General syllabus for third-cycle subject

Subject	Adopted	Registration number	Ks-kod
Art, technology and design	**10 May 2017** *Revised 13 June 2018*	V-2017-0550	3.2.3

General syllabus

Adopted by the faculty council/education committee: 10 May 2017

Revised: 13 Jun 2018

Subject title in Swedish (and English translation)

Konst, teknik och design (Art, Technology and Design)

Subject description – Main content of the programme

The Art, Technology and Design third-cycle subject area includes research in an emerging research domain formed in dynamic meetings between artistic and scientific approaches as well as between three different perspectives – art, technology and design. The subject is managed and developed within the framework of the Art, Technology and Design doctoral programme at KTH. Via a collaboration between KTH and Konstfack, the programme offers a new arena for meetings between different knowledge cultures and methods of research, innovation and production in art, technology and design.

The programme's overall objective is to unite research and education around sustainable societal development (and the readjustment such development requires) via a radical rethinking of the individual-society-environment relationship. In challenging conventions within established knowledge areas, in holding a transdisciplinary scope, and by combining the practices of making with advanced epistemological and methodological perspectives, research and education within the programme aim to contribute with a strong innovate force

Owing to its focus on "meetings of perspectives" and concrete manifestation, the research domain is basically interdisciplinary. Research projects in the subject are based on a critically analytic approach that, as regards research, is applied to material and performative experiments as well as to discursive investigations. Through collaborations with external agents (e.g. in commerce, culture, public operations and politics), projects have high transdisciplinary potential.

Programme objectives based on Sweden's Higher Education Ordinance, Annex 2 – Qualifications Ordinance

Each doctoral student's individual study plan shall be designed to guarantee the possibility of attaining the qualitative targets in the Higher Education Ordinance and KTH's objectives. Attainment shall be evaluated for each individual doctoral student. This shall be done annually by monitoring the individual study plan. The latter shall comment on how, vis-à-vis the goals (i.e. targets and objectives), the programme's courses and thesis work achieve progression. Other activities (e.g. supervision and outward-oriented operations in line with education and public outreach) shall also be factored into this.

State the programme elements for promoting goal attainment. Other details are to be given in an appendix to the subject's study plan.

<u>Knowledge and understanding</u>
For a Degree of Doctor, the doctoral student shall demonstrate:
- Wide expertise in, and a systematic understanding of, the research domain; and, deep and current specialist knowledge in a delimited part of the research domain.
- Familiarity with scientific methodology in general and the specific research domain's methods in particular.

The overall "knowledge and understanding" goals are primarily attained through course participation and own, supervised research.

Skills and abilities (communication ability included therein)
For a Degree of Doctor, the doctoral student shall:
- Demonstrate an aptitude for scientific analysis and synthesis, as well as for independent critical examination and assessment of new and complex phenomena, issues and situations.
- Demonstrate an ability to critically, independently, creatively and with scientific precision identify and formulate issues as well as plan and use appropriate methods to conduct research and other advanced assignments within given time frames and examine and evaluate this work.
- Via a thesis, demonstrate an ability to significantly contribute, through own research, to knowledge development.
- Demonstrate an ability, in both national and international contexts, to authoritatively present and discuss, orally and in writing, research and research results in dialogues with the scientific community and society in general.
- Demonstrate an ability to identify further knowledge needs.
- Demonstrate the potential (within research, education and other advanced, professional contexts) to contribute to societal development and others' learning.

The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, in being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.

Judgement and approach
For a Degree of Doctor, the doctoral student shall:
- Demonstrate intellectual independence and scientific probity as well as an ability to assess research ethicality.
- Demonstrate specialised insight into the possibilities and limitations of the discipline, its societal role and the responsibility people bear for how it is used.

The overall "judgement and approach" goals are attained through supervision, faculty meeting discussions, courses and thesis work. The ability to assess research ethicality is trained in supervised thesis work and in courses, in particular, the compulsory FAD3100 "Theory of science and research methodology in art, technology and design", (7.5 higher education credits – HECs). Research ethicality can also be taken up as a separate theme in the programme's annual workshop/internat/exhibition. Intellectual independence is trained and tested in connection with, for example: the publishing of papers; assistance at exhibitions; and, in thesis work in general. Course FAD3101 "Rethinking research practices in art, technology and design" also contributes to goal attainment.

Sustainable development
For a Degree of Doctor, the doctoral student shall:
-Demonstrate knowledge of, and an ability to make, relevant environmental and ethical decisions in order to be able to contribute to sustainable societal development.

The following goals are taken from the action plan for programme development in sustainable development.

Regardless of his/her research specialisation, each doctoral student shall, as an element in third-cycle education: acquire knowledge and insights of and into overall sustainability goals; and, be able to hold a critical discussion of the concept's definition and applications.

With a pronouncedly clear and forward-looking perspective, the doctoral project within the programme shall have a clear link to sustainable development.

Via working with for example, models, prototypes, visual regimes and narrative strategies, doctoral students shall, in their own research specialisations, be able to analyse, problematise and modify strategies for sustainable development.

Doctoral students shall know about and be able to discuss research ethicality issues in relation to sustainable development.

Specific entry requirements

Subject knowledge requirements and any language requirements are to be entered here.

To be admitted to Art, Technology and Design third-cycle education, the applicant must have passed courses giving at least 60 HECs in, minimally, second-cycle architecture, design, art, handicrafts or other subject assessed to be directly relevant. The foregoing requirements are also considered to have been satisfied by applicants who have, in some other way, acquired largely equivalent knowledge.

Applicants shall have a good knowledge of spoken and written English. A knowledge of Swedish is not necessary, but can facilitate undertaking of third-cycle education.

Selection rules

Selection for third-cycle education is based on assessed ability to benefit from this. Assessment of ability is primarily based on having passed courses and programmes that satisfy the entry requirements. Particular consideration is given to the following:

1. Knowledge and skills relevant for thesis work and the subject. These can be demonstrated via attached documents and, potentially, an interview.

2. Assessed ability to work independently:

   a. Ability to formulate and tackle scientific problems.

   b. Ability to communicate in writing and orally.

   c. Maturity, judgement and ability to analyse critically and independently.

Assessment may be based on, for example, degree projects and, potentially, discussion of these at an interview.

3. Other experience relevant for third-cycle education, e.g. professional experience.

Content and examination of the course component

A Degree of Licentiate may be taken as part of a Degree of Doctor. The Degree of Licentiate comprises: a course component of between 30 and 60 HECs (30 of these being compulsory); and, an academic paper component of between 60 and 90 HECs. The combined total of these must be 120 HECs.

The Degree of Doctor comprises: a course component of between 60 and 90 HECs (30 of these being compulsory); and, a thesis requirement of between 150 and 180 HECs. The combined total of these must be 240 HECs.

The subject study plan includes a compulsory course package of 30 HECs. Besides giving basic insights into theory of science and research methodology (both generally and specifically in the third-cycle subject area), the combined course package is of great importance in developing the programme's specialisation and the structure of the research domain. The course package includes courses that are: primarily lecture, seminar and literature based; and, courses that are given in seminar and workshop form with a focus on analytical and experimental methods that are being developed in current research projects within the programme. It also includes an introduction to teaching and learning in higher education (with a particular focus on art and design).

The current course list is available on the doctoral programme web page. The course list is reviewed annually by the programme council. The compulsory courses are given every other year or, if necessary, more frequently. In certain cases, teaching may be coordinated with a similar second-cycle course, the difference in levels being adjusted via the number of lectures or seminars and the level of practical assignments. Third-cycle examination is generally characterised by a requirement for greater independence and creativity. Courses given within the programme are instituted by KTH, but held wholly or partly at either Konstfack or KTH. Doctoral students may study quality-reviewed courses at other universities.

Compulsory courses (30 HECs)

AD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs

The course includes: a basic introduction to the theory of science; orientation regarding knowledge perspectives of various scientific traditions; specialised epistemological and methodological insights into current research in the art, technology and design third-cycle subject area; and discusses cases of of radical rethinking concerning the relation between the individual, society and the environment from the basis of historical and philosophical examples.

AD3102 "Concepts, theories and experimental practices in art, technology and design", 7.5 HECs

The course includes: an overall orientation in the emerging research field that is developing internationally under names such as "practice-based research in the arts", "arts and technology studies" and "research by design"; specialised insights (through studies of completed thesis projects) into practical investigation methods; and, result presentation of specific interest for the third-cycle subject area's profile.

Special emphasis is placed on forms of academic writing. Examples of re-evaluative and experimental approaches are highlighted and discussed.

AD3103 "Introduction to teaching and learning in higher education: art and design programmes", 5 HECs

The course includes: a basic orientation in teaching and learning in higher education; and, a specialisation in pedagogical methods for art and design programmes.

AD3101 "Rethinking research practices in art, technology and design", 10 HECs

The course is given in seminar and/or workshop form and is based on the participants' work with their own thesis projects. The course is divided into two equally important components. Elements of material, performative or conceptualising investigation are highlighted in connection with own thesis

projects and discussed in relation to detailed studies of relevant reference projects in the subject. The participants' discursive work with own thesis projects' critical and theoretical settings, relevance and importance is also highlighted in relation to detailed studies of selected reference texts in the subject. Results and discussions from the course are documented in a digital archive.

Optional courses (30 – 60 HECs for a Degree of Doctor)

Other courses are decided individually in relation to the doctoral student's specific knowledge needs. These courses may be given at Konstfack or KTH within the framework of the doctoral programme and/or in collaboration with second-cycle courses at these higher education institutions. Doctoral students can also study courses at other higher education institutions inside or outside Sweden.

Each doctoral student's course planning is regulated in the individual study plan.

Higher education requirements

Degree of Doctor

The award of a Degree of Doctor requires 240 HECs. The thesis shall provide at least 120 HECs in this.

Thesis

Quality and any other thesis requirements.

The academic paper/thesis work is a compulsory component of third-cycle education. The aim of the education is to provide students with the proper training that enables him or her to make independent contributions to scientific and artistic collaborations within and beyond the research area.

Academic paper and th

esis work within the programme is based on various investigative and conceptualising practices (both material and written) that are to be reported on continuously throughout third-cycle education (in, for example, exhibitions, texts and published papers). The public defence of the doctoral thesis can either: be based on a thesis that is a compilation of the parts (if these have been assessed as of sufficiently high quality and are held together by a frame narrative; alternatively from the basis of a dissertation consisting of a coherent final presentation of research result in the form of a monograph. It is essential that the work shows a capacity for reflection that relates to cutting edge research in the subject area and to current discussions in the field.

The academic paper/thesis work shall include new research results that the student has developed himself/herself or in collaboration with others through theoretical, artistic and/or empirical research activities. The scope of the thesis is not regulated by the number of words or similar. However, as a reference, the yardstick used in a number of other programmes at KTH can be mentioned: "for a Degree of Doctor, the main scientific results shall satisfy the quality requirements for the publication of at least four papers (at least two for a Degree of Licentiate) in internationally recognised, peer-reviewed journals or equivalent." For this doctoral programme, it is essential that scientific results, in addition to publication as peer-reviewed papers, can be advantageously developed and communicated in other forms and media such as exhibitions, installations, prototypes, presentations, films, etc. In such cases, adequate documentation and discussion of results in the presented thesis work are of great importance.

Academic papers/theses at KTH are normally written in English. If the subject justifies the paper/thesis being written in another language, dispensation has to be sought from the director of third-cycle education.

Courses

A Degree of Doctor in the subject requires between 60 and 90 HECs from courses.

Degree of Licentiate

The award of a Degree of Licentiate requires at least 120 HECs. An academic paper shall provide at least 60 HECs in this.

Academic paper

Quality and any other academic paper requirements.

The academic paper/thesis work is a compulsory component of third-cycle education. The programme aims to train students in making independent, scientific contributions to research and developing an ability to undertake scientific and artistic collaborations inside and outside the research domain.

Academic paper and thesis work within the programme is based on various investigative and conceptualising practices (both material and written) that are to be reported on continuously throughout third-cycle education (in, for example, exhibitions, texts and published papers). The public defence of the doctoral thesis can either: be based on a thesis that is a compilation of the parts (if these have been assessed as of sufficiently high quality and are held together by a so-called “framework narrative”); or, comprise a uniform, final compilation of research results in a monograph. It is essential that the work shows reflection that relates to the subject area’s research front and the field’s discussions.

The academic paper/thesis work shall include new research results that the student has developed himself/herself or in collaboration with others via a theoretical, conceptualising and /or empirical research project. Academic paper/thesis scope is not regulated by the number of words or similar. However, as a reference, the yardstick used in a number of other programmes at KTH can be mentioned: “for a Degree of Doctor, the main scientific results shall satisfy the quality requirements for the publication of at least four papers (at least two for a Degree of Licentiate) in internationally recognised, peer-reviewed journals or equivalent.” For this doctoral programme, it is essential that scientific results, in addition to publication as peer-reviewed papers, can be advantageously developed and communicated in other forms and media such as exhibitions, installations, prototypes, presentations, films, etc. In such cases, adequate documentation and discussion of results in the presented thesis work are of great importance.

Academic papers/theses at KTH are normally written in English. If the subject justifies the paper/thesis being written in another language, dispensation has to be sought from the director of third-cycle education.

Courses

A Degree of Licentiate in the subject requires between 30 and 60 HECs from courses.

Appendix
Qualitative targets (KTH's objectives included therein), as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) for concretising the subject and how the programme is structured to support the attainment of goals (targets and objectives) by doctoral students.

Degree of Doctor

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
Demonstrate: wide expertise in, and a systematic understanding of, the research domain; and, deep and current specialist knowledge in a delimited part of the research domain.	The overall "knowledge and understanding" goals are primarily attained through course participation and own, supervised research.	General and systematic understanding of the subject is developed in the compulsory courses AD3102 Concepts, theories and experimental practices in art, technology and design, 7.5 HECs. Training in this is also given through supervision and seminar participation. The student demonstrates attained ability via: examination in said courses; presentations at seminars; and, by writing the background section to the summarising, introductory chapter of the thesis. Specialist knowledge is developed through: individual study as per the supervisor's suggestions and instructions; and, discussions with the supervisor and others. It is primarily presented in the papers in the thesis.
Demonstrate familiarity with scientific methodology in general and the specific research domain's methods in particular.	The overall "knowledge and understanding" goals are primarily attained through course participation and own, supervised research.	General and more specialised knowledge of scientific methodology is acquired through the compulsory courses AD3100 "Theory of science and research methodology in art, technology and design" (7.5 HECs) and AD3101 "Rethinking research practices in art, technology and design" (10 HECs). It is also acquired through supervision and participation in seminars and conferences.
Demonstrate an aptitude for scientific analysis and synthesis, as well as for independent critical	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is	Supervision is structured so that the student increasingly becomes more independent in analysing the

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
examination and assessment of new and complex phenomena, issues and situations.	support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	data generated by his/her own research. Training in the ability to critically review others' research results and observations is provided via the department's seminars and on courses. This applies to, for example, the course AD3101 "Rethinking research practices in art, technology and design", 10 HECs.
Demonstrate an ability to critically, independently, creatively and with scientific precision identify and formulate issues as well as plan and use appropriate methods to conduct research and other advanced assignments within given time frames and examine and evaluate this work.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101	This is primarily trained through supervision and own research projects. We also seek to have doctoral students taking part in discussions where research problems are identified and future research is planned. This covers both internal meetings and meetings with colleagues from other universities and with stakeholders who are important for our research.

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	"Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	
Via a thesis, demonstrate an ability to significantly contribute, through own research, to knowledge development.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	In addition to the individual study plans, we use supervision sessions to plan the doctoral students' research projects. We also use seminars for continuous monitoring and discussion of the doctoral students' work. In supervisor meetings: the progress of doctoral students is discussed; and, the supervision initiatives and other measures necessary to further help the doctoral students attain this central goal in third-cycle education are identified.
Demonstrate an ability, in both national and international contexts, to authoritatively present and discuss, orally and in writing, research and research results in dialogues with the scientific	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and	We attach great importance to doctoral students presenting their research not only in research contexts, but also to stakeholders and other interested parties. Our principle is that a full-time doctoral

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
community and society in general.	criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design"; and, the optional course, FAD3114 "Presentation and communication of artistic research", 7.5 HECs. The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	student shall give an external presentation (e.g. at an international conference) at least once a year.
Demonstrate an ability to identify further knowledge needs.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101	At the annual revision of the study plans, each doctoral student is encouraged to himself/herself present proposals on how continued research shall be planned. As an element in the work with study plans, these proposals are discussed with the principal supervisor. In our continuous supervision, great importance is attached to each doctoral student himself/herself identifying what needs to be done to drive his/her research onwards.

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	"Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	
Demonstrate the potential (within research, education and other advanced, professional contexts) to contribute to societal development and others' learning.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	Doctoral students are given opportunities to participate in scientific conferences and in our meetings with external stakeholders. As far as possible, they are also given opportunities to obtain teaching experience. The optional courses FAD3114 "Presentation and communication of artistic research" (7.5 HECs) and AD3101 "Rethinking research practices in art, technology and design" (10 HECs) can be mentioned here. As an element in their programme, doctoral students are given the opportunity to take the course "Basic communication and teaching" (LH 3000 – 3.0 HECs).
Demonstrate intellectual independence and scientific probity as well as an ability to assess research ethicality.	The overall "judgement and approach" goals are attained through supervision, faculty meeting discussions, courses and thesis work. The ability to assess research ethicality is trained in	Supervision and research seminars both take up issues of scientific probity and research ethicality. The compulsory course AD3100 "Theory of science and research methodology in art, technology and

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	supervised thesis work and in courses, in particular, the compulsory FAD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs. Research ethicality can also be taken up as a separate theme in the programme's annual residential course. Intellectual independence is trained and tested in connection with, for example: the publishing of papers; assistance at exhibitions; and, in thesis work in general.	design" (7.5 HECs) includes elements on research ethicality.
Demonstrate specialised insight into the possibilities and limitations of the discipline, its societal role and the responsibility people bear for how it is used.	The overall "judgement and approach" goals are attained through supervision, faculty meeting discussions, courses and thesis work. The ability to assess research ethicality is trained in supervised thesis work and in courses, in particular, the compulsory FAD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs. Research ethicality can also be taken up as a separate theme in the programme's annual residential course. Intellectual independence is trained and tested in connection with, for example: the publishing of papers; assistance at exhibitions; and, in thesis work in general.	Questions regarding the possibilities and limitations of the discipline are continuously taken up in supervision and seminars. Doctoral students are expected to take up issues of societal relevance in the summarising, introductory chapter of the thesis. These issues are also taken up in compulsory third-cycle course AD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs.
(KTH's objectives for ESD) Demonstrate knowledge of, and an ability to make, relevant environmental and ethical decisions in order to be able to contribute to sustainable societal development.	Regardless of his/her research specialisation, each doctoral student shall, as an element in third-cycle education: acquire knowledge and insights of and into overall sustainability goals; and, be able to hold a critical discussion of the concept's definition and applications. With a pronouncedly clear and forward-looking perspective, the	Issues of sustainable development are forever current in this research domain and are brought to the fore in supervision, seminars and third-cycle courses. These are dealt with in, amongst other things, the third-cycle courses that include elements on sustainable development.

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Doctor, the doctoral student shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	doctoral project within the programme shall have a clear link to sustainable development. Via working with for example, models, prototypes, visual regimes and narrative strategies, doctoral students shall, in their own research specialisations, be able to analyse, problematise and modify strategies for sustainable development. Doctoral students shall know about and be able to discuss research ethicality issues in relation to sustainable development.	

Degree of Licentiate

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Licentiate, doctoral students shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
Demonstrate knowledge and understanding in the research domain (current specialist knowledge in a delimited part of this included therein) and specialised knowledge of scientific methodology in general and the specific research domain's methods in particular.	The overall "knowledge and understanding" goals are primarily attained through course participation and own, supervised research.	General and systematic understanding of the subject is developed in the compulsory course AD3102 Concepts, theories and experimental practices in art, technology and design, 7.5 HECs. Training in this is also given through supervision and seminar participation. The student demonstrates attained ability via: examination in said courses; presentations at seminars; and, by writing the background section to the summarising, introductory chapter of the licentiate dissertation. Specialist knowledge is developed through: individual study as per the supervisor's suggestions and instructions; and, discussions with the supervisor and others. It is primarily presented in the papers in the licentiate dissertation.
Demonstrate an ability to critically, independently, creatively and with scientific precision identify and formulate issues as well as plan and use appropriate methods to conduct a limited research project and other advanced assignments within given time frames and, thereby, to contribute to knowledge development and to evaluate this work.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in	This is primarily trained through supervision and own research projects. We also seek to have doctoral students taking part in discussions where research problems are identified and future research is planned. This covers both internal meetings and meetings with colleagues from other universities and with stakeholders who are important for our research.

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Licentiate, doctoral students shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	
Demonstrate an ability, in both national and international contexts, to present and discuss, orally and in writing, research and research results in dialogues with the scientific community and society in general.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	We attach great importance to doctoral students presenting their research not only in research contexts, but also to stakeholders and other interested parties. Our principle is that a full-time licentiate student shall give an external presentation (e.g. at an international conference) at least twice in the time up until taking of a Degree of Licentiate.
Demonstrate the skills necessary to independently participate in research and development work and to work independently in other advanced operations.	The overall "skills and abilities" goals are primarily attained through thesis work. However, there is support from courses and seminar activities. Students receive training in: studying, understanding and criticising scientific texts and other	Doctoral students are given opportunities to participate in scientific conferences and in our meetings with external stakeholders. As far as possible, they are also given opportunities to obtain teaching experience.

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Licentiate, doctoral students shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	forms of presenting research in the area (e.g. text and image based, material, visual, audio or performative investigations); and, being able to argue for or against own and others' results and interpretations. Training in communication also takes place through: presentations at scientific conferences; participation in exhibitions and workshops; and, the obligatory courses FAD3101 "Rethinking research practices in art, technology and design" (10 HECs) and FAD3102 "Concepts, theories and experimental practices in art, technology and design". The majority of doctoral students undertake departmental duties in the form of teaching. This gives further training in communication.	The optional course FAD3114 "Presentation and communication of artistic research" (7.5 HECs) can be mentioned here. As an element in their programme, doctoral students are given the opportunity to take the course "Basic communication and teaching" (LH 3000 – 3.0 HECs).
Demonstrate an ability to assess research ethicality in own research.	The overall "judgement and approach" goals are attained through supervision, faculty meeting discussions, courses and thesis work. The ability to assess research ethicality is trained in supervised thesis work and in courses, in particular, the compulsory FAD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs. Research ethicality can also be taken up as a separate theme in the programme's annual residential course. Intellectual independence is trained and tested in connection with, for example: the publishing of papers; assistance at exhibitions; and, in thesis work in general.	Supervision and research seminars both take up issues of scientific research ethicality. The compulsory course AD3100 "Theory of science and research methodology in art, technology and design" (7.5 HECs) includes elements on research ethicality.
Demonstrate insight into the possibilities and limitations of the discipline, its societal role and the	The overall "judgement and approach" goals are attained through supervision, faculty	Questions regarding the possibilities and limitations of the discipline are continuously taken

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Licentiate, doctoral students shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
responsibility people bear for how it is used.	meeting discussions, courses and thesis work. The ability to assess research ethicality is trained in supervised thesis work and in courses, in particular, the compulsory FAD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs. Research ethicality can also be taken up as a separate theme in the programme's annual residential course. Intellectual independence is trained and tested in connection with, for example: the publishing of papers; assistance at exhibitions; and, in thesis work in general.	up in supervision and seminars. Doctoral students are expected to take up issues of societal relevance in the summarising, introductory chapter of the thesis. These issues are also taken up in compulsory third-cycle course AD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs.
Demonstrate an ability to identify his or her need for further knowledge and take responsibility for his or her own knowledge development.	The overall "judgement and approach" goals are attained through supervision, faculty meeting discussions, courses and thesis work. The ability to assess research ethicality is trained in supervised thesis work and in courses, in particular, the compulsory FAD3100 "Theory of science and research methodology in art, technology and design", 7.5 HECs. Research ethicality can also be taken up as a separate theme in the programme's annual residential course. Intellectual independence is trained and tested in connection with, for example: the publishing of papers; assistance at exhibitions; and, in thesis work in general.	At the annual revision of the study plans, each doctoral student is encouraged to himself/herself present proposals on how continued research shall be planned. As an element in the work with study plans, these proposals are discussed with the principal supervisor. In our continuous supervision, great importance is attached to each doctoral student himself/herself identifying what needs to be done to drive his/her research onwards.
(KTH's objectives for ESD) Demonstrate knowledge of, and an ability to make, relevant environmental and ethical decisions in order to be able to contribute to sustainable societal development.	Regardless of his/her research specialisation, each doctoral student shall, as an element in third-cycle education: acquire knowledge and insights of and into overall sustainability goals; and, be able to hold a critical discussion of the concept's definition and	Issues of sustainable development are forever current in this research domain and are brought to the fore in supervision, seminars and third-cycle courses. These are dealt with in, amongst other things, the third-cycle courses that include elements on sustainable development.

Qualitative targets as per the Higher Education Ordinance (Appendix 2 – Qualifications Ordinance) *For a Degree of Licentiate, doctoral students shall:*	**Concretisation and adaptation of targets to the third-cycle subject area**	**Programme elements for promoting goal attainment**
	applications. With a pronouncedly clear and forward-looking perspective, the doctoral project within the programme shall have a clear link to sustainable development. Via working with for example, models, prototypes, visual regimes and narrative strategies, doctoral students shall, in their own research specialisations, be able to analyse, problematise and modify strategies for sustainable development. Doctoral students shall know about and be able to discuss research ethicality issues in relation to sustainable development.	