

MASTER GUIDE

MECHANICAL ENGINEERING

(with focus on the graduation assignment)

Draft version 2010/11

This guide is subject to change, this version is printed on 31-08-2010
The latest information is available via www.me.utwente.nl
Suggestions for improvements are welcomed.

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1. Before the start of the master programme

The Mechanical Engineering Master's degree covers two years. During the first year, the student will familiarize with theory on the chosen specialization and profile. These courses will be concluded by either regular written exams or by assignments and an oral exam referred to the assignment. Setting new deadlines for their own subjects will be a new concept to most students, and may lead to some delay during the first half year. The second year will comprise an internship in a company or a research institute and an engineering qualification assessment.

In the course of the bachelor programme, the student will be introduced to the set-up and organization of the master programme Mechanical Engineering

Every student chooses a profile and a specialisation. The profiles reflect the academic competencies to be acquired. One out of the three competence profiles has to be chosen [2]:

1. *Research and Development (R&D)*
2. *Design and Construction (D&C)*
3. *Organization and Management (O&M)*

In parallel, the prospective master students select an area of specialisation, in one of the following research groups (departments and chairs) of the Faculty of Engineering Technology (CTW).

1. *Applied Mechanics (AM/TM)*
 - a. *Mechanics of Forming Processes (MFP)*
 - b. *Structural Dynamics and Acoustics (SDA)*
2. *Biomechanical Engineering (BE/BW)*
3. *Design, Production and Management (DPM/OPM)*
 - a. *Design Engineering (DE/OT)*
 - b. *Industrial Design and Manufacturing (IDM)¹*
 - c. *Production Management (PM)*
 - d. *Production Technology (PT)*
 - e. *Surface Technology and Tribology (STT/OTR)*
4. *Elastomer Technology and Engineering (ETE)*
5. *Engineering Fluid Dynamics (EFD/TS)*
6. *Multi Scale Mechanics (MSM).*
7. *Engineering of Fibrous Smart Materials (EFSM)*
8. *Mechanical Automation, Mechatronics, Laser Technology (MA/WA)*
9. *Thermal Engineering (TE/ThW)*

Preferably, prospective students have made a draft programme before the end of the study year. The compulsory and elective courses are summarised on the programme's website: http://www.me.utwente.nl/master_programme/studyprogramme/master_profiles.

This initial programme should comprise profile specific courses, core courses, specialisation courses and elective courses, totalling (at least) 60 European Credits (EC).

Table 1 gives a typical structure and study load (in EC) of the master programme is given.

TABLE 1: TYPICAL STUDY LOAD AND STRUCTURE MASTER PROGRAMME

First year	<i>Quartile 1</i>	<i>Quartile 2</i>	<i>Quartile 3</i>	<i>Quartile 4</i>	<i>Total</i>	<i>Margins allowed</i>
Profile courses	10	5	5		20	
Courses other profiles		5			5	
Core courses	5	5	5	5	20	15 -20
Specialized courses			5		5	0 -10
Elective courses				10	10	10 -15
<i>Subtotal</i>	15	15	15	15	60	
Second year						
Internship	15	5			20	15 - 20
		10	15	15	40	40 - 45

¹ The status of this specialisation is not certain at this moment.

Total	30	30	30	30	120	120
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This proposed programme need to be signed by the Chair Holder, the student and the Director of Education before handed in to BOZ. If any changes are required, a separate document is needed for approval [2].

2. Internship – student mobility

The internship is a compulsory part of the master programme, and will usually take place at the start of the second year, as can be seen in Table 1. Even though it is up to the student to find a suitable internship position, the Faculty's Mobility Centre (MC, see chapter 5 for more contact details) may provide assistance.

One of the goals of the master programme is to have all students experience work and life abroad. Students are therefore encouraged to look for an internship position abroad, and are also advised to start planning and arranging the internship at least a half year before the start of the assignment.

Student Mobility System

When the student starts to search for an internship, registration at the MC is obligatory. This can be done with the use of the Student Mobility System (SMS) [4]. This way the MC can keep track of the student, but it will also provide access to the Blackboard page 'Master Internship' (191199152).

According to the government's policy the university should be able to provide information about all students whenever this is relevant. In case of diseases, emergencies, political turmoil the MC should provide information about the students' whereabouts. Besides, monitoring is meant to avoid delays and to guarantee an instructive experience.

Blackboard

The Blackboard page 'Master Internship' (191199152) will provide the student with more elaborate information on the internship, such as tips for searching for, and preparation, execution and finishing off of the internship. Furthermore, several examples of executed internships are given, as well as a list of open offers, both nationally as internationally. The page 'CS Internationalisation' (191199160) is available to any Bachelor and Master student and provides more opportunities for international exchange options.

Steps to take

Before setting up an internship, it is recommended to read the 'Internship and Bachelor Final Assignment Manual' [5]. This document however has been set up for all programmes of the university. Be aware that the Mechanical Engineering programme has some deviating requirements. For specific instructions, it is therefore necessary to read through the Blackboard page 'Master Internship' (191199152) first. The next step will be to register at the SMS followed by a meeting with the ME Internship coordinator for further steps to take. Contact details are given in chapter 5.

3. Graduation assignment

The graduation assignment is the concluding part of the master programme. With this assignment the student will prove to be able to function on an academic level and to deliver a valuable contribution to the research field within the chosen specialisation. Besides the proof of ability, the learning effect is most important; the student will, for the first time work independently on an academic level amidst colleagues who have more seniority. Normally, finishing the graduation assignment will conclude the Master programme. In this chapter all steps which need to be taken are elaborated. In chapter 4 a typical time line will be given as a quick reference guide.

3.1. Set-up and organization

The student can choose to take an internal assignment provided by the University of Twente, or an external graduation assignment provided by another university, a research institute, or a company. IN general, but especially for an assignment outside the university a good planning and clear appointments need attention. External assignments tend to be delayed and extended.

Graduating internally within a research group usually involves specific research on the specialty subject of the Chair and will often be a part of a larger research (PhD programme). Usually these

research programmes are commissioned and financed by an external principal, providing an evident link between the theory and the practice.

Together with the graduation supervisor², the student will set up agreements about the starting date, duration and/or ending date of the assignment, the corresponding European Credits, and the intensity of supervision, before the assignment is started. If the assignment is carried out externally, the internal supervisor will be responsible for having an external supervisor being appointed within the hosting university, institute or company. This external supervisor needs to agree on the assignment and the corresponding agreements made with the (internal) graduation supervisor. The graduation supervisor will stay responsible for the contents and the scientific level of the assignment, and also has to make sure the assignment can be carried out completely within the set period.

When the assignment has been selected and some basic agreements have been made, the student is required to take the following steps:

1. Set up a terms of reference containing all agreements concerning the assignment made with the graduation supervisor.
2. Announce the starting date and location of the assignment as soon as possible at BOZ. This can be done online via 'Details Master Assignment' [6].
3. Make agreements on the finishing of courses/subjects still left open. Please note: ***all subjects and the internship need to be completed before the graduation assignment can be finished.***
4. Determine the working hours in correspondence with the supervisor.
5. Agree upon the frequency of progress reviews with the graduation and/or external supervisor. The graduation supervisor will be responsible for adequate supervision during the assignment. If necessary, the Director of Education can play a mediating or supporting role.
6. Set-up an initial planning.

3.2. Planning of the assignment

It is not always easy to set up a good planning when starting an assignment. It might prove to be more practical to set up the planning in two steps in consultation with the graduation supervisor. Firstly, when agreeing upon the subject and assignment itself, make a rough planning including the starting date, the time necessary, holidays, any time required for subjects left open, and some time for unforeseen circumstances. Doing so will provide a more solid deadline and ending date. Provide the Chair's secretary with this ending date in order to make sure the graduation supervisor will be available too. Be aware that during the months July and August planning is to be influenced because of summer holidays and scientific congresses. Also, do not forget to re-enrol when graduating after August 31st.

A more detailed planning can be made a few weeks after the start of the assignment. Of course, a planning will be detailed further in the course of the period and be discussed regularly during the progress meetings with the supervisor.

Furthermore, it is recommended to set up a template for the final report right after the start of the assignment, and to present this to the graduation supervisor. This template will help to structure and organise the work, to register the results of brainstorm sessions (also thoughts which prove to be unproductive afterwards) and stimulate the student to not be held off the actual writing of the report until the end of the period. A global outline and requirements for the report are given in paragraph 3.6.2.

The student is required to provide BOZ³ with the exact details of the assignment subject and title. This is however, at the start of the period usually not yet clear. After approximately two months, the student will have a more detailed view of the assignment and the exact assignment can be set and given to the secretary of the Chair and another copy to BOZ.

3.3. Execution of the assignment

The first part of the assignment often will be a literature survey. This implies defining the research area, researching the status quo of the topic, reading some prominent authors in the specific research area, and reading, judging and selecting the literature. It is important to be critical when reviewing references and articles and to make sure the literature is of any scientific importance and relevance to the subject. It is therefore recommended to visit the faculty's information specialist (see chapter 5 for

² One of the professors of the university

³ Education Support Office

contact details) and to thoroughly read through the tips given at the University Library (UB) website [7].

To ease the retrieval of a used article or book, it is recommended to use the software 'End Note', which is available at the NSC (see chapter 5 for contact details), and to create a database of the complete literature references, accompanied by a short summary of the contents or a notation of the most important results. This system will prove to be quite useful when creating the literature references for the final report.

When a part of the research has been completed, it is recommended to write everything down in a compact manner. Also, it is useful to keep a daily or weekly log containing activities, thoughts, remarks, definitions, dead ends, and choices and assumptions made. This will provide useful material for the final report and will reduce the work load considerably during the last weeks of the period. The writing down of partially formed ideas often creates clarity and forms the final report whilst working on the assignment. Moreover, writing down helps to sharpen the train of thought.

It is furthermore recommended to have a progress and schedule review meeting with the graduation and/or external supervisors once every two weeks. As preparation for such a review, it is necessary to clearly write down all recent activities with respect to the progress of the assignment. In case the assignment is carried out within a company, the student will have to arrange the meeting with the supervisors, set up an agenda, and write a progress report. The location for such a meeting can be at the company or at the University.

In case of issues or problems during the assignment, make sure to provide feedback quickly. Also, report any interruption of the assignment caused by e.g. sickness, leave, holidays, other obligations which might affect progress, stagnation in the supply of needed parts and the preparation and/or taking of exams, immediately to the supervisors and if necessary to BOZ. When there is a delay and an extension of the assignment period is required, make agreements on the following directly:

1. Who (e.g. Chair, company, or student) causes the delay? Please notify BOZ through the form 'Extension Master Assignment'.
2. Are there consequences for the student support of the IB-Group?
3. Will there be a compensation for the extra time in the form of European Credits or financially?

3.4. Ending of the assignment

When the final report has been finished, a limited amount of copies can be printed by the Chair's secretary. At least two weeks before the graduation exam, each member of the graduation committee needs to have received a copy of the final report. A digital version in PDF-format needs to be e-mailed to BOZ, and the Chair's secretary also requires one copy as well as the original version. Furthermore, the graduation procedure (paragraph 3.5) can be initiated at least four weeks before graduation after the "green light" is given by the internal supervisor and confirmed by the chairman of the graduation committee.

3.5. Graduation procedure and ceremony

The colloquium and graduation ceremony can only be initiated when the following steps have been taken:

1. The student will contact the graduation supervisor well in advance to determine the graduation committee, date and room.
2. The student needs to hand in at least four weeks before graduation the form 'Registration Master Graduation' [8] at BOZ. The composition of the graduation committee proposed needs approval from the Examination Committee.
3. The student will have to announce the colloquium at the secretary of the Chair, using the designated form 'Colloquium' [9]. Furthermore, a room needs to be arranged, possibly with the help of the secretary. Finally, BOZ will publically announce the colloquium.
4. BOZ will send an e-mail containing all data concerning the study phases to the student and graduation supervisor with the request to check and if necessary change that data within one week.
5. All grades with the exception of the grade of the graduation assignment need to be handed in at BOZ at least three weeks before graduation.
6. The student will be registered at CSA by BOZ at least two weeks before graduation when all steps above have been taken.

7. The student needs to make sure that he or she is still enrolled at Mechanical Engineering at the time of graduation.
8. CSA will check whether the student has enrolled and will check whether or not the student has taken all steps as mentioned above.
9. BOZ will have made, marked and registered all diplomas for one week at CSA on every Tuesday.
10. The student is required to send a digital copy in PDF-format of the thesis to BOZ at least one week before graduation.
11. If all steps mentioned above have been taken, the exam will be held and if all goes well, the student can sign and receive the diploma, which has also been signed by the chairman of the Examination Committee and the graduation supervisor. After graduating the diploma supplements and grade lists will be sent to the student's home address.

If due to unforeseen circumstances BOZ might not be able to present the diploma at the day of the graduation ceremony, the diploma can be received at a later date at BOZ or the Chair.

The graduation ceremony will often be held at a different location than the colloquium. During the ceremony, the graduate will be congratulated by the graduation supervisor, after which the diploma will be signed and handed out, after which the new engineer will have the opportunity to address the supervisors and graduation committee. If there is felt a need to hand out little gifts, it is recommended to do so outside the official protocol.

3.6. Assessment

The assessment of the assignment will be done by the graduation committee, which will be formed by the graduation supervisor and will consist of the following members:

1. The Chair holder (full professor), who will also chair the graduation committee;
2. The graduation supervisor(s);
3. A member of the University teaching staff who is not a member of the group of the Chair holder.

The assessment will be based on the evaluation of the following aspects:

1. Colloquium (paragraph 3.6.1).
2. Master research and thesis (paragraph 3.6.2).
3. Oral defence (paragraph 0).
4. Execution of the graduation assignment, also known as the M-assignment (paragraph 3.6.2).

The final mark will be determined based upon the separate aspects. It is however not an average, but an integral trade-off of the level of contents of the work done (depth as well as width of the scope), the procedure and planning of the assignment, including the independency, and the communicative aspects including the communication with principals, supervisors and fellow researchers, the report, and the oral defence.

Scope of the performance assessment

The graduation committee will assess whether the student has fulfilled the learning objectives set by the Faculty. The (execution of the) graduation assignment, including thesis, colloquium and oral defence provides the information for this assessment. The assessment will therefore exceed the scientific result of the graduation assignment.

The learning objectives set by the Faculty in the field of Mechanical Engineering are:

1. To understand the contents, the state of the art, the used methods and insights of a sub-discipline of Mechanical Engineering.
2. To have the ability to design and model.
3. To have engineering skills such as handling and solving problems in a focused and planned manner.

Other learning goals related to competences needed by any academic are:

1. To work independently and to take initiatives in complex situations.
2. To have the ability to communicate with colleagues in any field of work and with principals or stakeholders.
3. To have the ability to master the details of a new problem or to gather new knowledge independently.

These six aspects will always be reviewed explicitly during the final assessment. Another important learning objective is to gain insight in a corporate environment, which will have been judged upon after the internship. Other objectives, such as 'the ability to work in a team', have been assessed after the Bachelor projects and will normally not be taken into account during the graduation assessment.

Assessment of the process

The following aspects may be addressed when assessing the graduation assignment:

1. The ability to work with others.
2. The ability to work independent, including:
 - a. The ability to take initiatives.
 - b. The ability to be creative and to act in an original manner.
 - c. The understanding and overview of the given problem.
 - d. The ability to cope with ill-defined situations and to improvise.
3. The ability to plan, including:
 - a. The ability to plan adequately.
 - b. The ability to act according to agreements made.
 - c. The ability to make timely decisions.
4. The ability to be critical about literature, conclusions and self-evaluation.
5. The ability to work systematically.

3.6.1. Assessment of the 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 the internal supervisor. If it regards confidential information, the presentation should be approved by the external supervisor on beforehand. Be aware that confidentiality can be a disadvantage for the student, because showing his competence is more complicate.

Below some tips are given.

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. This should not take more than 10 minutes;
 - b. The most important part will take about half an hour, and will cover the results of the work done, as well as the encountered problems and challenges. Do not go too much into technical detail, but provide outlines and use a logical order in the structure. This part of the presentation should mainly be addressed to the assessors and not to the general audience.
 - c. The final part of the colloquium should consist of the main conclusions and recommendations for future research, and should take about 10 minutes.
 - d. After the presentation there will be roughly 15 minutes for questions from the audience.
2. It is important to present an interesting colloquium. Elaborate on relevant concepts and do not go into too much technical detail. Make a distinction between the main and side issues and limit the main issues to about 45 minutes. Show that you are in control and that you know the subject of the colloquium.
3. For the presentation media such as a computer, laptop, whiteboard and beamer can be used. Arrangements for these materials can be made with the technical services (FD) at the Horst reception desk, and a room can be arranged with the help of the Chair secretary. Make sure the media and presentation are present and have been tested before the start of the colloquium.
4. Visit other colloquia to obtain a good view on how other students present and learn from their mistakes.

3.6.2. Assessment of the Master thesis

The graduation report serves to inform the graduation committee about the completed assignment. Furthermore, it can be used to inform those who would like to use the results, conclusions and recommendations. These people can be successors in the same field of research or members of the laboratory or company where the assignment might have taken place. Information needed by these people in this case could be business, relevant and efficiency data. This means that the thesis should not be a study book, nor a diary or novel about the assignment. On the other hand, it should not be too compact so that the report is accessible to a wide professional audience. The report needs to be written in English and should be accompanied by an English summary and a Dutch summary for students from outside The Netherlands. Also it is recommended to have a draft version checked and commented by fellow students, which will affect the quality in a positive manner.

The structure of the thesis

The thesis usually is set up in two main parts:

1. A general section with a description of the research and a short summary.
2. A specific section with the appendices, drawings, etc.

The general section will usually contain about 50 A4-pages of font 11pt. A more voluminous report will not always be assessed more positively. The amount of pages will depend on the subject and the target group, e.g. employees of a principal company. The report should contain the following aspects:

1. Title page including:
 - a. The report title which should be a compact summary of the report, which should be set in agreement with the graduation supervisor.
 - b. The author's name including all initials.
 - c. The month and year of publication.
 - d. The name 'University of Twente'.
 - e. The name 'Mechanical Engineering' and the Chair name.
2. Table of contents.
3. Nomenclature if necessary.
4. Short summary of approx. 100 words in Dutch (for Dutch speaking students) and English.
5. Description of the assignment as agreed upon.
6. Analysis and specification of the problem and the technical relevance of the solution. This should be accompanied by results of the literature study.
7. Description of the working method used to create a solution, including models, analysis methods and experimental verifications.
8. Results.
9. Evaluation of the work and prognoses, as well as clues for further research or application. This includes a discussion of the validity and quality of the found results.
10. Alphabetical ordered list of references in a proper way. It might be useful to use the software 'End Note' to create such a list.
11. Glossary (to be considered)
12. The appendices including calculations, detailed experiment descriptions, result tables, graphs and drawing.

Other materials such as computer print outs and information on DVD or CD-ROM, required for future continuation of the research can be handed over to the graduation supervisor.

Status of the report

All reports produced within a Chair will be registered and receive a Chair related number. This number is available at the Chair's secretary and will be linked to the title, the author and the status of the report. The status of the report dictates who is allowed to view and/or use the report and can be set by for example the principal company. There are two statuses, 'Normal' and 'Confidential'. A confidential report is archived by BOZ; only the graduation supervisor may decide, in agreement with the principal, who is allowed to view and/or use the report.

In most such cases the student and supervisors will sign a declaration of confidentiality. Furthermore, a confidential report needs to bear clearly the word 'CONFIDENTIAL' in both the header and footer, and will usually lose its status after a period of three years. A too long period of confidentiality however could be a disadvantage for the student since it will not be possible to disclose any information regarding the graduation assignment when applying for a job. Reports, without or with - if necessary - confidential details should be sent to BOZ. All archived reports will eventually made public by the UT library.

3.6.1. Assessment of the oral examination

The oral examination of the assignment will be held by the graduation committee including, if necessary, some internal or external experts. This private meeting will usually be held after the colloquium and will take approximately one hour. The graduate is recommended to have a fellow student to guide the rest of the audience to some place elsewhere.

3.6.2. Assessment of the ME competences

During the assessment of the contents, the following aspects will be covered:

1. Whether or not the assignment as agreed upon has been completed. This does include however any approved changes made during the period.
2. The quality of the:
 - a. analysis of the problem and theoretical substantiating.
 - b. analysis and accountability of the results, the evaluation and the coherence.
 - c. level, originality and the applicability of the subject.

- d. documentation of the assignment and results.
- 3. The quantity, in relation to the weight, complexity and size of the assignment and subject.
- 4. The embedment in and relation to other research and literature.
- 5. The conclusions in relation to the problem formulation, the placement of own work in context, and suggestions for future research and activities.
- 6. The level of originality, creativity and own initiative.

3.6.3. Grading

All assessors will each incorporate all their impressions into one final grade, ranging from 1 to 10, with 10 being the highest possible grade. The procedure is as follows:

1. Each assessor determines an individual grade for each of the following four aspects:
 - a. Colloquium
 - b. Report / master thesis.
 - c. Oral defence.
 - d. M-assignment: the reflection on the process (did the candidate show that (s)he was in command).
2. The assessors will present their grades and reach a set of collective grades for each of the four aspects as mentioned above.
3. Together a final grade is determined. Generally the committee chairman will make a proposition based on the collective grades. This final grade is based upon, but is not an average of the four separate grades: the committee will evaluate whether the student has proven to be worthy to be an academic engineer.

When the graduation committee reckons there is a case of an outstanding study achievement, the chairman can propose the Examination Committee to add the title '**with honour**' to the Master's diploma.

Other outstanding study achievements and/or graduation assignments may be nominated for awards as provided by institutes and/or companies. These awards may include the UT-CTW graduation award, the KIVI/NIRIA award, the Corus award and the Unilever award.

3.7. Finalisation

After graduation the following is to be expected:

1. Return all media such as books, manuals, reports, equipment, and DVD's which have been borrowed, to the rightful owner.
2. Return access keys to the manager and ask, if applicable, for a restitution of the deposit.
3. Hand in, if applicable, the OV-year card on time. More information available at BSD.
4. Ask, if applicable, restitution of the overpayment of the tuition fees at the CSA.

4. Time line

This chapter gives the student a quick and global time line for the graduation assignment, including all information as given in chapter 3.

When	Activity
Approx. six months before starting date	Start search for assignment, location and principal
	Set up agreements made with the graduation supervisor and any external supervisors upon the starting date, duration, ending date, number of European Credits, supervision, location and working hours in a declaration of intention.
	Announce the starting date and location to BOZ using the form 'Details Master Assignment'.
	Make agreements with the graduation supervisor upon any open subjects.
	Set up an initial planning.
Starting date	Start assignment with literature research.
	Set up a detailed planning.
Approx. two months after starting date	Set final assignment details and provide these to BOZ.
	Provide graduation supervisor with final ending date in order to have the graduation committee arranged.
	Finish assignment.
At least four weeks before ending date	Register for the Master diploma and colloquium using the forms 'Registration Master Diploma' and 'Colloquium'. [8] The student needs to make sure to be still enrolled in Mechanical Engineering when graduating.
	Announce the colloquium to the Chair and arrange a room.
At least two weeks before ending date	Have printed copies sent to the graduation committee members and one including the original version to the Chair secretary.
At least one week before ending date	Have one PDF version e-mailed to BOZ.
Ending date	Have colloquium and graduation ceremony.

5. Information and contact details

Information of the research groups (with abbreviations in English/Dutch)

Applied Mechanics	AM/TM	053-489 2460	http://www.tm.ctw.utwente.nl/
Biomechanical Engineering	BE/BW	053-489 4428	http://www.bw.ctw.utwente.nl/
Design Engineering	DE/OT	053-489 2520	http://www.opm.ctw.utwente.nl/
Elastomer Technology and Engin.	ETE	053-489 2529	http://www.ete.ctw.utwente.nl/
Engineering Fibrous Smart Materials	EFSM	053-489 3596	http://www.ctw.utwente.nl/efsm
Engineering Fluid Dynamics	EFD/TS	053-489 4428	http://www.ts.ctw.utwente.nl/
Mechanical Automation	MA/WA	053-489 2502	http://www.wa.ctw.utwente.nl/
Multi Scale Mechanics	MSM	053-489 4212	http://www.msm.ctw.utwente.nl/
Production Management	PM	053-489 2520	http://www.opm.ctw.utwente.nl/
Production Technology	PT	053-489 2566	http://www.pt.ctw.utwente.nl/
Surface Technology and Tribology	STT/OTR	053-489 5630	http://www.tr.ctw.utwente.nl/
Thermal Engineering	TE/ThW	053-489 2530	http://www.thw.ctw.utwente.nl/

ICTS, Notebook Service Centre (NSC)

NSC 053-489 5533 HR W 130 www.nsc.utwente.nl

Information specialist and library

Ir. A.A.K. Boxem 053-489 2083 HR Z 214 a.a.k.boxem@utwente.nl
Central University Library in the Vrijhof Building

Student Services 053-489 2124 Vrijhof building
http://www.utwente.nl/studentenbalie/student_services/

Student counsellors (BSD) of the University

BSD 053-489 2035 Bastille building, red counter

Student counsellors (BSD) of the ME programme

Ms. Ir. Judith Krabbenbos 053-489 2341 HR Z 224 j.g.krabbenbos@utwente.nl

6. References and documents

- [1] Mechanical Engineering graduate information: http://www.utwente.nl/me/master_programme/graduate_procedure/
- [2] Course lists R&D, D&C and O&M: http://www.utwente.nl/me/master_programme/studyprogramme/
- [3] Master courses alteration document: http://www.utwente.nl/me/master_programme/graduate_procedure/forms/wijzigen_master_vakken.htm
- [4] Student Mobility System: <https://webapps.utwente.nl/srs/nl/srsservlet>
- [5] Internships: <http://www.utwente.nl/stage/>
- [6] Graduate: http://www.utwente.nl/me/master_programme/graduate_procedure/
- [7] University Library (UB): www.utwente.nl/ub/
- [8] Registration Master Diploma: http://www.utwente.nl/me/master_programme/graduate_procedure/forms/aanmeldingMasterdiploma.htm
- [9] Colloquium: <http://www.opm.ctw.utwente.nl/actueel/collaank.php?opleiding=ME>