarded a pass grade for a research thesis of at least 60 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 Degree of Licentiate with a defined specialisation.

Degree of Doctor

Scope
A Degree of Doctor is awarded after the third-cycle student has completed a study programme of 240 credits in a subject in which third-cycle teaching is offered.

Outcomes

Knowledge and understanding
For the Degree of Doctor the third-cycle student shall

- demonstrate broad knowledge and systematic understanding of the research field as well as advanced and up-to-date specialised knowledge in a limited area of this field, and

- demonstrate familiarity with research methodology in general and the methods of the specific field of research in particular.

Competence and skills
For the Degree of Doctor the third-cycle student shall

- demonstrate the capacity for scholarly analysis and synthesis as well as to review and assess new and complex phenomena, issues and situations autonomously and critically

- demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames and to review and evaluate such work

- demonstrate through a dissertation the ability to make a significant contribution to the formation of knowledge through his or her own research

- demonstrate the ability in both national and international contexts to present and discuss research and research findings authoritatively in speech and writing and in dialogue with the academic community and society in general

- demonstrate the ability to identify the need for further knowledge and

- demonstrate the capacity to contribute to social development and support the learning of others both through research and education and in some other qualified professional capacity.

Judgement and approach
For the Degree of Doctor the third-cycle student shall

- demonstrate intellectual autonomy and disciplinary rectitude as well as the ability to make assessments of research ethics, and

- demonstrate specialised insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used.

Research thesis (doctoral thesis)
For the Degree of Doctor the third-cycle student shall have been awarded a pass grade for a research thesis (doctoral thesis) of at least 120 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 Degree of Doctor with a defined specialisation.