

Thesis protocol for

- Master Business Informatics and
- Master Content and Knowledge Engineering
- 4 and 5 year Doctoral Students Information Science

This document provides the protocol for the completion of the Masters of Business Informatics and Content and Knowledge Engineering at the Institute of Information and Computing Sciences (ICS). The cohort of '4^e en 5^e jaars doctoraal studenten' should also use this document as a guideline. The document contains two sections. In the first section the emphasis is on the definition and goal of the thesis project. The second section focuses on the process of completing the thesis and graduation.

1. Definition and goal

Figure 1 shows how a thesis project is related to the other parts of the Masters curriculum.

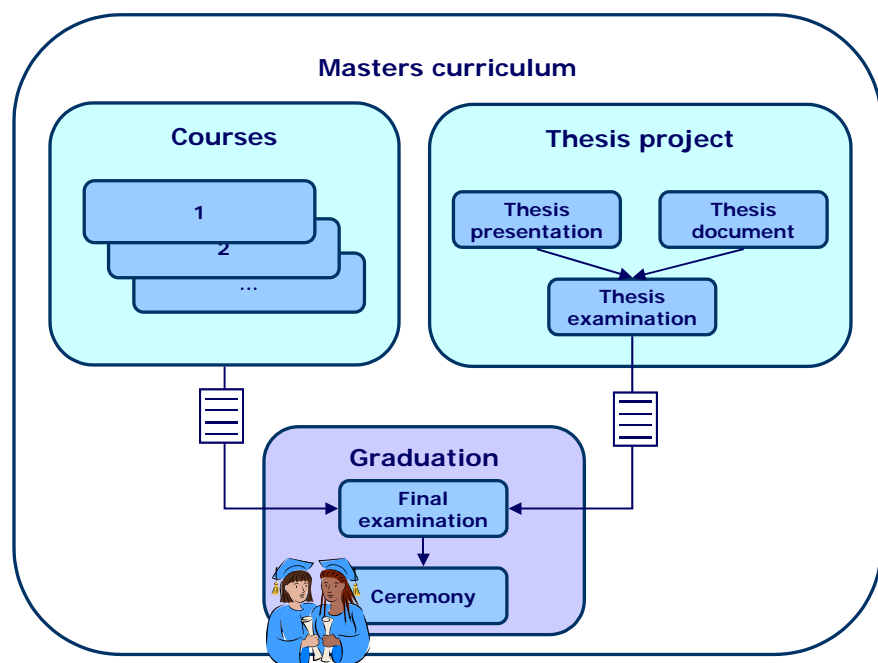


Figure 1 Thesis project and graduation

1.1 The Goal of the Thesis project

The Thesis Project (45 ECTS for Master students and 5-year doctoral students and 30 ECTS for 4-year doctoral students) is a mandatory part of the core program of the Information Science Masters CKE and MBI and crowns it all. The Thesis Project is a scientific research assignment on a relevant subject. In essence it tests the level and scope of academic ability that have been acquired during the Master study. The deliverables are a Thesis document, a public presentation and defense of the Thesis. Next to the deliverables, the attitude and process are tested against high academic standards.

- Goals The goals of the thesis project are:
- to apply, during a significant period and in a relevant context, the knowledge and academic skills that have been acquired during the Master study and/or to enlarge the knowledge domain by specialist study;
 - to get acquainted with
 - o doing scientific research and/or
 - o to contribute to relevant theoretical concepts and/or
 - o to make a design that integrates clearly theory and practice;
 - to gain knowledge of public presentation and defense of recently acquired knowledge and insight;
 - to gain knowledge of the process and production of a thesis document.

1.2 Constraints

- Duration The Thesis Project covers a net 3/2 periods (45/30 ECTS) and needs undivided and fulltime attention during that period. The preparatory period, consists of getting approval for admittance, selecting a subject, organizing coaching, arranging agreements in the case of an internship, etc. This period is not included in the net 6 months of the Thesis Project. All activities during the project that are not related to the project will extend the project duration proportionally.
- Location The research assignment can be carried out in the Institute and/or with a (foreign) organization, under guidance of the institute.
- Scope Research assignments can have one of the following scopes:
- a contribution to (a part of) the existing research program of the Institute or an associated organization;
 - a contribution to the design or implementation of a project that is running with the Institute or an associated organization;
 - a research-related internship with an organization in the private or public sector, only if there is full agreement between the Program Coordinator, Proposal Committee and the organization about the nature, level, acquired qualifications and the coaching;
 - a literature study and the related scientific report.
- The above mentioned assignments may involve additional requirements such as additional courses.
- Admission Students can only start with the Thesis Project when the Program Coordinator and the Proposal Committee grant admission. As students are supposed to apply all knowledge and skills that have been acquired during the study, students can only start with the Thesis Project when all mandatory courses have been passed and no more than 15 ECTS (or two courses) of optional courses are still open.
- Teamwork More than one Thesis Candidate can work within the same research assignment if each person can independently contribute the qualitative and quantitative amount of work that is associated with a Thesis project. Every contribution in the joined Thesis document has to be assigned unambiguously to one or more contributors. All contributors present and defend separately the findings of the research. The individual contribution is tested and graded.

1.3 Result and assessment

The examination of the thesis project consists of an assessment of the thesis document and an assessment of the thesis presentation and defense. Together with the results of other master courses, the result of this examination is part of the final examination of the Master's study. Assessment of the thesis presentation and defense is based on presentation skills and argumentation capabilities. Assessment of the thesis document includes the following characteristics:

- Relevance
- Content, form, clarity, readability, style of the thesis document
- Quality (degree of difficulty)
- Quantity
- Scientific level of the thesis document; possibilities for publication of the result.

Furthermore, student's personal development during the project will be evaluated: reliability, self-reliance, creativity, initiative, and collaboration with others. The thesis committee is responsible for the grade.

2. The thesis process

This section provides an overview of all the steps in the thesis process. In Figure 2 a graphical overview of the process is presented.

2.1 Orientation and thesis approval

Orientation The thesis candidate is responsible for finding/defining a thesis project. The first step is to explore the different options and directions. There are several ways in which a thesis candidate can orient himself such as talking to fellow students, talking to ICS staff and consult the CKE (www.informationscience.nl), MBI (www.businessinformatics.nl) or ICS website (<http://www.cs.uu.nl/education/stage/>) for available thesis projects.

If the thesis candidate has a clear vision of the type (i.e. inside ICS, outside ICS or a combination of these two) and direction (i.e. topic) of the thesis project he should either select a thesis project or define a thesis project.

Select project The thesis candidate searches for an available thesis project that matches the interest/profile of the candidate. If a thesis project is found, the student should inquire after the availability and start-date of the project. However, the student should note it is not allowed to start the thesis project before the Proposal Committee has approved the proposal. During a meeting between the thesis candidate and the thesis project contact-person, it is determined whether there is a fit between the profile of the thesis candidate and the thesis project. If there is a fit the thesis candidate writes a proposal regarding the thesis project (see proposal guidelines). The proposal should be submitted to the chairman of the Proposal Committee by e-mail. The Proposal Committee reviews proposals once a month.

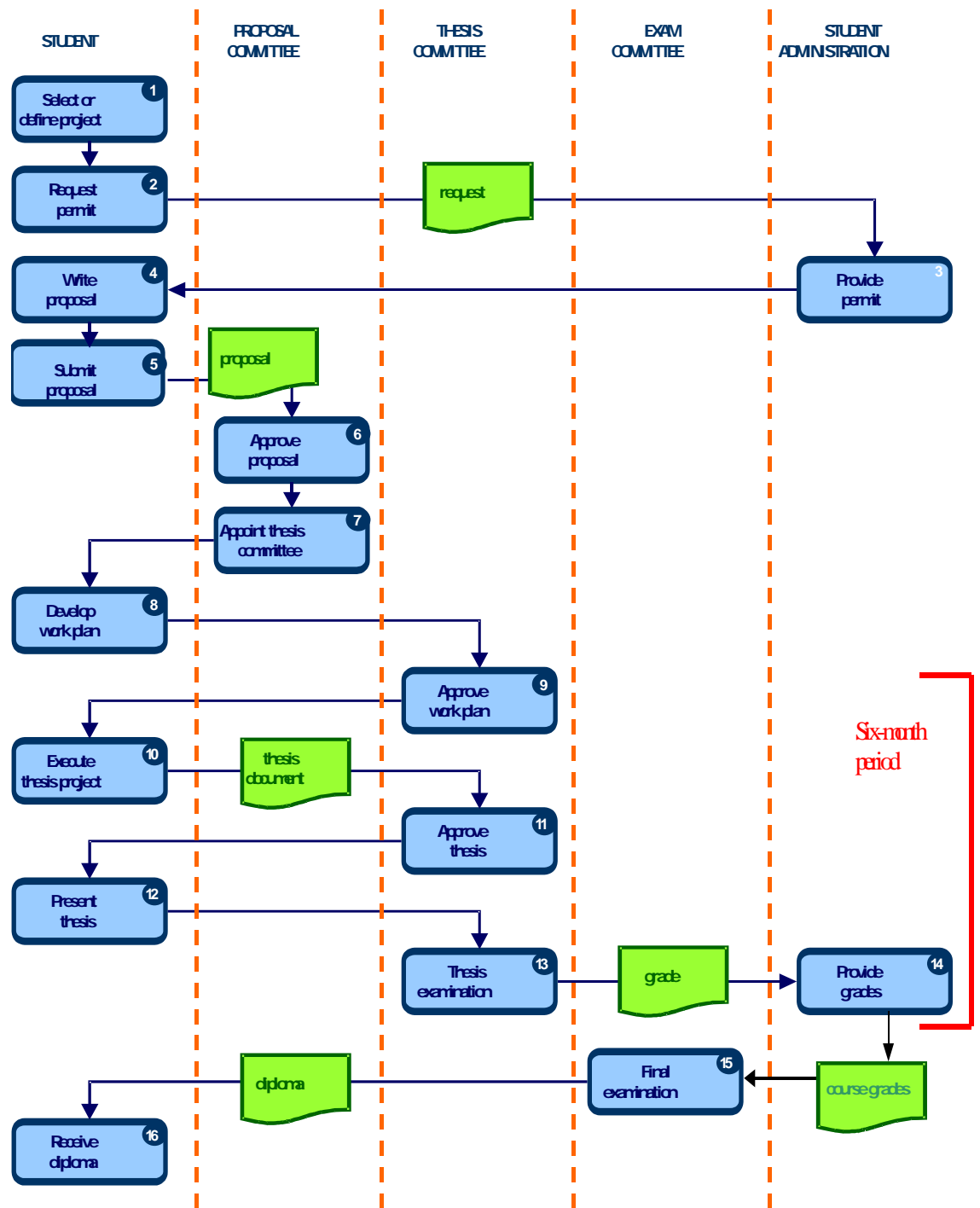


Figure 2 Flow diagram of the thesis process

Define project	<p>The thesis candidate can also decide to define his/her own thesis project. In that case the candidate is responsible for finding an institute (e.g. ICS) or an organization that is interested in the thesis project. Also in this case it is not allowed to start the thesis project before the Proposal Committee has approved the proposal</p> <p>The thesis candidate should describe the thesis project in a proposal (see proposal guidelines) and submit it to the chairman of the Proposal Committee by e-mail. The Proposal Committee reviews proposals once a month.</p>
Proposal guidelines	<p>A proposal contains 800 words maximum and should be structured as follows:</p> <ul style="list-style-type: none"> - problem definition - scientific or social relevance of thesis project - (brief) list of relevant literature - research method - main project phases (incl. timeline) and deliverables <p>N.B. The proposal should have page numbering as well as candidate's name and student number on every page.</p> <p>Besides the proposal the thesis candidate should also provide the following information on a separate page (not included in the 800 words):</p> <ul style="list-style-type: none"> - name thesis candidate - student card number - e-mail address - your master/doctoral program (i.e. CKE, MBI, doctoral IS) - starting year at University - title of thesis project - planned start and end date of thesis project - name of institute or organization that supervises thesis project - external supervisor (optional) - proposal for composition of Thesis Committee - date <p>Two important considerations have to be taken into account:</p> <ol style="list-style-type: none"> 1. The topic of research (the problem definition) should be relevant to the master program of the candidate. This is an important consideration for the Proposal Committee. 2. The first (daily) supervisor of the Thesis committee of a particular project should be member of the staff belonging to the master program the candidate has chosen.
Start permit	<p>Together with the proposal the thesis candidate should obtain a 'registration form final project' that is issued by the Student Administration (BBL). This form declares that the thesis candidate is allowed to start a thesis project.</p>
Proposal Committee	<p>The Proposal Committee (for CKE and MBI master and doctoral students Information Science) consists of ICS staff members. For CKE the Proposal Committee consists of dr. R. van Zwol and Dr. H. van Oostendorp (chair), for MBI Dr. J. Versendaal (chair) and other MBI staff members. Please send proposals (digitally) to the chairs of these committees (herre@cs.uu.nl resp. iversend@cs.uu.nl). The Program Coordinator, who is a member of the committee, receives the proposals to be reviewed and approved by the Proposal Committee. A thesis candidate is not allowed to start the thesis project before this committee approves the proposal.</p>

Main tasks of the Proposal Committee involve:

- Approve the thesis project; to ensure sufficient profundity of the thesis project.
- Appoint the Thesis Committee; to ensure that the project is supervised by the best qualified ICS staff member(s) and to balance the workload of the ICS staff members.

The committee meets once a month and reviews those proposals that have been submitted before the 1st of the month. The committee informs the thesis candidate regarding the proposal not later than 10 working days after the 1st of the month.

Note: Experience learns that the process of orientation, finding/defining a thesis project and getting it approved by the Proposal Committee takes some time. Therefore it is strongly advised to start the orientation process approximately 6 months before the planned start date of your thesis project.

2.2 Thesis committee

This committee consists minimally of:

- **Daily supervisor:** a staff member of the Information Science group, that will take care of the main supervision of the thesis work progress and meets regularly with the thesis candidate. The daily supervisor will be responsible to grade the thesis work of the thesis candidate, in collaboration with the second advisor.
- **Second supervisor:** a staff member from the Information Science group that will follow the progress of the thesis from some distance, and is present in the first and last (approval) meeting with the thesis candidate.

At least one of the supervisors must be a senior staff member.

Optionally, the following members can be added to the thesis committee:

- **External advisor:** person who will supervise the thesis work at the research site, in the cases when the research work is done outside the Information Sciences group. External advisors can optionally participate in the regular meetings with the thesis candidate, but should in any case be present during the meeting when the work plan is discussed and during the final (approval) meeting. The opinion of external committee members concerning the final grade of the thesis candidate may be asked, but it has a non-binding status.
- **Expert advisor:** in some cases, an expert may be asked to join the thesis committee, especially when the thesis candidate will realize such a specialized research which evaluation requires expertise outside the scope of the Information Sciences group. Expert advisors will typically be members of other faculties or research groups, possibly from another university. As for external committee members, the expert advisor opinion on the final grade of the thesis candidate may be sought, with a non-binding status.

2.3 Work plan

The first task of the candidate, after the appointment of the thesis committee, is the elaboration of a work plan for the thesis. This plan must contain a detailed description of the assignment, the enumeration of work phases and results. The elaboration of the work plan is done in close consultation with the daily supervisor.

Suggested elements of the work plan are:

- **Introduction:** a short motivation of the proposed research, specifying the potential of the proposed research to society, technology and/or science.
- **Description of the proposed research:** an as accurately as possible description of the research topic, in a maximum of 600 words.

- **Approach:** indication of which theories, techniques and/or methodologies will be used.
- **Research plan:** practical timetable over the research period, including milestones and deliverables.
- **Research site and collaborations:** in which site will the research take place (internal or external) and specification of planned collaborations with other researchers, groups or institutions
- **Meeting scheme:** the scheme for meetings between the thesis candidate and the thesis committee, including frequency, participants, etc.
- **Agreements:** list of agreements between the thesis candidate and the thesis committee, concerning progress reports, meetings, etc.

2.4 Thesis document

The thesis document minimally contains the following elements:

- Title
- Summary
- Introduction
- Problem definition
- Plan of work / Research methodology
- Results
- Conclusion
- Bibliography and references

A recommended website to support the writing process is :

<http://www.wisc.edu/writing/Handbook/index.html>

2.5 Thesis examination

In order to be able to apply for the thesis examination, the thesis candidate needs the approval of the thesis committee. Approval is only given when the final thesis document and other deliverables comply with the high academic standards of the ICS.

Thesis Examination

During the approval meeting, an examination date will be decided upon.

Examinations take place at the Uithof, with the location of the examination assigned on a case-to-case basis.

A thesis examination consists of the following elements:

- **Public presentation:** the thesis candidate presents his/her work to the thesis committee in a 30 minute public session, which can be attended by colleagues, family and friends.
- **Question session:** following the presentation, the thesis candidate and the thesis committee will have a (closed) session where the thesis candidate will be interrogated about the thesis subject by all members of the thesis committee.
These sessions will take together at most 45 minutes.
- **Determination of grade:** after the question session, the thesis committee will decide behind closed doors on the grade of the thesis candidate.
- **Laudatio:** the grade of the thesis candidate will be presented to the thesis candidate and the public. The daily supervisor will comment on the thesis candidate, the process and his/her contribution to science.

2.6 Graduation

Ceremony After the thesis examination the exams commission of the ICS picks a date for handing the thesis candidate his/her diploma (graduation). Diplomas are handed to graduation candidates of the ICS in a group session during an official and public ceremony in the Academiegebouw of the Utrecht University.