

# **Recommendations for the preparation and supervision of student theses in the Teaching Unit of Civil Engineering at the Faculty of Civil Engineering and Geodesy of Leibniz Universität Hannover**

*Editing: PD Dr.-Ing. Jörg Dietrich, Dipl.-Ing. Sandra Tilleke, Prof. Dr.-Ing. Udo Nackenhorst*

*using information from IBNM, WATENV, Masterheft Maschinenbau*

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Student thesis projects should allow students to work in depth on topics in their areas of interest. In contrast to later professional life, there is a high degree of freedom. Therefore, especially graduation theses should be among the highlights of the studies. The recommendations formulated here are intended to help ensure that student theses at the Faculty of Civil Engineering and Geodesy are supervised to the highest possible standard and in an appropriate manner, and that these theses can be completed within the allotted time. These recommendations are addressed to both supervisors and students. In principle, the rules of the applicable examination regulations take precedence as legally binding documents. Reality may deviate from this recommendation.

## **Before starting work**

### **Admission**

Before the issue of the topic, students must obtain the form of the examination office for the respective student work and, if necessary, certify that the requirements have been met.

### **Admission requirements**

#### **CME/UIW:**

(Interdisciplinary) Project/

praxis project:           - enrolled and not on leave  
                                  - 18 credit points out of required modules

Master thesis            - enrolled and not on leave  
                                  - 60 credit points (with 18 credit points out of required modules)

#### **WATENEV**

Master thesis            - enrolled and not on leave  
                                  - 60 credit points

## **Search and issue of a topic**

Ideally, the aimed student thesis should start at the beginning of a semester. Therefore, the topic search for a student thesis, beginning in the summer semester should start no later than December/January. The topic search for a student thesis beginning in the winter semester should start in May/June. In any case the search should not start after the examination period.

Topics for student work should either be offered on the homepage of the institutes, displayed in the institute or via Stud-IP. Furthermore, topics can be discussed upon by direct contact between students and examiners or are announced in courses. The topic should be explained to the students by the examiners and a consideration period should be allowed before acceptance. Students should

preferably be able to choose a topic of their choice, but are not entitled to be provided with a specific topic. Students may submit a topic proposal to the examiners.

In any case the submission of a topic request has to be executed by filing in the provided form on the faculty's homepage. This also applies, even if there has been direct contact between student and supervisor before. The form requires personal information, type of aimed student work as well as the student's preferred institutes (prio 1, 2, 3). Processing the form should be proceeded as soon as possible, no longer than 14 days. The request will automatically be forwarded to the prioritized institute. If they cannot offer a topic, the form will be forwarded to the next institute (prio 2). If they do not have a topic either, the form will be forwarded to the third institute (prio 3). The students will be notified by a copy of each mail.

### **Determination of examiners and supervisors**

The team for student theses consists of at least the student and one examiner. In the case of graduation theses, two examiners are required. In addition, supervisors may be involved who are not assigned a formal role in the examination regulations. Examiners may also act as supervisors. However, this should be avoided if possible, in order to ensure the independence of the examiner(s) and to maintain the "four-eyes principle". At least one examiner must be a member of the Civil Engineering teaching unit at LUH. If examiners are not automatically admitted by the examination regulations, they may have to apply for admission as an examiner to the responsible examination board.

Examiners must formally have at least the qualification level that is to be examined. Due to the necessary experience, examiners should usually be qualified one degree higher than the degree being examined (e.g., have a doctorate to examine a Master's thesis), while supervisors should have at least the level of the degree being examined.

Before the topics are assigned, the names of the examiners and supervisors are specified.

### **Special cases: external work and work with a stay abroad.**

In the case of externally offered topics, e.g., from industry and authorities or from scientific cooperation partners, attention must be paid to scientific independence (at least in the case of final theses), openness to results and fulfilment of the university's requirements for the corresponding work. Assignment and evaluation take place at an institute of the faculty. Therefore, in the case of external work, it must be ensured that an examiner from the faculty is involved in the topic definition at an early stage and later supervises the work in cooperation with the external partner. As a rule, external supervisors can only act as examiners if they have a teaching assignment with examination authorization at the faculty, or are themselves active as examiners at another university and have suitable expertise in the subject area of the thesis. In the latter case, the examiner at LUH will, if necessary, seek registration of the external examiner with the examination board. Institutes are not obliged to accept the supervision of external papers.

Work involving a stay abroad should be planned at least half a year before the start of the work in order to be able to prepare the stay and the financing (e.g., DAAD PROMOS). For scholars, an allowance by their funding agency might be required. An examiner or supervisor at LUH will contact possible supervisors abroad and discuss the task as well as data availability.

### **Assignment and registration of the work**

The form for the registration of the student's work is to be submitted to the examiners promptly after a decision on a topic has been made. The name of the topic of the thesis usually cannot be

changed after official registration. When formulating the topic, care should be taken to ensure that it reflects the essential characteristics of the work on the one hand, but on the other hand that it is still applicable in the event of any expected modifications to the assignment.

### **Assignment, requirements and evaluation criteria**

The assignment must be prepared in writing before the topic is assigned. It should state the topic and the research questions to be addressed and formulate concrete tasks. References to literature and data sources should be given. Furthermore, the scope and method of submission of the completed work should be explained. The assignment should be signed by the first examiner and the student. Appropriate templates exist in the faculty.

The evaluation criteria are to be made transparent with the assignment. The study commission has adopted a non-binding evaluation form for the evaluation of student work (<https://www.fbg.uni-hannover.de/de/studium/im-studium/studentische-arbeiten/>). If this is not used, examiners will explain their evaluation criteria.

A prior familiarization phase is not foreseen. The task should be set in such a way that it can either be worked on with the knowledge from the studies or corresponding time expenditures are taken into account in the scope of the work. In general, it is to be expected that students familiarize themselves with new methods or tools at the beginning, especially in the case of graduation theses. Between the first discussion and the official assignment of the topic, students should be given the opportunity for detailed examination and, if necessary, joint further development of the task.

The expectations of the student's work in terms of content and form should be explained. There is no central guideline for structuring and formatting the written paper, but this should be discussed with the supervisors at an early stage. Some institutes provide guidelines or format templates for student papers. Furthermore, the Central Institution for Quality Development in Studies and Teaching (Zentrale Einrichtung für Qualitätsentwicklung in Studium und Lehre, ZQS) provides assistance for scientific writing.

It should be noted that the actual preparation of the student paper is the sole responsibility of the person doing the work. The expected degree of independence as well as the feedback provided should be explained.

The assignment can and should be adapted in the course of the work if new findings or unforeseen difficulties arise in the process. If possible, the students, examiners and supervisors should agree on the adaptation. The adjusted assignment must be recorded in writing.

### **Registration and start**

After agreement on the issue and acceptance of the topic, the form of the examination office is to be completed and the start of the work is to be reported according to the given procedures.

### **During the working phase**

#### **Time planning**

Students, in consultation with supervisors, should prepare a timeline and milestone plan for the work, taking into account the expected net workload and student availability. The intended time commitment of student work is derived from the module description, with 30 hours per credit point. While Master's theses are generally assumed to be worked on full-time, other student theses have a

longer period of time available than is required net, so that these theses can be completed during the course of study. This must be taken into account by all parties involved in planning. Students should inform their supervisors of any foreseeable major deviations from the schedule, including for personal reasons. The supervisors are required to recommend and support the completion of the work within the standard processing time foreseen in the study regulations.

### **Feedback**

Interim meetings are scheduled between supervisors, student and, if applicable, examiners. Any reports or interim presentations shall be scheduled in a timely manner. The progress of the work is monitored via the scheduled feedback and the work and time schedule is continued. Meeting dates are to be kept or cancelled in time. It is recommended to hold a detailed feedback meeting for graduation theses at least at the beginning (provision of required data, equipment and laboratory space, comprehension questions, ...), after the first third (literature research, data evaluation, ...), the second third (methods, ...) and shortly before submission of the thesis (outline, scope, ...). Both supervisors and student should address any problems and seek a solution.

Especially in case of a predominantly online supervision, the supervisors should recommend a suitable video conferencing software and, if necessary, a software for remote access to computers. Questions of data protection as well as the protection of the personal environment have to be considered. Recordings of communication require the consent of all parties involved. Video conferencing and remote access to computers require both trust and active protection of personal content (e.g., ensuring an appropriate environment for video calls, closing the mail program before remote access to the computer).

### **Results**

The scope of the written thesis may vary depending on the topic. On the one hand, papers should be formulated as concisely and briefly as possible, and on the other hand, they should contain complete documentation of the methods and relevant results. As a rough guide, about 40 to 50 pages can be given for bachelor theses and about 70 to 90 pages for master theses.

The assignment should be included in the final document, as well as the explanations required by the examination regulations. The institutes often have sample texts available. The supervisors should be asked about this. Usually, the digital results must also be handed in (code, generated data, models, etc.).

### **Submission**

The deadline for submission must be met. Students must ensure that all work to be handed in reaches the academic examination office or the examiners before the deadline, depending on where the work is to be handed in. Problems and possible extensions of the processing time should be discussed with the first examiner in good time. Reasoned requests for extensions of the processing time should be submitted to the examination board before the deadline. If the paper is not handed in on time, the entire paper is failed.

### **Colloquium**

The colloquium can take place before or after submission of the thesis. This must be announced in good time. If students are pressed for time for important reasons, they should ask their supervisors and examiners about the possibility of an early colloquium. In the case of the regular colloquium after submission, supervisors and examiners should make every effort to correct the work promptly

after it has been submitted so that the colloquium can take place in a timely manner. Postponement of the colloquium to the following semester should be avoided.

The duration of the presentation is to be agreed upon with the supervisors, usually 15 minutes for Bachelor's theses and 20 minutes for Master's theses. Colloquia of several students (especially for course-related theses) can be combined into one date. When setting dates for the colloquium, the second examiners should also be taken into account. Announcements of colloquia should be distributed appropriately.

Colloquia on student work have the character of an oral examination and are not open to the public. Students or examiners can therefore demand that the colloquium takes place exclusively in the presence of the examinee as well as the examiners and, if applicable, the supervisors. In agreement between the parties involved, guests may be admitted (if necessary, only for the presentation). Frequently, other members of the institute are guests at the colloquium. Other appropriate guests may include, for example, other students of the same subject, faculty members, and external collaborators. Inviting family members and other private individuals is not appropriate. Announcement of the grade in the presence of third parties may only take place with the expressed consent of the student candidate.

### **After completion of work**

#### **Evaluation**

For the evaluation of the work, the evaluation criteria explained at the beginning of the work should be applied. Examiners are not bound to a specific grading scheme. They may include particular aspects of the work in determining the overall grade. Examiners should include the assessment of supervisors in the grade. The grade should be announced to the student immediately after the colloquium, if possible, and recorded on the registration form of the examination office. The grade determination should be explained to the student in a personal meeting. In case of an early colloquium, the grade should be announced and explained in a separate meeting.

#### **Completion**

The notification form from the academic examination office regarding the evaluation of the student's work must be sent to the academic examination office (Prüfungsamt) by the supervising institute in a timely manner.

Student work is to be archived according to the applicable regulations.

If the student has used a workstation or lab, or she/he has borrowed equipment or keys, the proper handover should be ensured in the immediate vicinity of the completion of the work.

### **Contact person in case of problems**

The first step in the event of problems arising between supervisors and students should be a clarification between the parties involved. A transparent, honest, respectful and constructive

approach should go without saying. If problems cannot be solved, the first examiner should be consulted.

If problems persist, please refer to the following contact persons, whose contacts can be found on the websites of the faculty and Leibniz University:

- Study program coordination (general and organizational questions)
- Study advisor (subject-specific questions)
- Chairperson of the examination board (questions regarding examination law, appeals)
- Psychological-therapeutic counseling for students (ptb, Beratung in allgemeinen studienbedingten und persönlichen Angelegenheiten)
- Ombudsperson for studies and teaching at Leibniz University (general or individual problems, complaints or suggestions for improvement regarding studies, conflicts with teaching staff)

### **List of relevant documents**

- Examination regulations of the study program
- Admission form of the academic examination office
- Assignment of the student work
- Work and time schedule
- Overview of evaluation criteria
- Student work (with attachments and explanations)

### **Support for academic research**

- Writing counselling (<https://www.zqs.uni-hannover.de/en/kc/academic-writing/>)
- language counselling(<https://www.llc.uni-hannover.de/en/writing-support/>)
- Psychological Counselling for Students (<https://www.ptb.uni-hannover.de/en/>)