

# Msc Thesis Project Civil Engineering and Management

## Preface

This brochure contains information about the graduation process. Although an effort is made to present the information as accurately as possible, it is not meant as a regulation: you can not derive rights from this brochure. You can derive rights from the Students' Charter, which is available for inspection at BOZ-CiT.

**This brochure is applicable to MSc students in the programmes Civil Engineering and Management and Construction Management and Engineering who plan to start their MSc Thesis Project. It can also be used by students from the 5 year ir-programme Civil Engineering (regular intake until 2000).**

## 1. What is graduating about?

Graduating at CiT implies that you will:

- attend the course Preparation Master Thesis (548900, 7.5 EC);
- do a final project;
- write a MSc Thesis;
- give a public, oral presentation of the final project: the colloquium.

These activities are rated at 37.5 EC, or a little more than half a year of fulltime work. In general, the final project is executed individually.

A student that starts the graduation is expected to:

- be motivated to learn, not to know everything;
- be able to plan activities in consultation with his/her supervisor;
- be able to apply knowledge in practice;
- be able to design a final project in consultation with his/her supervisor;
- be able to do research, to measure, to collect data, to arrange these data and to generate conclusions based on those data;
- take initiative.

## What should you expect from a final project?

In the SS-CiT, the only content specific demand related to the final project is that it lies within the field of civil engineering. Thus, it can either be a research or a systematic design (of a model, object, or procedure). The assignment can be executed at one of the departments of CiT, for example a research project that contributes to a PhD dissertation. The assignment can also be executed externally at a company or an institution.

It is not allowed to execute the assignment in the form of paid work. However, it is allowed to receive an expense allowance, but only if it lies within an acceptable range.

You can search for a subject by yourself, or you can choose one of the assignments that are available at the UT or elsewhere. If you choose for the second option, you still have

to specify the problem definition and plan the activities to come to a five or six month extending assignment. You are free to choose your final project, but your choice has to be approved by your supervising lecturer (see further on).

### **3. What are the entry requirements?**

You can start with the graduation process when you have passed (almost) all courses of the Civil Engineering and Management or Construction Management and Engineering programme. The most important reason for that is that you can fully dedicate yourself to the final project without being interrupted by other course work. Moreover, in case of an external assignment, it is physically impossible to attend any courses.

Make sure you plan your course schedule long before you start your final project, especially when you choose for an external assignment, which might cause problems in combining assignment and education. Be aware of the fact that logistic issues on itself are not sufficient to be considered for extra (oral) exam possibilities.

If you wish to start your graduation (or the preparatory course) while having a gap of more than 7,5 EC, you will need an explicit approval from the academic counsellor. In order to get this approval, a thorough planning has to be handed in that points out how and when those last courses are to be attended.

Your colloquium can only be held when all course exams are passed!

### **4. What preparations does it take?**

At the beginning of the final year of the CEM/CME programme, it is time to think about your final project. At that moment you need to determine *when* you will start with the assignment. A study planning is needed as well to avoid interruption by project work, practicals, lectures and exams.

The departments provide general information on the Internet about specific regulations concerning graduation at that department ([www.cem.utwente.nl](http://www.cem.utwente.nl)). Study this information carefully.

In general, the graduation process starts with an intake with the department's graduation coordinator. He or she will ask for your interests and refers you, if your ideas are concrete enough, to a possible supervising staff member (UT supervisor).

Contact the applicable secretary for appointments with the graduation coordinator:

- Construction Process Management, phone +31 53 4894254 / +31 53 4892670
- Transportation Engineering and Management, phone +31 53 4894322 / +31 53 4892670
- Water Engineering and Management, phone +31 53 4893546 / +31 53 4894320

To orientate yourself, you can participate in business days, study the department's research website, study Master's theses of former students (which can be found in the library), attend colloquia, talk to fellow-students who also write their MSc Thesis.

You can discuss the possibilities of an external assignment with the graduation coordinator or your UT supervisor. He or she may have contacts which lead to such an assignment, or maybe you are asked to look for an assignment yourself. It is not allowed to search for an assignment outside Civil Engineering without discussing it with the graduation coordinator or the UT supervisor. Civil Engineering is not responsible for finding an external assignment.

The preparation for an external assignment is more time consuming than for an internal assignment. Make sure you start your orientation on time.

When you have found an assignment, it is important to ask yourself some questions that can help you judge the quality of the assignment:

- Is the problem mentioned really a problem?
- Is the problem mentioned really *the* problem, or does it have a deeper/broader problem that causes it?
- What is the importance of the assignment for the host organisation: do you really make a valuable contribution by performing the assignment?
- Are there any personal or financial issues that might drive the host organization and might cause trouble?
- Do you really get the time and space to do your research?
- Can the assignment be executed within the set time span?
- Do you feel like executing the assignment with great enthusiasm and commitment?

Your UT supervisor has to approve the formulation of the assignment before you will start.

## **5. Where can you do your MS Thesis Project?**

As mentioned before: it is possible to graduate either inside or outside the departments of CiT, inside the UT or outside the UT. The exam committee formally appoints a MSc Thesis committee for each student. This MSc Thesis committee includes at least two staff members from the UT, one of whom is the UT supervisor who also is the chairman of the committee. In general, the UT supervisor is a professor or associate professor and has to be part of one of the CiT departments. The second committee member may be from outside the CiT departments.

The one who is concerned with the day to day supervision is sometimes a PhD student and is called the daily supervisor. In case of an external assignment, someone from the company is added to the graduation committee and is called the external supervisor.

The UT supervisor is responsible for:

- the formation of the MSc Thesis committee that meets with the above requirements;
- making arrangements with you about the formulation of the assignment and the phasing of research and reporting;
- making arrangements concerning the contents of the preparatory course;
- the assignment of a daily supervisor (if necessary);

- .....
- .....

The UT supervisor is chosen in consultation with the graduation coordinator. Other members of the graduation committee are usually chosen in consultation with the UT supervisor.

## **6. Formal start of the graduation process**

After you have had your intake with the graduation coordinator, you report to Student Administration (BOZ–CiT) to check your list of subjects with which BOZ fills in the MSc Thesis form. This form has to be handed over to the UT supervisor in order for him/her to see whether you have permission to start your graduation process. As mentioned before, if you have a gap of more than 7.5 EC, you will need an explicit approval from the study advisor. In order to get this approval, a thorough planning has to be handed in that points out how and when those last courses are to be attended. This planning will be stated on the graduation form.

During the first sessions with the UT supervisor, various issues will be discussed. An important subject is the content of the preparatory course. This course enables the student to dive into the research area and will finally lead to a definitively description of the MSc Thesis project, together with a plan of action. Other issues to be discussed are:

- the phasing of the activities;
- the structure of the MSc Thesis committee;
- potential arrangements regarding confidentiality of the results;
- the way in which the supervision will be organized;
- potential planning issues regarding courses that have to be attended.

All the above points are stated on the MSc Thesis form. The form will be signed by the UT supervisor and yourself and will be returned to Student Administration. BOZ–CiT submits the form for approval to the exam committee. In case of problems concerning the approval, BOZ–CiT contacts you within two weeks.

During the graduation period, the MSc Thesis form stays with BOZ–CiT. However, every time you have a meeting with your MSc Thesis committee, you are supposed to take the form, make adjustments and return it to BOZ–CiT.

Sometimes, the UT supervisor chooses not to do the intake c.q. other meetings, but to let one of his coworkers replace him as a daily supervisor. However, he/she will remain responsible for the proper course of the graduation process and can be held responsible for it in case of problems.

**It is in your own interest to keep your MSc Thesis form up-to-date: if something goes wrong, it provides evidence of the arrangements made.**

## 7. Graduation rooms

Students who graduate within the University of Twente are usually provided with a standard workplace in the CiT-wing, which means: office space with telephone and some office equipment and your own desk, PC and network connection. If you wish to use these facilities, you can contact the departmental secretary. Make sure that you bring your MSc Thesis form to be able to show the secretary your BOZ-CiT approval for starting your graduation process.

## 8. Supervision

The supervision by the UT supervisor (or his/her stand-in) is fairly limited. It consists of doing the intake, attending progress meetings, making probable adjustments to the planning, and discussing the final thesis and probable concept versions of the thesis. It is not his job to encourage you to move on and make progress: that is your own responsibility. On the other hand, do not hesitate to ask for his help when you get stuck, because it is his job to help you out in such circumstances.

The MSc Thesis committee is assigned a total of 80 hours for the supervision of your MSc Thesis Project. That is including reading the concept versions of the thesis, attending the colloquium, discussing your grade, the travel time when your graduation is outside the UT, et cetera.

Besides the formal supervision, you will have a daily supervisor with whom you can discuss everyday issues. It is someone who is very familiar with the field of action of your thesis and usually has direct interest in your results. Usually, this daily supervisor is a PhD student that can use your results in his own PhD Thesis. In case of an external project, an employee of the company will supervise you as well.

You can contact your daily supervisor for literature tips, for introducing you to experts in the field, for testing your ideas or for discussing concept versions of your thesis. Keep in mind, however, that also your daily supervisor is limited in his/her time.

The supervision style differs greatly among supervisors. The following overview shows these differences. The styles are stated in extreme form and the list is far from complete:

### SUPERVISING STYLES

|  |  |                     |   |
|--|--|---------------------|---|
| Vertical attitude                          | Having a<br>towards                                  | Horizontal attitude |   |
| Supervisor structures contents in advance: | <table border="1"><tr><td>CONTENTS</td></tr></table> | CONTENTS            | Supervisor leaves structuring to student: |
| CONTENTS                                   |  |                     |   |

- + well-organized
- stiff, boring

- + lively
- not well-organized

- Guiding
- + result achieved on a short term
  - little learning effect

ACTIVITIES

- Supportive
- + enlarges learning effect
  - result achieved on a long term

- Supervisor sets rules
- + unambiguousness
  - tense atmosphere

MANNERS

- Interaction with student determines rules
- + relaxed atmosphere
  - confusing

***Expectations with respect to supervision***

| Students expect supervisors:  | Supervisors expect students:  |
|---|---|
| <ul style="list-style-type: none"> <li>- to fulfill arrangements</li> <li>- to read concept reports in time</li> <li>- not to be too guiding</li> <li>- not to approve everything</li> <li>- to be open to other points of view</li> <li>- to discuss with other supervisors</li> <li>- not to give negative feedback only</li> </ul> | <ul style="list-style-type: none"> <li>- to fulfill arrangements</li> <li>- to hand in concept reports in time</li> <li>- get in touch in case of problems</li> <li>- not to approve everything</li> <li>- to be open to other points of view</li> <li>- to discuss with fellow students or PhDs</li> <li>- not to think too soon that they have made an amazing discovery</li> </ul> |

When the supervision does not meet your expectations, you should discuss this explicitly with your (external) supervisor. Your expectations may be unrealistically high, your supervisor may not have noticed the problem, or your supervisor may be too demanding. When you are unable to reach a solution, you can contact your UT supervisor.

In case of an external project, your external supervisor might be transferred or might leave the company, which endangers the continuation of your project. In this case you should definitely contact your Ut supervisor so that he/she can come to a solution in consultation with the company.

Even if everyone does one's best and everyone is in good faith: sometimes, things can go badly wrong because of various reasons. If you think that this is the case and you do not come to a solution after discussions with your supervisors, you should contact the academic counsellor in order to get out. When you think your UT supervisor is not functioning the way one could expect, you can contact the programme director.

**9. Keeping track**

The graduation process is known for the study delay it often causes. Sometimes, this delay is not a problem at all. If you decide to extend the project because you are

enthusiastic about the subject, and you don't get into financial problems, nothing is wrong. Actually, in this case, study delay is not the right word. But the delay (of many months in some cases) is often unwanted and unplanned. This is usually caused by:

- *The student works properly, but the project is not executable in five to six months.*

This can not always be avoided. Despite the planning skills and expertise of the supervisor, it is not always possible to say where things can go wrong, especially with open-end problems. Therefore it is wise to split the project into different phases with strict deadlines for each phase. This way, you are able to either deliberately choose to extend your project, or adjust the next phases or narrow the problem definition to stay within the 30 EC time span.

- *The supervisor fails to set unambiguous criteria to the final thesis and keeps on demanding new adjustments and additions.*

Usually, it is hard or even impossible what to expect from the final project and the MSc Thesis in advance. But you can prepare yourself to avoid problems.

While performing the course Preparation Master Thesis, expectations can be sharpened. After this course you should have formulated a concrete research question and narrowed your scope. This is clarifying for both your supervisor and you. With respect to the report, it is wise to put up a report outline of one or two pages and to discuss this outline with your supervisor: is it acceptable and which parts should be worked out in great detail and which parts shouldn't?

Make short reports of the progress meetings on the MSc Thesis form and ask the supervisor his opinion about the adequacy of its content.

In sum, make clear arrangements if possible and write them down. It is wise to come to a hand-in date for the MSc Thesis in an early stage of the project, although it can be adjusted if necessary. The committee will criticize the report and is obliged to – if it does not meet their demands – point out explicitly what has to be adjusted or extended. It is not allowed for the committee to keep on making new demands.

- *The student does not work hard enough.*

The final project is rated at 21 working weeks of 40 hours. If you spend less than this amount of time, your project will be delayed. As stated before: do not expect your supervisors to check if you are still on schedule. They will only intervene in case of severe delay. With the system of the MSc Thesis form, that ensures you to plan your next progress meeting, we try to avoid this.

- *The student doesn't make headway.*

This is typically a problem at the beginning and at the end of the process. At the beginning, because you are not succeeding in narrowing the problem into something concrete to work on. Some students want to turn their final project into a life's work and

approach the problem from every perspective they can think of. That won't speed up the process.

At the end, the writing of the report often forms an obstacle. If you get stuck in such a way, do not hesitate to contact your supervisor. Most supervisors have been in a similar situation before and can provide you with useful advice.

## **10. The completion**

On the agreed date mentioned on the MSc Thesis form, you hand in your definitive version of the report to your supervisor. Moreover, you make an appointment for a meeting in which the MSc thesis committee will approve your report: the so-called 'green light meeting'. The report should contain a one or two page summary in Dutch or English.

If the report has not yet met all requirements, your UT supervisor should explicitly tell you what to adjust or elaborate in order to get the approval. Ask for clarification if needed! There may be arranged a second 'green light meeting'.

If you get your 'green light' and you have finished all your exams, you can arrange your colloquium. Together with your MSc Thesis committee and BOZ-CiT you set a date and a time for your presentation. There should be a period of at least 3 weeks between the day of the arrangements and the colloquium itself. These three weeks are used by BOZ-CiT to check your list of courses, and by the Central Student Administration (CSA) to check if you meet all legal requirements the final exam, to prepare your diploma et cetera.

The process then continues as follows:

- You fill in the 'request for colloquium' section on the MSc Thesis form: date, time, and title of your colloquium, as well as some general information and a short description of the final project. After that, you let your UT supervisor sign the form for approval and you hand it over to BOZ-CiT at least three weeks before the colloquium date;
- BOZ CiT checks your programme. If everything is in order, BOZ-CiT arranges a room and the announcement of your colloquium. Together with the announcement of your colloquium, you receive an overview of your grades;
- You check your grade overview. Until a week before the planned graduation date, you have time to correct the overview c.q. deliver missing grades. Corrections and additions to the grade overview are processed based on written evidence (exam forms or the official grade lists from the BOZ CiT archive);
- Contact the reception desk if you need any special equipment (laptop, beamer) during your colloquium. Ask BOZ-CiT for his/her name and telephone number. We advise you to check the equipment timely!
- At least a week before the colloquium, you hand in your a digital version of your MSc Thesis report (in PDF format) at BOZ-CiT. So you can arrange the final exam before your MSc Thesis report is entirely finished, but possible adjustments should not take more than a week time!



- After the colloquium, the MSc Thesis committee determines the final grade and you will receive your diploma. Moreover, you will receive a preliminary grade overview, on which the grade for the final project is not yet included. Several days later, you will be sent your definitive grade overview, including the grade for the final project.
- If you wish have a drink with family and friends afterwards, you will have to arrange that by yourself.

One final remark:

At the end of August, a lot of people do their colloquium. This means that some of the graduation candidates have to wait until September, while their MSc Thesis was already approved in August. If your colloquium is planned in September, you will have to sign up for the new academic year (and pay the tuition fee), because the date of your colloquium is the date of graduation, not the date of the approval. Most of the fee will be returned though.

Especially when your graduation date is planned in August, you have to make sure to make solid arrangements with your UT supervisor about handing in your final report and planning your colloquium. Do not forget to include possible holidays of your supervisors in your planning and the possibility that your report will not be approved right away. To make sure your colloquium can be held before the first of September, start arranging your graduation in May. If you start arranging later, or if it takes you too long to finish your report, you can not blame Civil Engineering for the fact that your colloquium can not be planned before the first of September.

## **11. Marking**

The exact marking of your activities varies, but the following general aspects will definitely be taken into account:

1. Own approach:
  - a. Own contribution
  - b. Learning abilities
2. Composition:
  - a. Expression abilities
  - b. Completeness
3. Contents:
  - a. Research method
  - b. Integration of theory and practice
  - c. Quality of the solution

## **12. Credits during graduation**

The moment you start your MSc Thesis Project – that is, the date that is mentioned on the MSc Thesis form – the study progress administration starts counting 5 EC per month until a maximum of 26 EC. The last 4 EC are given at your graduation date.

### **13. Terminating your registration at Central Student Administration**

Directly after your graduation, you can contact CSA to terminate your registration. You can be signed out the first of the month following the month in which you graduate; the months July and August do not count in this perspective. CSA can provide you with the form for restitution of tuition fee. The request should be brought in not later than a month after the graduation. Restitution of tuition fee will take place after CSA has received the official graduation date from the faculty.

### **14. Studiefinanciering (Dutch students only)**

Signing out also means losing the right to receive 'studiefinanciering' and the OV card (Public Transport). The communication with the Informatie Beheer is your own responsibility, so do not forget to inform them about the fact that you have been signed out!

### **15. More information**

There are several books for writing theses and reports (examples of books in Dutch: Verschuren & Doorewaard: Het ontwerpen van een onderzoek, Uitgeverij Lemma BV, ISBN 905189886 of Stehouder e.a.: Leren Communiceren, Wolters Noordhoff, ISBN 9001808263).