

Guideline for the Practical Project in the Master's programmes Computational Methods in Engineering and Environmental Engineering

§1 Goals

The aim of the Practical Project is, on the one hand, to establish a close connection between studies and professional practice. On the other hand, scientific working and writing shall be further deepened. Students will learn to apply (and deepen) their previously acquired theoretical knowledge in engineering-related tasks to complex problems in practice and, in turn, to place the practically acquired results in a scientific context and to reflect on and evaluate them in the context of a written paper. Students should be given the opportunity to become familiar with economic, technical and social requirements and interaction in a project-related environment.

The Practical Project serves, in addition to the subject-specific deepening at the concrete example and the deepening scientific reflection in written form, in particular for the training of the following key qualifications:

- Written/oral subject-specific expressive skills
- working effectively in organizational structures (time management, adaptability, flexibility)
- Independence and joint responsibility
- Ability to work in a team in the context of social interaction (e.g. intercultural skills, critical faculties, conflict management, reliability, self-assertion)
- Reflection and evaluation of the acquired knowledge
- Scientific penetration of concrete questions or topics from practice
- In-depth application of skills and techniques of scientific work/writing.

§ 2 Basic Provisions

- (1) The Practical Project is a compulsory elective module that is usually completed in the 3rd semester of the Master's program. Students choose between the (Interdisciplinary) Project, which is a scientific work in an interdisciplinary context, or the Practical Project - a scientific work with practical relevance from a project in a company or at a university.
- (2) The Practical Project should be completed at institutions outside of LUH.
- (3) The Practical Project can also be completed abroad.
- (4) (4) The Practical Project comprises:



- the practical phase or employment in the company with a period of at least 20 weeks/900 hours (excluding vacation and absence times). A division of the time into part-time employment is not possible.
 - the written scientific work (examination form: Studienarbeit) must be submitted no later than 6 months after the topic is issued.
 - The VbP in form of a colloquium must also be held within the 6 months. It can also be held as an interim colloquium
- (5) In the Practical Project, students should work on a project that is the subject of the scientific paper (Studienarbeit) to be written.
 - (6) The Practical Project consists of practical work at the practical project site, a written paper (Studienarbeit) that scientifically illuminates, evaluates and reflects on the project content and issues, and a VbP in form of a colloquium. The Studienarbeit and the colloquium can be written or held in English.
 - (7) The Studienarbeit (80%) and the VbP, i.e. the colloquium (20%) are included in the grading.
 - (8) If required, the practical employment can be evaluated by the supervisor using the evaluation form according to Annex 1. The assessment of the practical employment is not included in the grading. Instead of the assessment sheet, the practical project site can also issue a work certificate for the student's further use.

§ 3 Registration

- (1) Admission requirements for the Practical Project are 18 LPs from compulsory modules of the degree program.
 - (2) The supervision on the part of the university and the grading of the Practical Project is carried out by an examiner of the study program who can attend to the topic professionally. The examiner must be listed on the "examiners list" of the study program for the current or the previous semester. Upon request to the Examination Committee, an alternative examiner may also be approved, provided that good reasons are given.
 - (3) The Practical Project needs to be registered via a form. The form can be downloaded from the corresponding study program page and regulates:
 - Admission
 - processing period
 - Assignment of tasks
 - Confirmation of acceptance by the practical project site
 - Supervisor of the practical project site
 - Examiner
 - Grading
 - (4) First, students fill in the first part of the form concerning the *admission* requirements and send it to the Examination Office. After the Examination Office has granted admission, the part for the *registration* can be filled in. A copy of the registration form is submitted to the Examination Office after the registration data has been entered. After the *grade* has been entered, the fully completed original is submitted to the Academic Examination Office for entrance into the QIS-System.
- The contact persons for the study program can be found on the website of the Examination Office.

§ 4 Implementation/Supervision

- (1) The Practical Project can be completed in suitable institutions in accordance with the objectives and principles of §1. Preference is given to large industrial companies and suppliers, large research institutions and university research institutes outside Leibniz Universität Hannover (both should be practice-oriented institutions). The university welcomes the implementation of the Practical Project abroad.
- (2) Students should always apply for a Practical Project position in good time and independently. They may receive assistance from the institutes. At the same time but at the latest after receiving a Practical Project position, students should try to find an examiner from their degree program (help can be provided here by searching via form at <http://www.fbg.uni-hannover.de/de/studium/im-studium/studentische-arbeiten/>). An examiner should be found and the topic of the Studienarbeit discussed by the start of the practical work in the company at the latest.
- (3) Students agree on the boundary conditions of the Practical Project (i.e. the practical activities and the scientific work based on them) with the supervisor and the examiner (e.g. the project(s) to be worked on, the task of the written paper, the scope, the time schedule, etc.).
- (4) Individual supervision by the university is provided by the examiner specified in the registration form (§3.3). He/She attends the Practical Project from the beginning on and is in regular contact with the student and, if applicable, the supervisor on site. In case of any problems arising during the Practical Project, the on-site supervisor should be the first point of contact for students. If necessary, the examiner shall assume a mediating role between the practical project site and the student.
- (5) After individual consultation, students submit a project outline to the examiner two to four weeks after the start of the project. The project outline should contain a brief description of the professional objectives of the Practical Project and their implementation in terms of time management (timetable).

During the Practical Project, students prepare a scientific paper. This comprises a detailed presentation of the task, the solution methods developed and the results. In addition, the goals previously set by means of the project plan are to be reviewed and reflected upon. Content and scope are to be agreed on with the on-site supervisor and the examiner. Release for publication of the contents must be given by the institution of the practical project site.

After completion of the Practical Project, the results are presented at an internal university colloquium.

- (6) Students can find a comprehensive handout on writing scientific papers at <https://www.fbg.uni-hannover.de/en/studies/at-university/student-theses/>
- (7) A handout on supervising student work can be found by supervisors and examiners at https://www.fbg.uni-hannover.de/fileadmin/fbg/Studium/Bauingenieurwesen/Studienregularien/Student_Theses_FBG_Recommendations_final_2022-05.pdf

§ 5 Passing

- (21) The decision on passing and grading of the Practical Project is made by the examiner only.



(22) A grade shall be awarded for the Practical Project. The grade is determined from the Studienarbeit (80%) and the VbP in for of a colloquium (20%). The examiner will follow the criteria for grading of student written papers.

Link (only in German):

https://www.fbg.uni-hannover.de/fileadmin/fbg/Studium/Bauingenieurwesen/Studienregularien/5_Studentische_Arbeiten_Bewertungsbogen.pdf

(23) In order to assess the student's performance during the practical work, the supervisor can fill out an assessment form according to Appendix 1. The work method and progress during the practical work are assessed. In addition, the work certificate or the assessment sheet serves as proof of the proper completion (including vacation and absence times) of the Practical Project. The evaluation of the practical work is not included in the grade.

(24) Prerequisites for passing the Practical Project are:

- proof of registration according to §3.3
- evaluation sheet or a work certificate as proof of the hours worked
- grade of the examiner for
 - written work, i.e. Studienarbeit (80%)
 - VbP, i.e. the colloquium (20%)

(25) The examiner notifies the Academic Examination Office of the proper completion and execution of the Practical Project and the written paper and colloquium as well as the final grade via the completed registration form.



Anlage 1

Assessment of the practical work during the Practical Project

Last Name, First Name: _____	Matriculation No.: _____
Project/Working Period: _____ _____	
Institution, Supervisor: _____ _____	

Assessment of Performance	1= deficient to 5 = excellent
Motivation	1 2 3 4 5
Sense of Duty / Work Ethic	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Commitment	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Determination	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Interest	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Working Ability	1 2 3 4 5
Resilience	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Apprehension	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Flexibility	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Problem Solving Ability	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Creativity	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Expertise, Development	1 2 3 4 5
Comprehensive Basic Knowledge	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Deep Knowledge, Specialization	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Educational Performance	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Proactivity related to Development/ further Training	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Way of Working	1 2 3 4 5
Independance	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Accuracy	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>



Efficiency, Taxonomy, Methodology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reliability, Sense of Responsibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social Behaviour	1	2	3	4	5
Personal Demaneour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trustworthyness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capacity to Work in a Team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Behaviour towards Superiors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
Overall Impression	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(Date, Signature of Supervisor)