

International Office, LTH

General syllabus for third-cycle studies in Packaging Logistics TEMTTFFL

The syllabus was approved by the Board of the Faculty of Engineering/LTH 21 May 2008 and most recently amended 8 September 2020 (reg. no U 2020/679).

1. Subject description

Packing Logistics is a multidisciplinary field focusing on packaging and its integration with logistics. Research in the subject wants to contribute to sustainable development through integrating packaging and the development of packaging with logistics, innovation and product development in the fields of technology, finance and the environment.

Packaging refers to a method of delivering goods to an end user in a safe and efficient manner, but also to a design that minimises spills and is functional for the end user. Other important aspects of packaging are the possibilities of reuse or recycling and/or disposal of the packaging material at minimal cost and in compliance with current rules and knowledge of minimal environmental impact. Packaging should be defined so as to encompass everything from simple boxes to sophisticated containers for special purposes and indicate a hierarchical order. Logistics refers to the planning, organisation and control of efficient flows of materials and goods, both outward and back, and to the storing of goods, services and associated information from raw materials to consumption in order to satisfy the requirements

of customers. Innovation refers to the generation of new products, processes and services, from idea to commercial use.

Against this background, packaging logistics is best described as the interaction, integration and development of logistics and packaging systems that provide added value to the whole system and its users, and innovations of these integrated systems.

2. Objective of third-cycle studies at LTH

The Board of LTH established the following objective for third-cycle studies on 15 February 2007.

The overall objective of third-cycle studies at LTH is to contribute to social development and prosperity by meeting the needs of business and industry, academia and wider society for staff with third-cycle qualifications. LTH shall primarily provide education leading to a PhD or licentiate in the fields of LTH's professional degrees. The programmes are first and foremost intended for the further training of engineers and architects. The programmes are designed to encourage personal development and the individual's unique qualities.

Third-cycle graduates from LTH shall demonstrate:

- proficiency in research theories and methods and in a critical, scientific approach
- both breadth and depth of knowledge within the subject of his or her third-cycle studies

The programmes aim to develop:

- creativity and independence with the ability to formulate advanced research issues, solve problems and plan, carry out and evaluate projects within a set time frame
- openness to change
- personal networks, both national and international
- social skills and communication skills
- teaching ability
- innovation skills, leadership and entrepreneurship

In order to enable students to achieve these skills and abilities, LTH provides:

- high-quality supervision and good conditions for study in a creative environment
- a good balance between basic and applied research, with openness to wider society
- a range of advanced third-cycle courses at both departmental and faculty level
- a good balance between courses and thesis work
- opportunities to present research findings at national and international conferences and in internationally recognised journals, or by another equivalent method which leads to wide exposure and circulation
- opportunities to spend time in international research environments for short or extended periods

3. Learning outcomes for third-cycle studies

The learning outcomes for third-cycle studies are given in the Higher Education Ordinance.

3.1 Licentiate

Knowledge and understanding

For a 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 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
- 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 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
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning

3.2 Doctor of Philosophy

Knowledge and understanding

For the degree of Doctor of Philosophy 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
- 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 of Philosophy the third-cycle student shall:

- demonstrate the capacity for scholarly analysis and synthesis as well 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 thesis 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
- 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 of Philosophy the third-cycle student shall:

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

Midway Review

A midway review, with the aim of reviewing the doctoral student's education in relation to the learning outcomes for the degree in the Higher Education Ordinance, is to be implemented at least once during the doctoral student's programme for all doctoral students whose education is to conclude with a doctoral degree.

4. General and specific admission requirements

4.1 General admission requirements

A person meets the general admission requirements for third-cycle courses and study programmes if he or she:

- has been awarded a second-cycle qualification, or
- has satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second cycle, or
- has acquired substantially equivalent knowledge in some other way in Sweden or abroad.

The higher education institution may permit an exemption from the general entry requirements for an individual applicant, if there are special grounds. Ordinance (2010:1064).

4.2 Specific admission requirements

A person meets the specific admission requirements if he or she has

- at least 50 credits in subjects of relevance to the field, including at least 25 second-cycle credits, or
- an MSc in Engineering, or one- or two-year Master's degree of relevance to the field.

Finally, the student must be judged to have the potential to complete the programme.

Exemptions from the admission requirements may be granted by the Board of LTH.

5. Selection

Selection for third-cycle studies is based on the student's potential to profit from such studies.

The assessment of potential in accordance with the first paragraph is made primarily on the basis of academic results from the first and second cycle. Special attention is paid to the following:

- Knowledge and skills relevant to the thesis project and the subject of study. These may be demonstrated through documents appended to the application and at a possible interview.
- An assessment of ability to work independently and to formulate and tackle research problems. The assessment could be made on the basis of the student's degree project and a discussion of this at a possible interview.
- Written and oral communication skills
- Other experience relevant to the third-cycle studies, e.g. professional experience.

6. Degree requirements

Third-cycle studies lead to a PhD or, if the student wishes or if it has been specified in the decision on admission, to a licentiate. The student also has the right to complete a licentiate as a stage in his or her third-cycle studies, but is not obliged to do so.

The requirements for a licentiate are:

- passed courses of at least 45 credits, and
- a passed thesis of a scope corresponding to studies of at least 75 credits

The thesis and courses shall comprise at least 120 credits in total.

The requirements for a PhD are:

- passed courses of at least 90 credits, and
- a passed thesis of a scope corresponding to studies of at least 150 credits

The thesis and courses shall comprise at least 240 credits in total.

6.1 Degrees awarded

The programme can lead to the following degrees:

- *Teknologie licentiatexamen*/Licentiate in Engineering
- *Teknologie doktorsexamen*/Doctor of Philosophy in Engineering

or:

- *Filosofie licentiatexamen*/Licentiate of Philosophy
- *Filosofie doktorsexamen*/Doctor of Philosophy

7. Course component

The programme is to include courses. For each course, an examiner shall be appointed at the department that delivers the course. The examiner shall draw up a written syllabus which states the course title in Swedish and English, the learning outcomes of the course, the course content and the number of credits.

The individual study plan is to include details of which courses the individual student shall or may include in his or her studies and how many credits for each course may be included in the degree. Courses taken at other faculties or higher education institutions may also be included in the study plan.

It is compulsory to participate in and pass the course Introductory Workshop for Newly Admitted Doctoral Students at LTH (*Introduktionskurs för nyantagna doktorander vid LTH*) GEM056F or the equivalent.

It is also compulsory to attend and earn a Pass grade on the course Research Ethics, GEM090F.

The course component is to be designed to take into account the student's prior knowledge and specialisation.

Students are recommended to include courses on communication and ethics.

The PhD degree is also expected to include method courses totalling approximately 30 credits.

8. Thesis

The programme shall include a research project documented in a licentiate or a doctoral thesis. The thesis can be structured either as a monograph or as compilation of research papers unified by a summarising introduction. Research papers are to be understood as either articles in academic journals or papers published in conference proceedings that are of relevance to the research field. In both cases, the papers must be peer-reviewed and be of a high international research standard. The main purpose of the summarising introduction is to summarise, analyse, discuss and evaluate the contents of the papers in relation to the current state of research. It is to provide a thorough account of the issues, objectives, methods and results of individual articles but also clearly indicate the relevance of each article for the whole thesis.

Monographs shall consist of parts that correspond to the number of articles required for a compilation thesis. Any combination of compilation and monograph is possible for both the licentiate and the PhD thesis. Exemption from the requirement stated below of presenting only published or forthcoming articles can be granted if the requirement would substantially delay the defence of the thesis.

8.1 Licentiate thesis

The licentiate thesis can address a minor research issue or have the form of an inquiry based on research. Compilation theses are normally to include at least three research papers in addition to the summarising introduction, at least two of which must be published or forthcoming. The third paper must meet the standard required for publication.

The thesis is to be presented at a public seminar chaired by an external reviewer.

8.2 PhD thesis

The PhD thesis can address a major research issue or several minor but interrelated research issues. Compilation theses are normally to include at least four research papers in addition to the summarising introduction, at least three of which must be published or forthcoming. The fourth paper must meet the standard required for publication. Normally, the licentiate thesis or the papers included serve as a part of the PhD thesis.

9. Transitional provisions

Students admitted no later than 1 January 2012 are entitled to obtain a degree of licentiate including a course component of 60 credits and a licentiate thesis of 60 credits until 1 January 2016.

For doctoral students with an admission date of 1 January 2019 or later, it is compulsory to participate in and pass the course Introductory Workshop for Newly Admitted Doctoral Students at LTH (*Introduktionskurs för nyantagna doktorander vid LTH*) GEM056F or the equivalent in order to fulfil the requirements for the degree.

For doctoral students admitted on or after 1 January 2021, it is compulsory to attend and earn a Pass grade on the course Research Ethics, GEM090F.

The midway review is compulsory for doctoral students admitted on or after 1 January 2019.