UNIVERSITY OF TWENTE.

Master Thesis Assignment

Student guide

Civil Engineering and Management
Construction Management and Engineering

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1. General information on graduation

The MSc thesis assignment is an assignment executed within the field of one of the specialisations of the CEM/CME programme. The assignment can be carried out at the University of Twente (for example a contribution to a PhD dissertation) or at a company or institution. It is allowed to get an expense allowance; however it cannot be a fully paid job.
The main objective of the MSc thesis assignment is to independently carry out a large individual research or design project in one of the sub-fields of Civil Engineering and Management, applying state-of-the-art scientific knowledge to the sub-field. In appendix 4 an overview of all learning goals of the MSc thesis assignment can be found.

Questions to ask yourself to check if your possible assignment is a good one:

- Is the problem mentioned an actual problem (or is there a deeper issue)?
- What is the importance of the assignment for the host organisation; is it a valuable contribution?
- Are there any personal or financial issues that might drive the host organisation and might cause trouble?
- Will the host organisation provide time and space to do the research?
- Can the assignment be executed within the set time span?
- Does the assignment fit with the profile and the study-programme?
- Is it an actual research assignment or will you just be working for a company?
- Is the company really interested in the research, or is it a 'hidden' recruitment strategy?

Your UT supervisor must approve the formulation of the assignment before you may start.

Language

The MSc thesis must be written in English. In consultation with the UT supervisor or at the request of the external organisation, a comprehensive summary and/or report appendices may be written in Dutch. In all cases, the main text of the report must be in English.

Going abroad

If you go abroad, please note that it is wise to keep your verified address in the Netherlands, otherwise you may have to pay a higher tuition fee. If you go abroad for longer than 8 months, please contact Student Services via studentservices@utwente.nl

2. Master Thesis Assignment step by step

The main objective of the MSc thesis assignment is to independently carry out a large individual research or design project in one of the sub-fields of Civil Engineering and Management, applying state-of-the-art scientific knowledge to the sub-field. The assignment can be carried out at the University of Twente (for example a contribution to a PhD dissertation) or at a company or institution.

2.1 When can you start?

When you have 15 EC or less open in course work, you have to do the two preparatory courses for the MSc Thesis assignment: 1) Academic Research Skills in CEM/CME (5 EC), and 2) Preparation MSc Thesis (5 EC). It is your own responsibility to check if you meet this requirement. **These 2 preparatory courses are linked to your actual MSc thesis and therefore only possible to execute when you have found an assignment and a daily supervisor**. About three months prior to the start of your Preparation MSc thesis, you have to make an appointment with one of the MSc thesis coordinators. How does that work and what do you have to do before starting the two preparatory courses? Use the checklist below to make sure you have done everything properly!

- ☐ As soon as you are about halfway (~60 EC) of your MSc programme, determine in which specialisation you want to do your MSc thesis assignment / which topic you want to pursue.
- ☐ Check either www.utwente.nl/cem or www.utwente.nl/cme to determine the specific regulations regarding graduation at your chosen specialisation.
- ☐ Before you plan a meeting with the MSc thesis coordinator of your specialisation, make sure that you are well prepared. Think about what you really want, or don't want:
  - Internal or external project?
  - In case of external, for what kind of organization would you like to do your project? (government, research institute, contractor, consultant company, construction company?)
  - What do you want to develop/investigate?
  - What were your favourite subjects within your specialisation?

  Besides, it might be helpful to take a look at the MSc thesis and graduation website to get insights into topics and what is expect. Here you can find the finished MSc thesis projects of the past years.
- ☐ Plan a meeting with the MSc thesis coordinator of your specialisation to discuss possible topics for your Master thesis and to discuss the needed further steps in selecting an assignment:
  - CME and CEM-CME: Dr.ir. Robin de Graaf
    - Appointments directly via r.s.degraaf@utwente.nl or +31 53 4894883
  - TEM: Dr.ir. Baran Ulak:
    - Appointments directly via m.b.ulak@utwente.nl
  - WEM: Dr.ir. Martijn Booij
    - Appointments directly via m.j.booij@utwente.nl
  - Sustainability and Resilience: Dr. Lara Wohler
    - Appointments directly via l.wohler@utwente.nl
  - Hydraulic and Geo-Structures: Dr.ir. Floriana Anselmucci Meng
    - Appointments directly via f.a.r.anselmucci@utwente.nl
- ☐ The MSc thesis coordinator assigns you to a UT supervisor depending on the assignment. Contact the UT Supervisor to discuss the assignment. Make sure that after the conversation with the thesis coordinator you decide on your own topic. You can only start the courses Academic Research Skills in CEM/CME and the Preparation MSc Thesis when the UT supervisor approves it / agrees on the assignment.
- ☐ As soon as you meet the requirements (max. 15 EC open in course work, found an assignment), you can start the two preparatory courses. Note that there is not a fixed starting date for the preparation and registration in Osiris is not necessary. You can start any time as long as you are ready for it (so even in the middle of a quartile). However, it is recommended to take the Preparation MSc Thesis in the same quartile as Academic Research Skills in CEM/CME.
- ☐ Sign up in Mobility Online (see appendix 1 for a checklist) when starting your preparatory courses.
- ☐ Follow the step-by-step plan of Mobility Online until point 8 (see appendix 1).
- ☐ Work on the assignment and make sure you are in charge of organizing feedback moments. To see what you can expect from your supervisors and what the supervisors can expect from you, see 3.1.

2.2 Preparatory courses

Before you can start the MSc thesis assignment you have to do two 5 EC courses to be prepared for your final assignment: Academic Research Skills in CEM/CME, and the Preparation MSc thesis. Preferably you do these two courses in the same quartile. **It is mandatory to have a MSc thesis assignment and a daily supervisor at forehand, because these two courses are linked to your actual MSc thesis.**

2.2.1 Academic Research Skills in CEM/CME (Q2, Q4)

Academic research skills and methodologies are essential for completing the Master Thesis project. In this course you will learn several skills that will help you prepare for this project such as academic writing, doing a literature study, reviewing a scientific paper, selecting an appropriate research methodology and concisely presenting your research, both written and orally.
Professional and academic skills are trained in various master courses to some extent, but often not explicit. This course focuses explicitly on the academic skills required for the Master Thesis project.

The following core principles follow from the main topics:

- **Academic skills.** These skills are required to conduct good research. It involves being able to search, select and understand the state-of-the-art literature on the research topic, critically review existing knowledge, present and report in a scientific way.
- **Research methodology.** Students know the different research methodologies, are familiar with the uncertainties and limitations and are able to select and motivate the most appropriate methodology for their research.

In this course, you will be assessed on:

1) **Literature review:** You will search for relevant literature on the research topic and write a concise report on the state-of-the-art knowledge on this topic.
2) **Critical review of a scientific paper:** You will get a scientific research paper from a researcher in the department on a topic in your specialisation. You have to critically review that paper and write a review report to the author.
3) **Research methodology:** You will be introduced to various research methodologies and you should be able to motivate your research approach and associated uncertainties and limitations.
4) **Writing an abstract and pitching your research:** You will write an abstract about your research and pitch it to a group of students and teachers.
5) **Boost-your-Competences master classes**

2.2.2 Preparation Master thesis

The main objective of the Preparation Master Thesis is to independently[1] produce a proposal for your MSc thesis[2]. It is important that you take the lead in this project; you are the project manager. This course is individual and tailor-made, and it prepares you for your final MSc thesis.
There is not a fixed starting date for the preparation, so you can start the trajectory any time as soon as you are ready for it (having an assignment, a supervisor, and $\leq$ 10 EC in coursework open). You can start even in the middle of a quartile. It is important to note that this the Preparation MSc Thesis is not a regular course including lectures. It is more like an individual trajectory under supervision of a MSc thesis supervisor, leading to prepare you for the final assignment. So, it is not needed to register yourself for the course in Osiris, the course is not included in the timetable and no lectures will be provided.
A checklist is provided in section 2.1, but an independent working attitude is expected.

[1] With 'independently' it is meant: the student acts as the project leader for producing this research or design plan with guidance from his/her supervisor(s). The amount of guidance needed will be reflected in the grading of the course.
[2] The MSc Thesis is a coherent project of 30 EC that requires about 21 full-time working weeks, i.e. about half a year of work

Research proposal

In this course (or trajectory) you will establish the contents, examination mode(s) and planning together with your UT supervisor or daily supervisor. Based on an introductory meeting with your UT supervisor and/or daily supervisor, you will determine the following:

- outline of the thesis subject
- knowledge to be gained (literature, software, methodology)
- planning

In order to be able to execute the MSc thesis assignment, during the preparation MSc thesis you should write a research proposal of approximately 10 pages. The research proposal is based on scientific knowledge of the sub-field, and the goal is to acquire additional knowledge to prepare for the MSc thesis project. It needs to incorporate sufficient information to start up a content-based discussion about the research proposition and design options regarding the proposed MSc thesis project.

Research proposals can differ regarding the content based on the research proposition, context and design of the research project. Though in order to prepare for the Master Thesis a research proposal needs to meet certain minimal requirements. In general, the research proposal should at least provide information regarding following aspects:

1. Introduction
2. Problem statement
3. Objective of the research
4. Research questions (RQ)
5. Literature study (this is part of the course Academic Research Skills in CEM/CME)
6. Optional: research model (flow diagram of main components)
   [coherence: there should be a clear line between RQ, and chapters)
7. Methodology (per RQ)
8. Planning (including when what chapter finished, meetings)
9. Preliminary table of content thesis

It is recommended to discuss the definite aspects at forehand with your supervisor(s).

On the draft proposal, you will have the right on (at least) one feedback moment on which you can anticipate on your final proposal. Note that a plagiarism check can be part of this.

Grading the Preparation MSc Thesis

At the end, your proposal will be graded by your supervisor(s). Assessment will take place on the following criteria:

1. General structure, language, and formatting (15%)
   - Structuring (/on chapter level) + visuals
   - Writing (/on paragraph level)
   - Referencing (in text and literature list)
2. Project Definition (40%)
   - Problem context
   - Research aims and question(s)
   - Terminology, limits and boundaries
   - Use of literature
3. Methods and Models (40%)
   - Choice of research techniques
   - Data & Models
4. Planning (5%)
   - Research Planning including milestones
   - Table of content
   - Contingency planning and feasibility check

2.3 During the MSc thesis assignment

Supervision

The supervision by the UT supervisor is limited: the MSc thesis assignment is an independent research. The UT supervisor discuss possible topics with the student, attends the kick-off meeting of the preparation phase, attends progress meetings, suggest adjustments in planning if necessary, checks the draft thesis on plagiarism, and discusses draft versions and the final version of your thesis with you. Guarding the planning and making progress is your own responsibility.

Your daily supervisor is there to discuss everyday issues with you. He or she can give you literature tips, introduce you to experts in the field or brainstorm with you on concepts and ideas. Regarding the expectations a student can have of the supervisor and the other way around, please have a look at paragraph 3.1.

Keeping track

Study delay is often unwanted and unplanned. Therefore, it is important to get to the root of the problem from which the delay originates. If you are experiencing delay, please check paragraph 3.2.
There are several study materials for writing theses and reports

- The study material of the course Academic Research Skills in CEM/CME (202400616)
- Verschuren & Doorewaard: Designing a research Project (9789059315723)

Extra facilities

The UT has several additional facilities for students working on their MSc thesis:

- Student counselling service: www.utwente.nl/en/sgw/
- Study and Career: www.utwente.nl/en/ces/tcp-language-centre/courses/
- Non-confidential finished MSc thesis assignments of CEM/CME are available in the UT library: http://essay.utwente.nl
- Boost your Competences: workshops to provide extra support and feedback on several academic skills. Hereby the focus will be on academic writing, academic attitude and internationalisation. Available at https://canvas.utwente.nl/courses/13640

Besides, the UT Language Centre (UTLC) is there to support students with their writing. The Writing Centre provides (part of UTLC) free one-on-one help with any writing task at any stage of the writing process. They are trained to help students to identify and correct issues related to structure and language. They can teach strategies for improving writing and guide students through useful print and digital resources.
Students can come to the weekly drop-in hours to speak one-on-one with a writing tutor about their text (there is no need to make an appointment). This support is available in English and Dutch.
Amongst others, the UT Language Centre can provide help with the following writing support:

- **Courses and workshops at the Writing Centre and Skills Lab** (such as Academic Writing, Thesis Boost): www.utwente.nl/en/ces/language-centre/courses/?domain= writing-centre
- **Personal writing support**: www.utwente.nl/en/ces/language-centre/writingcentre/
- **Graduation group**: students who really get stuck in their thesis (bachelor or master) can register for this. This group has a meeting every week and discusses topics such as strategies for overcoming difficult stages in graduation, avoiding pitfalls and dealing with tutors and assessors: www.utwente.nl/en/courses/969892/graduation-support-group/

2.4 Finishing your assignment

Make sure that you submit your draft version of your thesis to your supervisors on the agreed date on your proposal form (which was updated in Mobility Online). Your supervisor will assess the draft thesis and will do a plagiarism check[3]. You make an appointment with the entire committee for a so-called 'green light meeting' to let the committee make the decision whether you can plan your colloquium or not (see text block below). If you get the green light:

- please finish step 13 – 15 from the step-by-step plan of Mobility Online (appendix 1)

Green light meeting

In order to be able to schedule the colloquium a "green light" is required. Depending on the status of the draft report a "green light" meeting needs to be scheduled with the supervisors. The draft report must be a complete report and includes a summary.

During the green light meeting the supervisors will assess whether the draft report is at a stage where it has sufficient content to graduate. If the draft report does not qualify to schedule the colloquium, some adjustments in the report need to be made and a new "green light" meeting is necessary. If the draft report does qualify, the colloquium can be scheduled.

The Educational Affairs Office (BOZ) once again checks your grades and all the information you handed in. If everything is in order, they will arrange a room and the announcement of your colloquium. Check your grades yourself as well. If you see anything incorrect, you have up to one week before the colloquium to correct the overview c.q. deliver missing grades. Corrections are made only with written evidence. For special equipment during the colloquium please contact the service desk, via the Educational Affairs Office (BOZ).

Colloquium

The colloquium is a public presentation to a varied audience. It is not a mere summary of the graduation thesis but focuses on the research area and the problem-solving method and results. The content of the colloquium needs to be reconciled with your supervisors. If it contains confidential information, the presentation should be approved by the external supervisor beforehand. Be aware that confidentiality can be a disadvantage for you as a student because showing your competence will be more complicated.

Colloquium tips

1. *The chapters and structure of the final report are seldom a proper outline for the colloquium. The following structure is therefore recommended:*
   a. *The first part of the colloquium should provide a complete overview of the research area. Explain the research project, the goals and problems, if possible, in a non-technical manner.*
   b. *The most important part will cover the results of the work done as well as the encountered problems and challenges. Do not go too much into detail but provide outlines and use a logical order in the structure. The level of this part of the presentation should be understandable for fellow students in civil engineering and not to the general audience.*
   c. *The final part of the colloquium should consist of the main conclusions and recommendations for future research.*
   d. *After the presentation there will be time for questions from the audience and the supervisors.*
2. *It is important to present an interesting colloquium. Elaborate on relevant concepts and do not go into too much detail. Make a distinction between the main and side issues and limit the main issues to a maximum of 30 minutes. Show that you are in control and that you know the subject of the colloquium.*
3. *Visit other colloquia to see how other students present and learn from them.*

[3] Note: In case of suspicion of plagiarism: (1) plagiarism in the final thesis needs to be reported to the examination board; (2) assessment needs to be halted, no results may be registered; (3) examination board will take over control.

The colloquium in its total takes about 1 hour and 15 minutes, with a maximum of 1 hour and 30 minutes. After the colloquium you will receive your grade from the graduation committee. If you graduate, you will receive a preliminary grade overview on which the grade for the final project is not yet included. Several days later you will receive the final grade overview, including the grade for the MSc thesis.

Colloquia in July / August

Many students request/prefer to have/schedule their colloquium in August. However, it is not always possible to accommodate all these requests. Consequently, your colloquium might be scheduled in September instead. In that case, you 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 tuition 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 supervisors about handing in your final report and planning your colloquium. Do not forget to take into account possible holidays of your supervisors in your planning and the possibility that your report will not be approved right away. Also take into account that the period between your green light meeting and colloquium might take longer due to holidays etc. To make sure your colloquium can be held before the first of September, it is recommended to start discussing the planning of your colloquium around May/June. If you start arranging later, or if it takes you too long to finish your report, you cannot blame the programme for the fact that your colloquium can not be planned before the first of September.

2.4.1 MSc graduation committee

1) The MSc thesis coordinator of the relevant specialisation selects a UT supervisor. The UT supervisor puts together a graduation committee. If necessary, he or she also arranges a daily supervisor. When the MSc thesis assignment is carried out externally, the UT supervisor also makes sure that there is a person in charge of the guidance of the graduate at the external location (external supervisor).
2) The graduation committee consists of:
    a. The UT supervisor (who is also chair of the committee);
    b. The daily supervisor;
    c. Possible external member for an advisory role in the assessment.

    The UT supervisor is a professor or an associate professor (UHD) who is a member of the scientific staff of CE assigned by the Examination Board. The daily supervisor is a staff member, postdoc or PhD candidate of the UT who acts as the daily supervisor for the MSc thesis if this is not done by the UT supervisor. If the daily supervisor is a PhD candidate, the PhD candidate must have passed the Qualifier
3) The graduation committee is responsible for the final assessment. The external supervisor has an advisory role only.
4) The UT supervisor is a professor, an associate professor (UHD) or a lecturer who is a member of the scientific staff of CE assigned by the Examination Board. The daily supervisor is a staff member, postdoc or PhD candidate of the UT who acts as the daily supervisor for the graduation assignment if this is not done by the UT supervisor. If the daily supervisor is a PhD candidate, the research proposal of the PhD candidate must have been approved by the Civil Engineering Disciplinary Council.

2.4.2 Grading

The following aspects will be taking into account when grading your MSc thesis assignment. For a complete overview of all grading aspects, please have a look at Appendix 3 and the MSc thesis rubric in Appendix 7.

1. Report
2. Quality of research or design
3. Process
4. Presentation and defence

2.4.3 Terminating your registration

For terminating your registration for the MSc programma, you have to make a de-enrolment request in Studielink.
If you want to de-enrol immediately after graduation, submit your request in the month of graduation. Your de-enrolment will be effective from the first day of the next month. So, if you request de-enrolment on 1 September, you will be de-enrolled on 1 October. De-enrolment requests in June, July, and August will not be accepted. Your enrolment will end legally from 1 September of the next academic year. Graduating does not mean that your enrolment at UT will also terminate. De-enrolment cannot be backdated, so plan accordingly. If you are leaving the Netherlands, do not forget to de-register at the municipality where you are registered.

After de-enrolment
After de-enrolment, your student account and email will be withdrawn at the end of the de-enrolment month. For example, if you de-enrol on 1 December, your account will be closed on 30 December. Save any important information from your email account before it expires. This also means that you are no longer entitled to use UT ICT facilities, including your mailbox and documents. This is also to protect your privacy. You will receive an email notification.

For more information or questions, you can contact the Student Services in the Boerderij Building, or by email via studentservices@utwente.nl.

Study Finance (Studiefinanciering)

Once de-enrolled, you are no longer entitled to student grants from DUO. This applies to the lending right, the right to public transport and possibly a supplementary grant. Remember to sign off for student finance via MyDUO. Any outstanding debts from receiving student finance without being registered will need to be repaid. See more information here about refund of tuition fees on de-enrolment.

3 Expectations and what to do in case of delay

3.1. Expectations students and supervisors

Students expect supervisors	**Supervisors expect students:**
to fulfil arrangements	to fulfil arrangements
to read concept reports in time	to hand in concept reports in time
not to be too guiding	get in touch in case of problems
not to approve everything	not to approve everything
to be open to other points of view	to be open to other points of view
to discuss with other supervisors	to discuss with fellow students or PhDs
not to give negative feedback only	not to think too soon that they have made an amazing discovery
To respond timely	Schedule appointments
	Manage administrative procedures

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 student advisor in order to get out.

When you think your UT supervisor is not functioning the way one could expect, you can contact the programme coordinator or the programme director.

3.2 Delay, what to do?

The graduation process is known for the study delay it often causes. Important is that you discuss your planning at forehand with your supervisor. This planning can differ from the regular academic calendar because the university is open during the summer holidays (and supervisors available apart from their holidays). However, a delay might happen because of several circumstances. 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 cannot 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 two preparatory courses (see 2.2), 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?. 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 criticise 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 then 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.

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.

The Examination Board CE/CEM/CME developed a timeline and a correction on the final result due to avoidable delay. Both are to be found in Appendix 3.

Appendix 1 - Mobility Online step-by-step

The registration for all Mobility-related topics need to be registered in Mobility Online. That applies to the registration of the MSc thesis as well. At the moment you start your Preparation MSc thesis, it is important to register in Mobility Online. If this is not done, you CANNOT start with your graduation.

Please follow the (mandatory) steps below to register yourself in Mobility Online:

1) Open Mobility Online via https://mobility-online.utwente.nl/
2) If you did you BSc at the UT, you still see this registration. For your MSc thesis, you need a new registration next to the BSc thesis assignment registration. Register yourself and choose 'Graduation – Extended'
3) Fill out the application form in Mobility Online[4].
4) You will receive an e-mail of your online application
5) Download the Proposal Form (appendix 5) from Canvas, fill it in, save it as a PDF (not: print to pdf) and e-mail the form to boz-cem@utwente.nl (Mrs. Nuijts-Kruse). BOZ will check if you have less than 10 EC in coursework left
6) After BOZ returns the form, e-mail it to your UT supervisor and let him/her add the grade and sign it. Both the check from BOZ (coursework) and the signature of your UT supervisor guarantee that you are eligible to start your MSc thesis, after you've successfully completed your preparation.
7) Upload the form in Mobility Online and confirm that you've done this by sending an e-mail to boz-cem@utwente.nl
8) BOZ-CEM will approve the upload
9) Extra step if you would like to apply for a scholarship:
    a. wait for the response by the International Office and take the extra steps after point 18 in this checklist
10) You can now start your MSc Thesis; you are responsible of making sure all the steps are taken, please continue with the checklist in chapter 1.2
11) During your Mobility, you have to make sure you fill out the notification on whether you started your mobility by filling out an address, and filling out an expected return date
12) If there are any changes (i.e.: change of supervisors/change of dates or any other relevant changes) OR if there are NO relevant changes: fill out 'Notification of changes'; it has to be filled out either way.
13) Once you have finished your MSc Thesis, please download the colloquium announcement from Canvas (appendix 6) and fill out A, B and C in this form
    a. Let your UT supervisor sign form 6C of the colloquium announcement as well
14) Fill out the colloquium form (appendix 6) right after your green light meeting (preferably no longer than 3 weeks before the planned date) and it to boz-cem@utwente.nl
15) BOZ will start arranging your colloquium
16) Upload your MSc thesis on the repository of the University: https://studenttheses.utwente.nl/
17) BOZ-CEM will check if you delivered all the required deliverables. If not, they will notify you. If yes, they will register your graduation
18) BOZ-CEM checks the box for activity finished, which you can see in Mobility Online, your graduation procedure has reached its end

[4] Ask your daily supervisor for the name of the Chair

- Students who apply for a scholarship, please build in these extra steps:
  1. Once you have applied for your scholarship, the scholarship office will take over and you have to answer some additional questions;
  2. You have to fill out your home address and bank details;
  3. The scholarship office checks the box for 'scholarship application received'. Once that box has been checked by the office you receive 75% of the provisional scholarship amount within 2 weeks;
  4. 'During the mobility' you have to make sure to register your address and your return date, and you have the option to check a box if you want to change anything in your application;
  5. The steps 'after the mobility' differ slightly from a Master student that stays in the Netherlands. First you have to let your external supervisor fill out the letter of appointment which indicated that you were actually there;
  6. Scholarship Office will approve the letter of appointment.

You can follow the regular student's process plan from step 10 on the previous page onwards.

General remarks:
Every time you hand something in or check off a box, you will get an e-mail from Mobility Online on what you have to do next. It is your own responsibility to check the application regularly, deliver everything you need to and make sure you hand in everything on time. If you are experiencing difficulties with Mobility Online, or with certain deliverables make sure you get in contact with someone from the programme, preferably your UT supervisor or the programme coordinator (Peter Jansen / coordinator-ce@utwente.nl / 053-4893780).

Appendix 2 - Contracts

2.1 UT contracts

When doing a MSc thesis assignment at an external organisation some formalities may require signed agreements, such as a contract. Unless the host organisation requires to use their own format, please use the format of the Faculty of Engineering Technology. This format has been specifically developed for student assignments. It has been based on national agreements by the association for Dutch universities (VSNU), the "Vereniging Hogescholen" and NUFFIC. The Engineering Technology format is a three-party agreement in which the representative of the host organisation, the Managing Director of the University of Twente and you merely sign for the part he/she is responsible for. On this website you can find this format. The signed contract (by you and the company) should be handed in at Astrid Oppers- van den Berg (a.j.vandenberg@utwente.nl). She will send the contract to the Managing Director from the ET faculty for a signature and make sure that you will receive back your contract.

- Please do NOT send your contract directly to the Managing Director of the faculty, your contract will NOT be signed in that way;
- Please do NOT contact Astrid if you have questions about the MSc thesis assignment / Master programme other than questions about your contract. Astrid cannot help you with other questions.

2.2 Company contracts

If the host organisation requires the use of their own contract format, please compare this format to the faculty agreement format. Most of the time, this contract is a two-party agreement, a contract between you and the company. A signature from the UT is not necessary then. When signing a contract, please take note of the recommendations below.

Financial Compensation

To avoid potential conflicts of interest it is our policy that students are not offered a salary for their work with the
host organisation. Instead, an internship compensation (Dutch: stagevergoeding or onkostenvergoeding) can be offered, which typically is substantially lower than a salaried position. In this way you can operate as an independent university researcher rather than having to follow the company's vision.

Publication of results

We strive at making public all information resulting from the student project. As such, this information should be available for publication by yourself and your supervisor. Normally, the thesis will be added to the UT library public repository. Having the right to publish your report and the outcome of your work is important for your own career and your résumé and serves as an inspiration for other students. Furthermore it shows outsiders the type or work our students do and with which companies. Therefore it is important to produce a report that can be published. When writing your report it is good to keep this in mind, taking care that no confidential information is included in the final report. Communicating about this with your host organisation supervisor is essential to avoid conflicts in later stages.

In some cases companies have substantial objections against publication of the results. In such situations the report may be treated as confidential for a period of up to one year.
In exceptional situations a two-year confidentiality may be required. If a company feels that one year is not sufficient, a written argumentation for that purpose should be submitted to the university.

Full and permanent non-disclosure/confidentiality of your project is only acceptable in very extreme cases because in case of study-programme accreditation the report needs to be available to the accreditation committee.

Confidentiality (Non-disclosure agreement)

Companies may request to lay down issues as described above under “Publication of results” in a separate confidentiality agreement next to the assignment agreement. Our aim is to avoid confidentiality agreements as much as possible. However, if an external organisation insists on having a confidentiality agreement preferably use the confidentiality agreement designed by the Faculty of Engineering Technology (to be found on this website). Please pay attention that only the Dean or the Managing Director can sign the confidentiality agreement.

In any case you are expected to deal carefully with information that can be considered as confidential. Specifically, keep in mind that you do not discuss confidential information with fellow students, relatives etc.

Copyright

You are the owner of the copyright. If you decide to sign an agreement in which you hand over any copyright to the host organisation you need to realise this means you cannot use anything from your own thesis later on, without written consent from the host organisation.

Penalty clauses

In some cases a penalty clause is included in the confidentiality agreement. Although confidentiality agreements are used by companies to protect their interests you are not obliged to accept every aspect in it. For instance some companies maintain extreme financial penalty clauses and our advice is not to sign these financial commitments unless you are truly aware of the consequences.
Furthermore it is essential that you discuss the content of such contracts with the host organisation contact person, but also with your UT supervisor. If the agreement requires a UT signature, be aware that an extraordinary high financial penalty clause will result in the UT not signing the agreement.

Insurances

Verify that the agreement with your host organisation includes commitment to provide an accident insurance. Should this not be the case, you will have to arrange an accident insurance to cover yourself against loss of income in case of a disability resulting from an accident in the workplace.
Verify with your health insurance whether the financial arrangement you have with the host organisation affects your health insurance premium.

Other

Ensure that the agreement you sign stipulates that the host institution will provide the facilities necessary for you to perform all tasks and to meet your learning objectives.

2.3 UT Research Ethics policy

It is important to note that the (intended) execution of your MSc thesis assignment is in line with university-wide research ethics policy. Ethical review of research involving human subjects and/or personal data is considered as common practice and mandatory. For other types of research, it is recommended to identify the existence of possible ethical issues related to for instance the environment, dual-use aspects, low-income countries or artificial intelligence. If you are not sure if an ethical review is needed or if you need to conduct an ethical review, contact your supervisor for further information.

Appendix 3 - Grading

ASSESSMENT FORM MSc thesis CEM

RETURN THIS FORM TO BOZ-CEM

Name student: ……..

Student number: ……

Course code: ……

Main supervisor (Chair): ……

Date: ……

Final grade: ……

Signature main supervisor: ……

Criteria (*with sub-criteria as a reminder*)	What went well?	What could have been improved?	Mark
C1 REPORT *a. Independence in writing* *b. Chapter level* *c. Paragraph level* *d. Sentence level* *e. Visuals* *f. Referencing*			(20%)
C2 CONTENT *a. Insight & depth* *b. Research method* *c. Coherent process steps* *d. Relevance* *e. Creativity/Innovation* *f. Verification & validation*			(50%)
C3 PROCESS *a. Attitude* *b. Independent, methodical and effective* *c. Communication* *d. Reflection*			(20%)
C4 PRESENTATION & DEFENCE *a. Presentation* *b. Use of media* *c. Answering questions*			(10%)
Other remarks *Note: correction of final result due to avoidable delay*			Final mark

Version: 30-8-2024

ASSESSMENT FORM MSc thesis CME

Name student: …… Student number: ……..

Course code: 195899999 Date: ……..

Main supervisor ('Afstudeerdocent'): ……

Thesis title: ……

Final grade: …… Duration of graduation project: ……months

Signature main supervisor:

……

Criterion	What went well?	What could have been improved?
Content: quality of research or design (project)		
Working and learning process during project (process)		
3. Communication (presentation) 3a. Report 3b. Oral Presentation and defence		

RETURN THIS FORM TO: BOZ-CEM

Final grade profiles:

Grade profiles are only given for full grades to indicate the global performance per grade. The final grade after the subgrades per criteria have been weighed should resemble the grade profiles. Halve grades should represent some of the adjacent full grades.

5. insufficient (only applicable for greenlight results)
The research and/or report are insufficient, and the student was strongly guided by his or her supervisors. Weak points can clearly be pointed out with respect to the quality of the research or design. The student did not show an academic attitude. On average, the student scores 'insufficient' on all aspects for assessment.

6: adequate
With respect to content, the research was conducted adequately. The report is adequate but limited Weak points can be pointed out clearly but are compensated by aspects on which the student performs more than adequate. The student has shown little input of his own and was strongly directed by his or her supervisors. On average, the student scores 'adequate' on all aspects for assessment.

7: sufficient
With respect to content, a sufficient piece of research was delivered. The report is in accordance with scientific structuring.
Either the research process, the report, or the proficiency in subject matter leaves room for improvement. The supervisors clearly had a guiding influence on the final product. The student scores at least 'sufficient' on all aspects for assessment and 'good' on some aspects.

8: good
With respect to content, the research was set up in a good way and was carried out accurately and put in a comprehensive report. The report is carefully edited regarding language as well as layout. The student has worked independently and was able to put forward his or her own initiatives. Guidance given by the supervisors was minimal. On average, the student scores 'good' on all aspects for assessment.

9: very good
The research fills an existing gap and is state of the art. The report is carefully edited and shows that the student disposes of good writing skills. The student's own input, critical thinking skills and independence are very good The student clearly stands above subject matter and is able to defend his or her statements in discussions well. The student scores at least 'good' on all aspects for assessment and 'very good' on some aspects.

10: excellent
The student functions at the level of an expert in the field. With respect to content, the research is excellent, with some points that can be clearly pointed out as outstanding. The student is highly capable of conducting research independently. The report and the presentation show that the student commands excellent communication skills (written and oral). The student scores 'very good' on all aspects for assessment and ‘excellent’ on some aspects. The MSc thesis is completed within 6 months.

GRADUATION TIMELINE and correction of the final result due to avoidable delay

The duration of the master thesis project is officially 840 hours which is 21 weeks. The administrative time between Green light meeting and graduation is three weeks. Including a week reading time for the committee, for the student to graduate in time the student must submit a complete draft thesis after 17 weeks. The student should be made aware of this.
There are all kinds of reasons why a student can be delayed. This can be due to unavoidable reasons (personal circumstances, vacations/holidays, working part time, dependence on third party for e.g. data, experimental problems, postponed meetings due to limited availability of supervisors, etc.) but also avoidable reasons (student is just taking too long).
Meeting deadlines and finishing a project in time is also an important skill. Therefore, it is decided to make the maximum grade conditional based on the duration of the graduation project as follows:

	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
Restriction to the final mark due to avoidable delay	Draft thesis (green light version) never submitted or approved.	Master Thesis finished in > 10 months.	Master Thesis finished in 8-9 months.	Master Thesis finished in 7-8 months.	Master Thesis finished in 6-7 months.	Master Thesis finished in 6 months or less.

Appendix 4 - Learning goals

4.1 Learning outcomes of the course 'Academic Research Skills in CEM/CME"

Academic research skills and methodologies are essential for completing the Master Thesis project. In this course you will learn several skills that will help you prepare for this project such as academic writing, doing a literature study, reviewing a scientific paper, selecting an appropriate research methodology and concisely presenting your research, both written and orally.

The course has the following learning goals:

1) Being able to do an in-depth literature review.
2) Being able to critically review a scientific paper.
3) Being able to write a scientific report.
4) Being familiar with various research methodologies and being able to select an appropriate methodology for your own research.

This course mainly focuses on:

- Applying
- Comprehending
- Analyzing
- Synthesizing
- Evaluating

This course is primarily focused on skills and competences that prepare the student for the Master Thesis project.

4.2 Learning outcomes of the course 'Preparation MSc thesis'

The main objective of the course Preparation MSc thesis project is to – independently – produce a research or design plan for his/her MSc thesis project, based on state-of-the-art scientific knowledge of the sub-field and acquire additional knowledge to prepare for the MSc thesis project. The MSc thesis project is a large individual research or design project in one of the sub-fields of Civil Engineering and Management.

Learning outcomes with respect to content

By producing the research or design plan the student must show that:

- he/she is able to identify gaps in scientific knowledge within a subfield of Civil Engineering and Management, is able to assess research within a sub-field of Civil Engineering and Management on its scientific value and is able to understand and incorporate the results of research into his/her own work
- he/she is able to formulate a research or design problem and is able to produce a research or design plan, with enough focus and such that it can be realised in the time available
- he/she is able to acquire additional scientific knowledge independently

Learning outcomes with respect to working process

By producing the research or design plan the student must show that:

- he/she reflects upon his/her own work and uses relevant information to improve his/her capabilities
- he/she has the attitude to strengthen his/her personal development and enhance his/her expertise
- he/she is able to work independently
- he/she is able to work systematically and methodically
- he/she is able to finish the project in the time available

Learning outcomes with respect to communication skills

By writing up the research or design plan the student must show that:

- he/she is skilled in properly documenting results of a scientific literature study
- he/she is skilled in presenting a research or design plan in writing, including the underlying knowledge, choices and considerations
- he/she is competent in scientific reasoning
- he/she adheres to existing academic conventions, such as giving proper credit and referencing

4.3 learning outcomes MSc thesis assignment

The main objective of the MSc thesis assignment is to – independently - carry out a large individual research or design project in one of the sub-fields of Civil Engineering and Management, at a level that is representative for an MSc-programme, i.e. by applying state-of-the-art scientific knowledge of the sub-field.

Learning outcomes with respect to content

By carrying out the MSc thesis project the student must show that:

- he/she has expert knowledge on at least one of the sub-areas of Civil Engineering and Management, and is able to expand his/her expertise in the field of Civil Engineering and Management
- he/she is able to position the (scientific research of the) own sub-field in the scientific and societal context
- he/she is able to identify gaps in scientific knowledge within a subfield of Civil Engineering and Management, is able to assess research within a sub-field of Civil Engineering and Management on its scientific value and is able to understand and incorporate the results of research into his/her own work
- he/she is able to judge the value of information, makes effective use of this information for decisions and is able to evaluate these decisions
- he/she is able to carry out his/her research or design plan, by applying an appropriate research or design methodology
- he/she is able to judge if available concepts, tools and techniques are adequate for the problem at hand, able to apply adequate tools and techniques and able to generate his/her own assumptions, tools, theories, techniques or novel ideas if these are not available
- is able to analyse and discuss the results, to draw conclusions from the results and to reflect on the results in the wider societal and scientific context

Learning outcomes with respect to working process

By carrying out the MSc thesis project the student has to show that:

- he/she can reflect upon his/her own work and uses relevant information to improve his/her capabilities
- he/she has the attitude to strengthen his/her personal development and enhance his/her expertise
- he/she can work independently
- he/she is able to work systematically and methodically
- he/she is able to manage his/her own project as a project leader including proper communication with supervisors
- he/she is able to finish the project in the time available

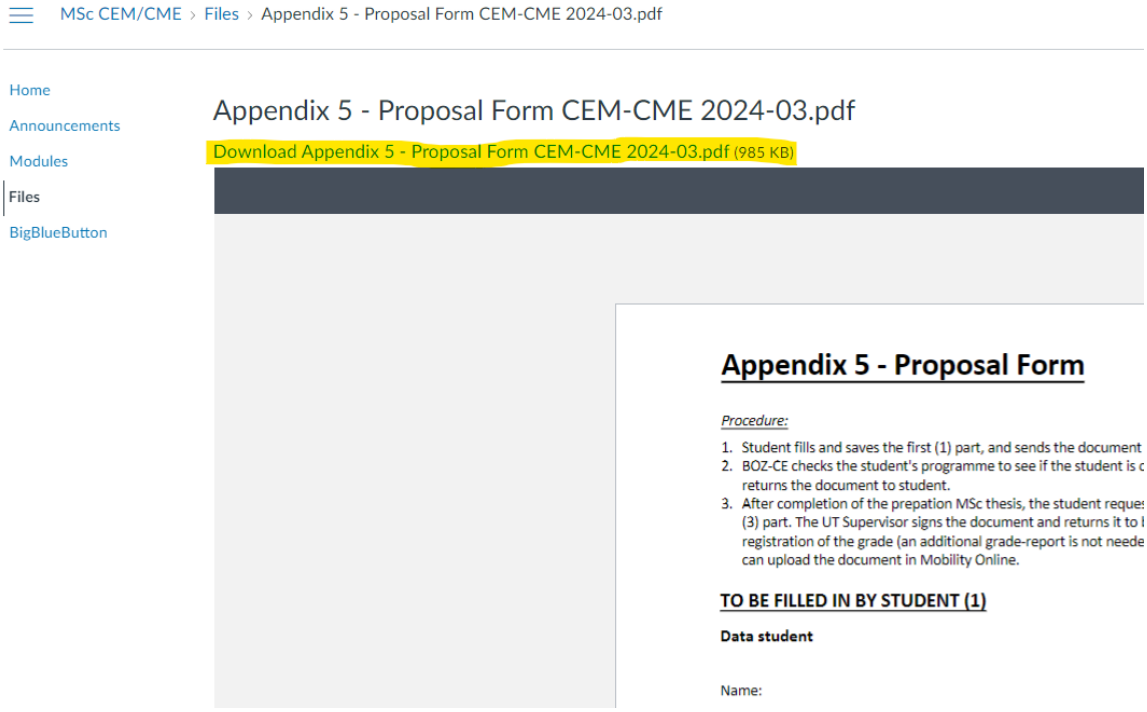
Learning outcomes with respect to written and oral communication skills

By writing the MSc thesis report and presenting and defending the project in public the student has to show that:

- he/she is skilled in properly documenting and presenting results of scientific and design work, including the underlying knowledge, choices and considerations, to colleagues and to a broader public
- he/she is competent in scientific reasoning
- he/she adheres to existing academic conventions, such as giving proper credit and referencing

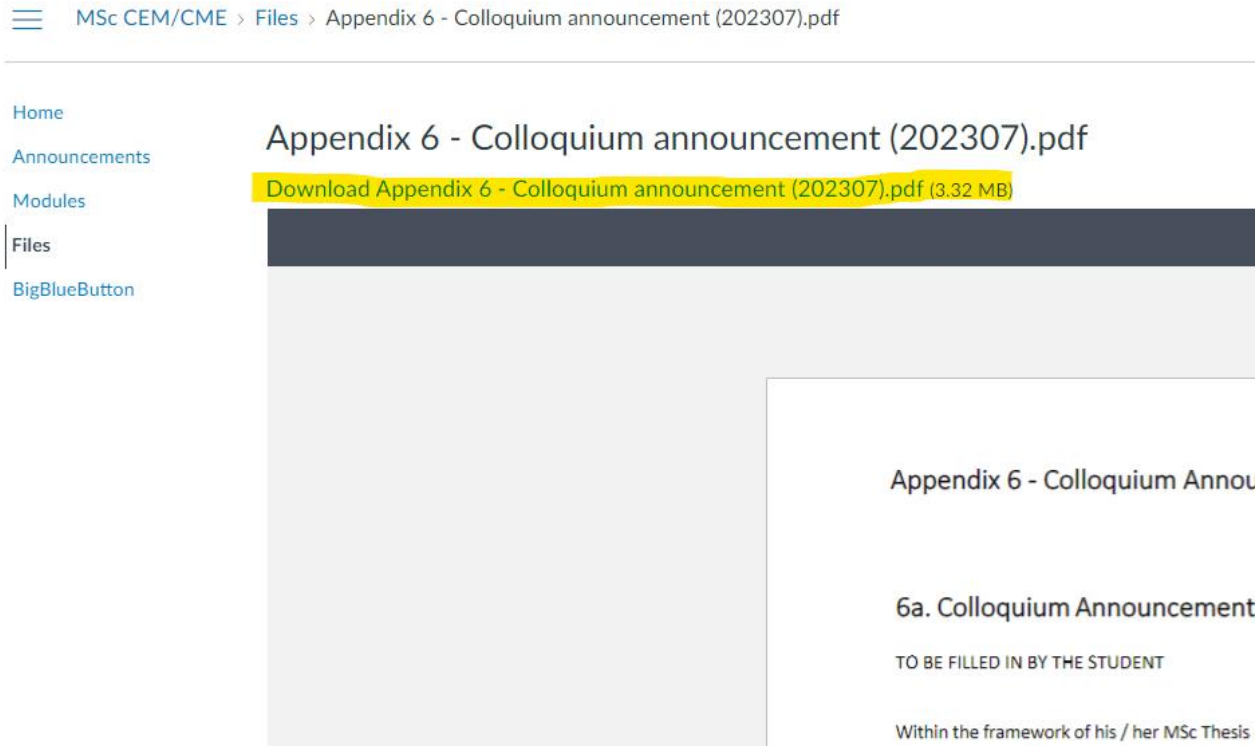
Appendix 5 - Proposal form

The proposal form is to be found on the MSc CEM/CME Canvas page. Please download the file (see text highlighted in yellow), open the form with Adobe Acrobat, fill it in (digitally) and save it as a pdf (not print to pdf). Thereafter, send it to boz-cem@utwente.nl.



Appendix 6 - colloquium announcement

The Colloquium Announcement form is to be found on the MSc CEM/CME Canvas page. Please download the file (see text highlighted in yellow), open the form with Adobe Acrobat, fill it in (digitally) and save it as a pdf (not print to pdf). Thereafter send it to boz-cem@utwente.nl.



Appendix 7 - MSc thesis rubric in detail

C1 ASSESSMENT CRITERIA IN RESPECT TO REPORT

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C1.a Independence in writing	The report is clearly not written by the student.	The report is finalised with much input on the writing from supervisors or others.	The report was written with clear input from supervisors or others; the student showed improvement in writing.	The report was written largely independently with moderate feedback **or** the student has shown significant progress in writing based on feedback, resulting in a very good report.	The report was written largely independently with limited feedback **or** the student has shown tremendous progress in writing based on feedback, resulting in an excellent report.	The writing of the student was excellent from the beginning, draft versions of the report required limited feedback.

Criterion	Fail	Pass
C1.b on chapter level.	In the structure of the report as a whole and the individual chapters, appropriate scientific structure and composition are lacking and/or are incomplete.	Well-developed and very clear composition. Both the construction of the report as a whole and the individual chapters in accordance scientific structuring.

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C1.c on paragraph level.	The report lacks correct and consistent reasoning.	The reasoning at paragraph level is **correct and sufficient** at **crucial parts** in the report. The **structure of the reasoning** (over the paragraphs) **has flaws**.	The reasoning at paragraph level is correct and sufficient **through the whole** report. The structure of the reasoning (over the paragraphs) has **minor flaws**.	The reasoning at paragraph level is **accurate and consistent** through the whole report. The structure of the reasoning (over the paragraphs) **largely meets the expectation of the reader.**.	The reasoning at paragraph level is accurate and consistent through the whole report. The structure of the reasoning (over the paragraphs) **meets the expectation of the reader.**	The reasoning at paragraph level is accurate and consistent throughout the whole report. The structure of the reasoning (over the paragraphs is **excellent.**
C1.d on sentence level.	The report demonstrates an inadequate level of academic writing. The report contains too many ambiguities /errors.	The report demonstrates an **adequate** level of academic writing. Though both the technical writing and/or the academic writing style **can be improved**.	The report demonstrates a **sufficient** level of academic writing. The academic writing style **can be improved**.	The report demonstrates **good academic writing:** characterised by **good** formulations and an academic writing style.	The report demonstrates **proficiency** in academic writing: characterised by **very good** formulations and an academic writing style.	The report shows proficiency in academic writing: characterised by **excellent** formulations and an academic writing style.

C1 ASSESSMENT CRITERIA IN RESPECT TO REPORT - CONTINUATION

C1.e Visuals.	The layout of the report and the use of visual material are insufficiently elaborated and/or irrelevant	The layout of the report is **adequate**, with the **correct use** of visual materials such as tables and figures.	The layout of the report is **sufficient**, with the correct use of visual materials such as tables and figures. The presentations of results are **relevant and explained** properly.	The layout of the report is **good**, with the **excellent** use of visual materials such as tables and figures. The presentations of results are **very** relevant and explained properly.	The layout of the report is **very good**, with the excellent use of visual materials such as tables and figures. The presentations of results give a **complete** and **excellent insight**. Text and visual material **in cooperation** give deep insights in the results.	The layout of the report is **excellent**, with **outstanding** use of visual materials such as tables and figures. The presentations of results give a complete and excellent insight. Text and visual material in cooperation give **very efficient** deep insights in the results.

Criterion	Fail	Pass
C1.f Correct references to literature.	References to literature are insufficiently elaborated.	The report provides adequate references to literature.

C2. ASSESSMENT CRITERIA IN RESPECT TO CONTENT; QUALITY OF RESEARCH OR DESIGN

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C2.a Showing insight and depth (detailed elaborations) in subject matter; extensive use of literature.	Inadequate insight and depth in subject matter and/or inadequate use of literature.	Showing **adequate** but **limited** insight and depth in subject matter. **Sufficient** use of literature. Substantial improvement is possible.	Showing **sufficient** insight and depth in subject matter. **Extended** use of literature, **though limited evaluation of literature** regarding parts of subject matter.	**Showing some comprehensive** insight and depth in subject matter **at academic level**. **Extensive** use of literature. **Evaluation of literature** regarding parts of subject matter.	Showing **some comprehensive and academic** insight and depth in the subject matter. Extensive use of literature. Evaluation of literature regarding **most** subject matter.	Showing excellent insight and depth in subject matter at the **highest** level. Extensive use of, and **full** evaluation of literature **regarding all** subject matter.
C2.b Independent development of an appropriate, well-explained and well-justified research method.	Insufficiently developed method and/or insufficiently explained method and/or insufficient justification.	**Sufficiently** developed and detailed method. **Limited** motivation and justification of the method.	**Well-developed** and detailed method. **Sufficient motivation and justification** of the method.	Well-developed and detailed method, with limited input from supervisors. Good motivation and justification of the method. **Alternative approaches are investigated to some extent.**	Independent development of **a well-explained** and **well-justified** research method. **Relevant** alternative approaches **are investigated**.	Independent development **of an appropriate, state-of-the art**, well-explained and well-justified research method. Relevant alternative approaches are investigated **in depth and rejected with arguments**.

C2. ASSESSMENT CRITERIA IN RESPECT TO CONTENT; QUALITY OF RESEARCH OR DESIGN - CONTINUATION

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C2.c Shows coherence within the different process steps of the research project.	The report does not sufficiently demonstrate coherent insight between the different parts of the research project. There are several demonstrable shortcomings in the research project.	The different parts of the research **are not explicitly connected**.	The connection between **some** of the different parts of the research is **explained**.	The connection between the different parts of the research is **explained**.	The connection between the different parts of the research is **well-motivated**. **The overall coherence between all parts is explained and discussed.**	The connection between the different parts of the research is **well-motivated**. **Explicit motivation** of the overall coherence over all parts is clear.
C2.d Demonstrates the relevance to science and society, and the problem owner.	A reference to science, society, and the problem owner is lacking in the research.	Relevance to science, society, and the problem owner is **sufficient, though limited**, discussed.	Relevance to science, society, and the problem owner is **sufficiently** discussed.	Relevance to science, society, and the problem owner is **well**-discussed.	Relevance to science, society, and the problem owner is **handled into detail. Some use of literature.**	Relevance to science, society, and the problem owner is handled into detail. **Extensive** use of literature.
C2.e Creativity/ innovation: extent to which the student **independently** introduces new concepts, contributes to new knowledge, or offers an extraordinary contribution to a product.	Not innovative, not creative, no ingenuity or originality.	The results show **some** innovation, creativity, ingenuity, or originality. The **contribution to a product is limited**.	The results show innovation, creativity, ingenuity, or originality, **though room for improvement is possible**. The results **contribute** to a product.	The results **clearly** show innovation, creativity, ingenuity, or originality. The results offer a **considerable** contribution to a product.	The results show **unexpected** innovation, creativity, ingenuity, or originality. The results offer **a substantial** contribution to a product.	The results show **outstanding** innovation, creativity, ingenuity, or originality. The results offer **an essential** contribution to a product.
C2.f Verification and validation of the model or design[5].	No verification nor validation of the model or design.	Verification **or** validation of the model, **with limited depth**.	Verification **and** validation of the model, with **some depth**.	Verification and validation of the model, which demonstrates **insight and understanding**.	Verification and validation of the model, which demonstrates insight and understanding of the model **and considers the possible consequences** of the verification and validation.	Verification and validation of the model, which demonstrates insight and understanding of the model and considers the possible consequences **in a broad scope**.

[5] Verification is the process of ensuring that the model design (conceptual model) has been transformed into a computer model with sufficient accuracy (Davis, 1992). Validation, on the other hand, is the process of ensuring that the model is sufficiently accurate for the purpose at hand (Carson, 1986). Verification has a quite a narrow definition and, in many respects, it can be seen as a subset of the wider issue of validation. [Simulation: the practice of Model Development and Use; Robinson, Stuart; Palgrave Macmillan; 2014]

C3 ASSESSMENT CRITERIA IN RESPECT TO PROCESS

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C3.a Attitude The student approaches the subject with commitment, enthusiasm, curiosity, resilience, and ambition; is independent and critical in the incorporation of feedback.	The student is characterised by a passive attitude. The student shows a lack of commitment, initiative, enthusiasm, curiosity, resilience, or ambition.	The student is characterised by **limited active** attitude. The student approaches the subject with **some commitment** and initiative**.** Feedback is used, but interpretation of feedback **in a broader context is missing**.	The student is characterised by an **active** attitude. The student approaches the subject with **commitment** and initiative**.** Feedback is used, and there is **some** interpretation of feedback in a broader context.	The student is characterised by a **proactive** attitude. The student approaches the subject with commitment, **enthusiasm, curiosity, resilience, and ambition**. Feedback is **interpreted in a broader context**.	The student is characterised by a **very proactive** attitude. The student approaches the subject with commitment, enthusiasm, curiosity, resilience, and ambition. Feedback is interpreted in a broader context. **Independent** and **critical reflection** on feedback is evident.	The student is characterised by a very proactive attitude. The student approaches the subject with commitment, enthusiasm, curiosity, resilience, and ambition. The student demonstrates **well-founded reasoning and an** independent and critical incorporation of feedback.
C3.b The student works independently, methodically, and effectively; acts as the owner of the research project; prepares meetings well; takes part in (progress) meetings actively; provides follow-ups in time and to the point.	Not able to work independently; did not meet deadlines or agreements; did not inform supervisors sufficiently about process; is not capable of handling setbacks. In all, did not act as the owner of the research project.	**Adequate** self-management, though there are **some flaws** regarding meetings, deadlines, or agreements; is capable of handling setbacks **with major help** from the supervisor. In all, acts as the owner of the research project, **though there is room for improvement.**	**Sufficient** self-management, meets **most deadlines** and follows up on agreements, is capable of handling setbacks **with help from** the supervisor. Acts as the owner of the research project i**n most aspects**.	**Good** self-management, meets most deadlines and follows up on agreements**;** independently tries several ways to solve a problem **before asking for advice,**; is capable of handling setbacks **with minor help** from the supervisor. Acts as the owner of the research project i**n all aspects**.	**Very good** self-management: meets **all deadlines** and follows up on agreements; solves **most problems independently**; is capable of **handling setbacks independently.** **Is clearly the owner** of the research project.	**Excellent** self-management: meets all deadlines and follows up on agreements; **solves problems** independently; handles setbacks independently **in novel and creative ways.** **Is undoubtedly the owner** of the research project.

C3 ASSESSMENT CRITERIA IN RESPECT TO PROCESS - CONTINUATION

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C3.c Communication The student is able to co-operate within the organisation where the project is carried out in a constructive way; proactively informs supervisors about progress in the project (such as deadlines, problems, achievements, and new insights).	Insufficient communication with the organisation and/or the supervisors.	**Adequate** level of communication with the organisation and supervisors, **though improvement is possible**.	**Sufficient** level of communication with the organisation and supervisors. In general, shares information, experiences, decisions and/or results with stakeholders, **in a timely and clear manner** and using **appropriate communication channels**.	**Good** level of communication with the organisation and supervisors. Shares the relevant information with stakeholders in an appropriate way; supervisors have **insight into the progression** of the project.	**Very good** level of communication with the organisation and supervisors. **Proactively** shares the right information with stakeholders in an appropriate way; supervisors have **detailed insight into the progression** of the project.	**Excellent** level of communication with the organisation and supervisors. Proactively shares the right information with stakeholders in an appropriate way; **stimulates the exchange of insights** with co-workers; supervisors have detailed insight into progress, **achievement, and new insights**.
C3.d Reflection The student shows critical reflection on the entire process and their own contribution.	Insufficient attitude to strengthen their personal development.	**Adequate** critical reflection on the process and their own contribution, **though improvement is possible**.	**Sufficient** critical reflection on the process and their own contribution.	**Good** critical reflection on the process and their own contribution. **Shares reflection** and asks for comment. **Demonstrates progress** during the project.	**Very good** level of critical reflection on the process and their own contribution. **Systematically** shares and discusses reflections. Demonstrates a **systematic** progress towards **a realistic set** personal standard.	**Excellent** level of critical reflection on the process and their own contribution. Systematically shares and discusses reflections. Demonstrates a systematic progress towards a realistic set personal standard. Shows **well-considered** personal improvement based on **profound reflection** and incorporation of feedback.

C4 ASSESSMENT CRITERIA IN RESPECT TO PRESENTATION AND DEFENCE

Criterion	Fail	6, adequate	7, sufficient	8, good	9, very good	10, excellent
C4.a A captivating way of presenting.	Presents results in a way that inadequately meets professional requirements in terms of language, content, structure, and design: incoherent, unclear, incomplete.	**Adequate** presentation. Meets the professional requirements in terms of language use, content, structure, and design.	**Sufficient** presentation. Meets the professional requirements in terms of language use, content, structure, and design.	**Good** presentation. Meets the professional requirements in terms of language, content, structure, and design.	**Very good** presentation. Meets the professional requirements in terms of language, content, structure, and design.	**Excellent** presentation. Meets the professional requirements in terms of language, content, structure, and design.
C4.b Correct use of media; neat and meaningful results in figures and tables.	Insufficient or wrong use of media or does so substandard. Insufficiently meaningful results in tables and figures.	**Adequate** use of media or does so in accordance with the standards. Results presented in **tables** and figures that are **adequately informative**.	**Sufficient** use of media in accordance with the standards. Results presented in **s** tables and figures that are **sufficiently informative**.	**Good** use of media in accordance with the standards. Results presented in tables and figures are **accurate and consistent.**	**Very good** use of media, beyond the standards. Gives insight in the results and conclusions of the research **effective.** Results presented in tables and figures are accurate and consistent.	**Excellent** use of media, beyond the standards. Gives **outstanding** insight in the results and conclusions of the research **very effective.** Results presented in tables and figures are accurate and consistent.
C4.c Shows the ability to interpret and analyse the questions; answers the question asked and can place the question and answer in a broader context.	Cannot interpret the questions asked sufficiently. Is unable to answer the questions asked or is unable to answer them sufficiently.	Interprets some of the questions asked **to some extent**; is able to **answer most** of the questions raised.	Interprets and analyses the questions asked; is able to **answer** the questions raised.	Interprets and analyses the questions asked **explicitly**; is able to answer the questions posed **properly and in a well-founded** manner.	Interprets and analyses the questions asked **explicitly and in detail;** answers the questions posed to the point, properly and in a well-founded manner. Places the **question and answer in a broader context**.	Interprets and analyses the questions asked, both explicitly and in detail; answers questions to the point, properly and in a well-founded manner. Places questions and answers in a broader context. **Is confident to take a standpoint** and defend it. **Stimulates interaction**.