

# Masters Assignment Description

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## General information and objectives

The master's assignment is the final part of master's programme Chemical Science & Engineering. During the master's assignment, the student performs individual scientific research under supervision of a member from the chosen research group. The assignment is completed with a master's thesis and a defence (colloquium). The master's assignment takes 40 EC or 45 EC, depending on the specialization you are taking.

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### Objectives of the master's assignment

During the assignment, students have to independently perform a relatively complex and large research project, which meets certain scientific criteria. The learning objectives of the master's assignment are defined in the EER of the programme, where it is stated that the student must be able to learn how to independently complete a research assignment of a certain size and degree of complexity.

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### Requirements for completing the Final Master's Project

The student has to show and develop a sufficient level of:

- Scientific work, including showing considerations of the “how and why” of the research,
- Creativity, including making links and using of know-how from former studies and literature,
- Working speed and methodology,
- Progress of personal research contribution,

Oral and written expression skills to clearly report the executed work.

## Mobility Online procedure

To find a suitable MSc assignment, you have to contact the staff of the research group you want to do your assignment with. Most students talk to different staff members to find the project they want to do. After agreeing on a project, the student, staff member and mentor/daily supervisor agree on a project description.

Before you are allowed to start with your assignment, you need to follow a procedure in Mobility Online to get your assignment approved. Mobility Online is a system the UT uses to register graduation assignments. This has to be done at least 1 month before the start of the assignment.

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### Before the start

The way you need to start the graduation registration in [Mobility Online](#) depends on where you will execute the master's assignment.

- Entire assignment inside the UT: **four weeks before the start** of your master's assignment, you should start the registration in Mobility Online by choosing the standard registration.
- Entire assignment outside the UT (NL or abroad): **six weeks before the start** of your master's assignment you should start the registration in Mobility Online by choosing the extended registration. *If you are going to do your master's assignment outside the UT, you also need to write a formal request to the Board of Examiners.*
  - *Please note: The master's assignment should be carried out in a research chair of the university. Exceptionally and under strict conditions, the Examination Board may allow that a master's assignment is carried out partially or completely outside the UT. The student who is planning an assignment outside the UT should provide a written statement by the research chair indicating the reasons why the assignment cannot be done within the chair and therefore has to be performed externally, as well as what the relevance of the external assignment is for the research of the chair. The initiative for such a construction lies with the chair and the chair remains responsible for the content and supervision of the assignment.*
- Parts of the assignment outside the UT (NL or abroad): **six weeks before the start** of your master's assignment you should start the registration in Mobility Online for the period you are outside the UT by choosing the extended registration. You also need to perform the standard registration to register the entire period of your assignment. *In addition you will need to provide a written statement by the research chair indicating the reasons why the assignment cannot be done within the chair and therefore has to be performed externally, as*

*well as what the relevance of the external assignment is for the research of the chair. The initiative for such a construction lies with the chair and the chair remains responsible for the content and supervision of the assignment.*

- Use the “**MSc final project contract and Course List**” form, available under [FORMS](#), not the one in Mobility Online itself(!)
- **Please note:** Before beginning your thesis, you must obtain formal approval from the Examination Board. Starting without this confirmation is at your own risk. To help expedite the approval process, your internship supervisor may submit a statement to the Board confirming that you are expected to successfully complete your internship.

**Sign-in with your UT student number and UT password.**

- Fill in the form (proposal form).
  - Make sure the Faculty, Study level and Study fields are correct.
- Committee information:
  - Committee chair: the chair of your committee
  - Committee member UT: daily supervisor (*If you have a daily supervisor who doesn't work at the UT, you can put the daily supervisor in the next field.*)
  - Any other committee members can be filled in the remaining fields
- Course code: the master assignment has two course code

**Chemical & Process Engineering (academic year 2017 and earlier) and Molecular & Materials Engineering:**

- 201300054 - Master Thesis Scientific and Research Aspects (25 EC)
- 201300055 - Master Thesis Reporting and General Aspects (20 EC)

**Chemical & Process Engineering (academic year 2018 and later)**

- 201800413 - Master Thesis Scientific and Research Aspects (20 EC)
- 201300055 - Master Thesis Reporting and General Aspects (20 EC)

**From academic year 2024 – 2025 and later, all specialisations (CPE, MOM, MAT, MSE) use the following course codes:**

- 201800413 Master Thesis Scientific and Research Aspects (20 EC)
- 201300055 Master Thesis Reporting and General Aspects (20 EC)

***Please note for students of the MME track (cohort 2020 through 2023): A compulsory part of your assignment is a Societal Embedding course. You need to register for that course as well. The course code is 202001556. You will receive more information about the organization of this course at the Canvas page after registration.***

- Fill in the title and description of the thesis.

- The remaining field (remaining courses) do not have to be filled in. *You have to fill that information using the form.*
- After registration, you receive a confirmation of registration e-mail, including login details and a link to sign in. This link should be used to see the progress and if any actions are required.
- The next step is to upload the NT form to request for approval of the Master assignment. This step is important as we cannot approve your request without this form.
  - Download the “**MSc final project contract and Course List**” form, available under [FORMS](#).
  - Fill in the form from, collect the signatures and upload this form as a PDF file under Upload Application Form.
  - To add your study progress overview to the form, please download your overview in Osiris and combine the two pdf’s (for example by using this website: <https://smallpdf.com/nl/pdf-samenvoegen> ([Links to an external site.](#))[Links to an external site.](#)).

Your application form needs to be checked by the examination board. This will be done after you have finished the steps in Mobility Online.

When the application is marked as approved by the coordinator, the examination board has approved your application and you are allowed to start with your Master assignment. You will receive an automatic e-mail when your application is approved. You will also receive an e-mail from BOZ in which they let you and the graduation committee know that you are allowed to start. **Please be aware that without approval from the Board of Examiners you are not allowed to start!**

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### **At the end of your assignment**

When you are in the process of finalizing your assignment and planning your colloquium, you have to download the form “**Application MSc Colloquium**” under [FORMS](#), fill it in and send it to BOZ ([boz-mcse@utwente.nl](mailto:boz-mcse@utwente.nl)), it cannot be uploaded to Mobility Online. After receiving the form the project will be marked as approved or incomplete by the coordinator. The application will be marked as finished after the thesis has been submitted to BOZ and the grade has been registered in OSIRIS.

If you have any questions regarding the procedure, please contact Charlotte Diepenmaat ([c.c.diepenmaat@utwente.nl](mailto:c.c.diepenmaat@utwente.nl)) or BOZ ([boz-mcse@utwente.nl](mailto:boz-mcse@utwente.nl)).

## **Before you start your assignment**

### **Choice of the master's assignment**

We recommend students to start as soon as possible with their search for an assignment. If you start earlier the possibility to work on a research which you find really interesting is bigger. This

may be well before the actual planned start of the assignment (*all paperwork should be handed in at least one month before the start of the assignment*). The assignment should be performed at a research group that is associated with the CSE Master programme.

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### **Starting requirements**

Before the start of the master's assignment, a student should fulfil the following requirements:

- The internship has been completed successfully. It is not necessary to already have a final grade for the internship, however, the report must be handed in.
- You must have finished almost all courses of the compulsory programme. You may miss in total 10 EC of courses.

These requirements are listed in the EER of the CSE Master programme.

**Please note:** The master's assignment should be carried out in a research chair of the university. Exceptionally and under strict conditions, the Examination Board may allow that a master's assignment is carried out partially or completely outside the UT. The student who is planning an assignment outside the UT should provide a written statement by the research chair indicating the reasons why the assignment cannot be done within the chair and therefore has to be performed externally, as well as what the relevance of the external assignment is for the research of the chair. The initiative for such a construction lies with the chair and the chair remains responsible for the content and supervision of the assignment.

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### **Supervisors and the graduate contract**

Based on the topic of your assignment, you will be assigned a mentor, who will be your daily supervisor during the assignment.

With the chair of the research group, you will fill in the "**MSc Final Project Contract and Course List**" under [FORMS](#), which describes the proposed assignment and the master's assignment committee. You must submit this contract at least one month before you start your master's assignment to the Board of Examiners using Mobility Online. If it is clear that you meet all formal requirements to start the MSc Final Project, then it may take under a month before you hear back from the Board of Examiners."

The master's assignment committee should meet the following requirements:

- The chair of the research group is part of the committee.
- The daily supervisor is part of the committee (if the daily supervisor is a phd student, then the staff member who supervises the phd, must also be a member of the commission).
- The committee should have at least one member who is a member of the scientific staff of another research group. This person may be someone of another UT faculty.

- In case of an external assignment (in a company, research institute, etc.), besides the above-mentioned persons an extra company supervisor should be part of the committee.

In addition to the information above, the graduate contract contains a full list of courses (with results) of your master's programme (i.e. the examination subjects) and a contract (with planning) between you and the research group.

You should hear back from the Board of Examiners approximately two to four weeks after you submitted your application. Since the actual start date might be different from the one you indicated on the application, BOZ should be notified when you start your assignment.

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### **Societal Embedding (MME students only) - from 2020 onwards**

Students of the MME track (cohort 2020 and later) also have to take the course Societal Embedding during their assignment. It is a compulsory part of your assignment. You need to register in Osiris for the course (course code 202001556). You will receive more information about the course and the organization on the Canvas page of the course. There will be some classes organized in Q3.

## **During your assignment**

### **Choice of the master's assignment**

We recommend students to start as soon as possible with their search for an assignment. If you start earlier the possibility to work on a research which you find really interesting is bigger. This may be well before the actual planned start of the assignment (*all paperwork should be handed in at least one month before the start of the assignment*). The assignment should be performed at a research group that is associated with the CSE Master programme.

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## Finishing your assignment

### Before the colloquium

The final part of the assignment consists of preparations for the final version of the thesis and the colloquium. The colloquium itself is the conclusion of the master's assignment, during which you will defend the master's thesis before the committee and interested others. *Please note that you can only graduate if you have also completed all other parts of the CSE Master programme!*

When you are in the process of finalizing your assignment and planning your colloquium, please fill in the form **CSE application MSc colloquium**, available under [FORMS](#). One month is required to comply with the meeting frequency of the Board of Examiners and is required for BOZ to generate a diploma. BOZ will give her consent and provide a list of grades. You should check this grade list for correctness and completeness. This list can be adapted, only until a week before the colloquium and only based upon formal written evidence from grade slips, formal official grade lists by BOZ and official emails.

Additionally, upon completion a digital version of the final Master's thesis has to be handed over to [BOZ-CSE](#).

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### The master's thesis

- The thesis must be written in English.
  - The number of printed theses has to be conferred with the mentor of your master's assignment committee. Reproduction of the report (copying and binding) has to be conferred with the secretary of the research group.
  - A digital version of the thesis has to be sent to BOZ. The master's theses are required for the accreditation of the study programme.
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### Points of evaluation

- Contents and structure (contents, introduction, summary, illustrations, clear formulation)
  - Language and style (is it suited for the people who should read it)
  - Discussion and conclusion of results plus recommendations for future work
  - References, list of symbols, description of the experimental set up, etc.
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### The colloquium

- The sheets for the colloquium must be in English.
- The presentation should be given in English. Exceptions can be made by the chair of the research group.

- The presentation is primarily meant for the scientific members of the research group (and possibly the research partners or clients) and in second place for other interested parties such as fellow students, family, etc.
  - The speaking time should be approximately 30 minutes; the defence afterwards lasts approximately 10 minutes. Exceeding the 30 minutes of presentation limits the time for the defence. However, this too is an essential part of the colloquium to be taken into account in the overall evaluation.
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### **Arrangements**

- The student is responsible for planning the colloquium with all committee members present.
  - A location for the colloquium will be arranged after consent of BOZ and will be done by BOZ. (All courses have to be completed. Otherwise presentation of the diploma is not possible!)
  - The student is responsible for arranging the required presentation material (beamer, pointers, lights, etc.) at the arranged location for presentation. It is advised to check this in advance. (Consult the secretary of the group if necessary.)
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### **Points of evaluation**

- Contents and structure
  - Message and media (selection of presented work considering the attending parties, functionality, readability)
  - Explanation of used methods and results (clarity)
  - Style of presentation and use of audio-visual matter (functionality, clarity)
  - Presentation skills (interaction with audience, speech, maintaining public's attention, enthusiasm)
  - Discussion / answering questions.
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### **After the colloquium**

Directly after the colloquium, the master's assignment committee determines the final grade for the master's assignment and presents the diploma and the temporary grade list on which the mark for the master's assignment is still missing. After a few days, BOZ sends the final grade list with the mark for the master's assignment to the student's home address.

The student may invite guests for a drink after the colloquium, which is up to the student and has to be personally arranged.

## Assessment and grading

The student will be evaluated on two major aspects during the assignment. At the end of the colloquium the student will receive two grades, one for each aspect. The content of both aspects is as follows:

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### Assessment research qualities

- Problem analysis (definition of the research goals),
  - Execution of the graduation project (theoretical skills & experimental skills),
  - Analysis of the results (complexity of the research, and feed-back to the research goals),
  - Accessibility and usefulness of the results (can the results be published?).
- 

### Assessment of the reporting and general aspects

- - **Report (thesis)**
    - Contents and structure,
    - Design and lay-out,
    - Language,
    - Discussion of results, conclusions and recommendations,
    - Literature references, list of symbols, description of laboratory set-up, etc.
  - **Colloquium**
    - Contents,
    - Message, and connection to public,
    - Explanation about methods and results (clearness),
    - Style of presenting and use of audio-video support tools,
    - Discussion and response to questions.
  - **General aspects**
    - Independence of student,
    - Originality and creativity,
    - Attitude, effort, pace, dedication, commitment,
    - Co-operation with “problem owner” and with co-workers.

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## Two grades for the master's assignment

The Master's assignment is separated into two parts. Objectives can be set in the following manner.

- **Execution of CSE research**
  1. During the Master's assignment students learn how to work independently on a rather complex and extensive research project, which meets scientific criteria. This research can be split into multiple stages:
    - Problem analysis: understanding a certain research field, recognizing problems and formulating research questions and approaches,
    - Execution: the theoretical and experimental approach and execution,
    - Result analysis: analysing the results and their relevance.
  2. Written report of research
  3. Oral presentation of research
  4. General aspects of the assignment
    - The assignment has to be carried out with a large degree of independence. The student is primarily responsible for the progress, planning and discussion with supervising lecturers.

The first grade will be given on the execution of the research (1) and the second grade will be based on the other three objectives (2-4) in the following manner:

- Execution of research (20 EC or 25 EC)
- Report, presentation, and general aspects (20 EC)

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## Assessment form

Here you can download the **assessment criteria form**, available under [FORMS](#), which is a list of criteria that are used in the assessment of the MSc final project. Make sure all your committee members do have a copy of this.

For students of the MME track (cohort 2020 and later) the course Societal Embedding is a compulsory part of their MSc assignment.

## MME: Societal Embedding MSc assignment

For students of the MME track (*cohort 2020 and later*) a compulsory part of the MSc Final's Master Project is the Societal Embedding part.

To take part, **please enrol in 202001556- Societal Embedding MSc assignment NT & ChE**. You will receive more information about the organization and classes via the Canvas page of the course.

Classes will be organized during the third quarter. If this is not fitting your planning, please contact your study adviser for more information.