



GENERAL SYLLABUS FOR THIRD-CYCLE PROGRAMMES IN QUALITY TECHNOLOGY AND LOGISTICS

TFN chair 2019-04-11

1 Subject area

Quality Technology and Logistics includes principles, working methods, and tools for customer and sustainability-oriented product and process improvement as well as refining, processing, and management of flows. The subject has an industrial base with applications in goods and service production.

2 Programme curriculum

Education at third-cycle level in Quality Technology and Logistics that concludes with a Degree of Licentiate is comprised of a total of two years' full time study (120 credits) and consists of 40-60 credits for third-cycle level courses and a licentiate thesis that results in 60-80 credits.

Education at third-cycle level in Quality Technology and Logistics that concludes with a Degree of Doctor is comprised of a total of four years' full time study (240 credits) and consists of a study programme that results in 60-90 credits for third-cycle level courses and a doctoral thesis that results in 150-180 credits.

The studies are preferably conducted within the framework of employment as a Ph.D. student with an average of 80% of the time allocated for own research education. The courses consist of compulsory courses, selectable courses and optional courses relevant to the dissertation subject. Otherwise, please refer to the "Handbook for Postgraduate Education", which can be accessed through the university's website.

An individual study plan is drawn up for every third-cycle student (according to a fixed model) where the study programme is specified in detail. A follow-up of the plan is held at least twice a year by the third-cycle student and his/her supervisor and is approved by the Head of Department at least once a year, as delegated by the Vice-Chancellor. In Quality Technology and Logistics, the doctoral student, supervisor and assistant supervisor jointly follow-up and possibly revise the individual study plan at least once per semester.

3 Eligibility and selection

3.1 General eligibility requirements

An individual fulfils the general eligibility requirements for the third-cycle educational programme when he or she 1) has completed a second-cycle degree, 2) has completed higher education courses worth at least 240 credits, of which at least 60 are for second-cycle courses, or 3) in some other manner, in this country or abroad, has acquired the equivalent qualifications. The faculty board may permit an exemption from the requirement of basic eligibility in the case of an individual applicant, if there are special grounds as written in Chapter 7, Section 39 of the Higher Education Ordinance (2010:1064). Also refer to the local guidelines laid down in the Admission Rules for Third-cycle Education at Luleå University of Technology.

3.2 Special eligibility requirements

Good, oral and written communication skills in English is a requirement.

3.3 Selection

Selection from among applicants meeting the requirements shall be made with reference to their ability to benefit from the education. The mere fact that an applicant is deemed able to receive credit towards the education for previous education or working activities may not alone give the applicant precedence over other applicants in the selection process, as per Chapter 7, Section 41 of the Higher Education Ordinance (2010:1064). Also refer to local guidelines laid down in the Admission Rules for Third-cycle Education at Luleå University of Technology.

When the basic and special qualifications are met, the selection will be based on:

- The applicants' knowledge in the planned field of the research education,
- Tests during the employment process, and
- Personal qualities that are relevant to education at the third level.

4 Examinations included in the education

The education consists of courses and an academic thesis. Examinations included in third-cycle programmes are graded as either Pass or Fail. Course and licentiate thesis grades are decided by specially appointed teachers (examiners). Doctoral thesis grades are decided by a specially appointed grading committee.

4.1 Courses

Courses that are compulsory for studies at graduate level in Quality Technology and Logistics include general and university-wide courses within the field of scientific theory or scientific method comprising at least 7.5 credits, a university education course equivalent to at least 7.5 credits, and a course aimed at scientific publishing or writing, comprising of at least 7.5 credits. The general and university-wide courses thus correspond to at least 22.5 credits.

It is also mandatory to undergo three elective and subject-specific courses from the following options: a course in quality technology with a statistical basis, such as *Experimental Methods and Experimental Design* or similar, a course with quantitative basis in logistics, such as *Logistic Systems Management and Control* or similar, a management-oriented course, such as *Quality Management - Theoretical and Conceptual Issues* or similar, an environmental orientated course, such as *Stakeholder Management and CSR* or similar. The elective courses must together comprise of at least 17 credits and each of these at least 4 credits. Other courses may replace the electives courses after a joint agreement together with the subject chair.

The above courses provide a broad knowledge base. Other courses are chosen so that a progression is achieved with a focus on the Ph.D. student's specialization and these courses are specified in the student's individual study plan in consultation with the Ph.D. student's supervisor(s).

The above are requirements for the doctoral degree. The requirements for the licentiate degree are that half of the above courses must be completed with an approved grade. The total course requirements according to paragraph 2 still apply.

Goal attainment is tested by means of the form of examination specified in the syllabus.

4.1.1 Recognition of prior studies

As specified in the local guidelines laid down in the Admission Rules for Third-cycle Education at Luleå University of Technology.

4.2 Academic thesis

Scientific work in the form of a dissertation / essay in Quality Technology and Logistics shall be designed as a unified, coherent scientific work (monograph) or as a short summary - frame story - of scientific essays or articles (compilation thesis), which the doctoral student has written alone or jointly with another person.

The dissertation manuscript must be presented at one or more research seminars or undergo the corresponding examination by the auspices of the department.

The licentiate thesis is defended orally at a public licentiate seminar and is graded either Pass or Fail. For the grading, consideration is given to the content of the essay and its defence. The grade for a licentiate dissertation is decided by an examiner appointed by the Head of Department.

The doctoral thesis is defended orally at a public disputation and assessed with either of the grades Pass or Fail. The grade will take into account the content of the dissertation and the defence of the dissertation. Grades for doctoral degrees are decided by a grading committee, which is specifically appointed for each dissertation.



5 Degree

In Quality Technology and Logistics, a third-cycle student who has been admitted to a Degree of Doctor has the possibility to take a Degree of Licentiate after completing one part comprising at least 120 credits of a study programme intended to conclude with the award of a Degree of Doctor.

5.1 Degree objectives

As specified in the Qualifications Ordinance (Higher Education Ordinance, Annex 2 – Degree Ordinance). See also the Annex below.

5.2 Degree title

A third-cycle student who takes a Degree of Licentiate in Quality Technology and Logistics receives the degree title of Licentiate of Engineering.

A third-cycle student who takes a Degree of Doctor in Quality Technology and Logistics normally receives the degree title of Doctor of Philosophy.

Requests for other degree titles are made according to established guidelines.

6 Entry into effect and interim regulations

General syllabus for Quality Technology and Logistics (ref nr LTU-1140-2019) applies for admission of third-cycle students admitted 2019-05-01 and later.

If agreed between the third-cycle student and the supervisors, this general syllabus (LTU-1140-2019) may be used as a steering document for a previously admitted third-cycle student in Quality Technology. It must be documented in the third-cycle student's individual study plan which general syllabus that applies.

APPENDIX

Qualifications ordinance (Higher Education Ordinance, Annex 2)

Contents

- the qualifications that may be awarded in the third cycles, and
- the requirements to be fulfilled for the award of each qualification (qualification descriptors).

THIRD-CYCLE QUALIFICATIONS

General qualifications

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 Degree of Doctor, if a higher education institution decides that a 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 skills 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 skills 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 skills 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 skills 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 at least 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

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

- demonstrate the skills to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake research and other advanced tasks within predetermined time frames and to review and evaluate such work
- demonstrate through a dissertation the skills to make a significant contribution to the formation of knowledge through his or her own research
- demonstrate the skills 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 skills 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. Ordinance (2008:132)