

Guidelines for the practical work experience of students of the Faculty of Electrical Engineering and Information Technology at RWTH Aachen University for the Master's degree program Electrical Engineering, Information Technology and Computer Engineering

Internship Office of the Faculty of Electrical Engineering and Information Technology, RWTH Aachen University

1. Purpose and nature of the practical work experience

The practical work experience, hereafter referred to as professional practice, is part of the job-qualifying study competences taught in the Master's degree program Electrical Engineering, Information Technology and Computer Engineering. It permits the practical application of the knowledge and skills almost acquired at the recommended time (3. Academic semester). It equips students with application-specific methods and experiences from an engineer's professional practice and is furthermore intended to enhance interdisciplinary and social skills and facilitate the subsequent transition to professional life. Professional practice is therefore an important part of successful studies with regards to future professional activity, and in particular an essential part of the Master's degree program Electrical Engineering, Information Technology and Computer Engineering.

The professional practice should cover activities which

- provide insights into the current task spectrum of engineers, in particular into modern processes and equipment for the development, design and production of components and systems, as well as for hardware and software development and integration for systems in electrical engineering, information technology or computer engineering,
- involve planning and methodological-conceptual elements,
- are related to already attended courses of the Master's degree program.

Organizational areas eligible for professional practice are:

research, development, planning, calculation, project planning, construction and integration of or on components or systems (hardware and software), production, maintenance, quality testing, commissioning.

It is recommended that the professional practice covers several of the areas mentioned above.

Moreover, professional practice should not only consider purely subject-specific problems, but also more general aspects of the working world. These include (among others):

- organization, processes and workflow as well as information management in the company,
- profitability aspects and quality management,
- corporate culture, team work and social structures,
- occupational safety and protection of the environment.

Not to be considered for professional practice are activities without any reference to electrical engineering, as well as activities relating exclusively to administration, software development or

installation, the repair of equipment or the setting up of household installations – to name a few typical examples.

2. Duration of the professional practice

The approved practical work experience must have a duration of at least 18 weeks in total and should be carried out during the Master studies (projected for the third semester). In general, it must be completed in a coherent period. If, by exception, the practical work experience is done in segments, the training period in one company must be at least four coherent weeks. Hourly or daily employment (part time activities) does not comply with the purpose of the practical work experience and can therefore not be approved.

Missed working days (vacation, illness, other days off, however no legal holidays) must be made up for.

3. Companies for the practical work experience and compliance with the guidelines

The knowledge and experience which should be gained during the practical work experience can especially be acquired in medium-sized and large industrial companies or in larger technology enterprises which are focused on systems development. In addition, industry-oriented research institutions are also suited. Furthermore, it is possible to do the internship in companies such as power plants, public authorities and institutions and also start-ups provided they can ensure an engineering supervision of the professional activity.

Not suitable are small enterprises or craft businesses without development or systems orientation. Professional work experience at higher education institutions and universities or in one's own business or that of one's parents cannot be approved either.

The internship office of the Faculty of Electrical Engineering and Information Technology does not arrange internship placements, however it gives advice on the suitability of companies offering internships based on these guidelines.

4. Registration of the conduct of the practical work experience

The student has to register the intended conduct of the practical work experience at the internship office of the faculty. The registration has to include a confirmation of the supervising company or institution stating that the planned professional practice of the student can be ensured and executed in accordance with the set criteria of the faculty. The form attached to these guidelines (see annex) may be used for this confirmation. It is however the responsibility of the student himself and the supervising company or the supervising institution to actually ensure the proper conduct of the professional practice.

5. Substitute activities and exemptions

Work student activities (however, no activities by the hour or by the day), other training periods (e.g., relevant apprenticeships with final examination before the chamber of commerce and industry), and professional activities will be approved in so far as they conform to the purpose and nature of the practical work experience described in these guidelines, and if the activity was carried out in a company as described in section 3.

Training at vocational colleges as well as skills acquisition through courses, for example, does not comply with the purpose of the practical work experience and will therefore not be approved.

Professional practice required in the framework of double degree programs can be regulated by contractual agreements of the partner universities different from the present regulations, in order to take into account the specific requirements of both partners in an appropriate and balanced manner. Thus, for example, industrial experience or research-oriented activities, which are scheduled in the curriculum at one partner, can be approved as professional practice by the other university.

Physically challenged students can arrange special agreements with the internship office.

6. Reporting on the practical work experience

The student has to create an internship report about his practical work experience. It should start with a coherent description of the activities carried out. This text should be complemented by the experience gained at work (e.g. about workflows, about use of working resources like devices and machines. about methods, about organizational arrangements, about effects on man and the environment and also about problems encountered). A brief description of the internship company should also be given (industry, size, product range).

The description of practical work and experiences should be as detailed as possible, since it must clearly reflect that the author has carried out the indicated work himself. Internal methods or processes which might be a secret, should be explained in a global way in order not to touch internal secrets.

Sketches, circuit diagrams, flow diagrams, etc. often save a long text. Illustrations from external material must be marked as such and the source must be given. One self-created illustration per week of practical work experience should be included.

In addition to the coherent work report, the internship report must also contain lists of the work carried out per working day, indicating the daily working time.

The work report and the daily lists must be attested by the supervisor in the company at the end of the practical activity.

The internship documents must be submitted to the internship office for approval no later than six months after the end of the respective practical work experience.

The following format applies:

- cover page with the student's name and matriculation number and name and address of the internship company
- table of contents
- coherent work report on DIN A4-sheets
- scope: a minimum of one page of text per week (excluding appendix, illustrations, etc.)
font size: 12

- line spacing: 1.5 lines
- binding: springbinder or similar
- Authorisation and authentication: stamp and signature of the internship supervisor on the last page of the report
- appendix: daily lists of effected work and internship certificate.

7. Certification of the practical work experience

For the approval of the effected practical work experience, an internship certificate of the company must be submitted as original document.

This certificate must include:

- student's personal details (last name, given name, date of birth),
- company name, department, and location,
- date and duration of the internship,
- topic of the assignment (for project work),
- missed days and vacation or remark that no missed days were accumulated and/or no vacation was taken.

8. Practical work experience abroad

Practical work experience abroad is recommended and approved if it fulfils all requirements of these guidelines. The internship report must be written in German or English. The internship certificate needs an authenticated translation if it is issued in another language than the afore-mentioned.

Information on internships abroad and possible financial support is given by the International Office of RWTH Aachen University and the German Academic Exchange Service (DAAD) (among other institutions).

Deviations from these rules require prior consultation with the internship office.

9. Supervision of the practical work experience

Though the correct execution of the practical work experience is the responsibility of the student and the supervising company (see also pt. 4), the internship office of the faculty takes its own quality assurance measures. These comprise contacts to the company and the students, company visits and evaluations of the student's and/or the company's feedback. Should difficulties arise during the practical work experience which cannot be settled in the company, the internship office should be informed. It will take appropriate actions.

10. Final approval of the practical work experience as examination performance

A professor of the faculty **of Electrical Engineering and Information Technology** decides on the approval of the professional practice as examination performance, based on the submitted written internship report and an oral report held during the seminar associated to the internship. The approval of the professional practice as examination performance should preferably be carried out by the professor who will supervise the student's Master thesis, as well. Upon successful approval, the student receives a certificate from the professor which must be submitted to the central examination office.