

Guidelines: Doctoral Procedure at the Faculty of Computer Science (FIN)¹

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The doctorate serves as proof of the ability to carry out in-depth scientific work. It is based on independent scientific work, the dissertation, and an oral examination. For research-intensive activities, e.g. at the university or in research departments of industry, the doctoral degree is often a prerequisite for employment, and the title Dr.-Ing. is often very useful for the later career.

1. Start of the dissertation project

1.1 Choosing a supervisor²

A supervisor (“doctoral supervisor”) is responsible for the dissertation project and accompanies the preparation of the thesis. Supervisors can only be professors, junior professors or private lecturers of the FIN.

1.2 Choice of a topic

The dissertation topic is agreed with the supervisor. Sometimes there is a clearly defined task in a project. As is usual in research, the exact topic only “develops” slowly during the course of a dissertation project. For this reason, only a working topic is given at first.

1.3 Financing of the PhD project

Typically, a doctorate degree is awarded as a research associate of a professor and teaching responsibilities must be fulfilled. Many doctoral students of the FIN finance their projects as third-party-funded staff (e.g. in projects of the German Research Foundation or in research-oriented industrial projects), via scholarships (such as doctoral scholarships from the state of Saxony-Anhalt) or externally as an employee of an industrial company. Of course, it is also possible to do a doctorate without financial support, but this is rather unusual in the field of computer science. The research project should run for three to four years.

1.4 [PhD status](#)³

Formally, the doctoral project begins with the recognition as a doctoral student of the FIN. For this purpose, the necessary documents (name, email, address, date and place of birth, certified copies of certificates qualifying for a doctorate and, if applicable, also the previous acquisition of academic titles, current occupation) are submitted to the Dean’s office. In addition, a favorable opinion from the supervisor is required, stating the working title of the dissertation, the composition of the group of supervisors (which can also be changed later) and the planned deadline for submission of the dissertation.

¹ This guideline is only valid in conjunction with the doctoral regulations of the FIN, the information sheets and the format templates. Information sheets and format templates can be found on the www pages of the FIN (Research).

² The personal, official and service designations used apply in both the male and female form.

³ Form 1.

The faculty decides on the granting of the doctoral status on a case-by-case basis. Diploma and Master's degrees in computer science at German universities from a program qualifying for doctoral studies are generally recognized without any problems. As a rule, the degree should have a result with at least the grade "good". A Bachelor's degree is not sufficient in Saxony-Anhalt for admission to doctoral studies according to the Higher Education Act.

"External" doctorates are permitted. General conditions of the FIN make it possible to combine family and doctorate. The faculty decides on questions of the equivalence of foreign degrees, whereby the guidelines of the Central Office for Foreign Education (ZAB) must be observed.

The doctoral student status can be granted by the Faculty Council under certain conditions. This is often the case for degrees from universities of applied sciences, foreign Master's degrees, candidates with a long history of study or a degree that is not related to computer science. An often-mentioned condition is that some examinations for master modules in computer science must be passed with good results.

If the group of supervisors does not recognize any progress in the work of the doctoral student, they will receive an official letter from the faculty after six years at the latest, stating that the doctoral status has expired.

1.5 Joint supervision with a foreign faculty

The doctoral procedure can be carried out in joint supervision with a foreign faculty if a corresponding agreement has been made with the foreign university, which has been approved by the Faculty Council. The agreement must contain regulations on the details of the joint doctoral procedure. The provisions of these doctoral regulations apply to doctoral studies in joint supervision. The doctoral certificate must indicate that the doctorate is a joint doctorate (e.g. in the case of the Cotutelle procedure).

1.6 Cooperative doctoral procedures

Cooperative doctoral procedures can be conducted with non-university research institutions and universities of applied sciences.

2. Procedure of the doctoral project

2.1 Group of supervisors

The group of supervisors consists of the supervisor, a second supervisor and, if necessary, other members. The second supervising person must have the right to supervise doctoral studies at a (possibly foreign) faculty. Typically, the second supervising person is also qualified in a field of computer science. In the case of interdisciplinary projects, the second supervisor may also be from another, complementary subject. The second supervisor also helps in cases of conflict or emergency (four-eye principle). The composition of the support group may change if necessary. As a rule, the second supervisor accompanies the entire doctoral project and is usually part of the doctoral committee that assesses the doctorate.

2.2 Thesis proposal⁴

The doctoral candidate describes their planned PhD project in a document. If preliminary work is already available, the thesis proposal can be prepared immediately after approval of the doctoral candidate status. This thesis proposal contains a preliminary title, detailed information about the state of research on the topic, the goals of the work and how they are to be achieved. It should also be noted which gain in knowledge is expected. As a rule, the thesis proposal is prepared after the initial training phase (approx. one year). The doctoral candidate then presents their ideas publicly in a doctoral seminar in the presence of the supervising group. Video conferences are possible. The examination office will be informed in writing⁵ by the supervisor about the successful “defense” of the thesis proposal. This proof must be presented at the formal opening of the doctoral procedure.

2.3 *Preliminary work for the dissertation and disputation*

After an orientation phase, the doctoral student publishes their research results in the form of articles in scientific journals and conference proceedings. In the FIN, it is expected that the doctoral candidate can present some accepted reviewed papers when submitting the thesis. Furthermore, it is also helpful to present the results at international conferences and discuss them with experts. The results achieved are always discussed promptly with the supervisor and the other members of the supervising group. Often, supervisors contribute new ideas to the doctorate and publish papers together with the PhD student. The publication of partial results is expected. Relevant are not very short abstracts, but “real” publications in journals, conference proceedings or books.

In the papers, methods and algorithms are presented and the results are validated and discussed. Each dissertation is an individual case; rigid regulations make little sense. Contact with other (especially external) professors is also important: One often gets a better assessment of the own work and can later win these professors more easily as reviewers.

2.4 *Advanced Training*

Doctoral candidates should use the time of their doctorate for personal development. Recommended courses include courses on teaching methodology and didactics, workshop organization, project and time management. The Otto von Guericke Graduate School also provides qualification programs for doctoral students and enables them to acquire key academic qualifications. The curriculum vitae presented at the opening of the doctoral project should include proof of further training.

2.5 *Doctoral Student Day*

One year before submitting their doctoral thesis (dissertation), doctoral students present the most important research results in a twenty-minute public lecture followed by a discussion. These presentations take place during the doctoral student days that regularly take place at the end of each semester.

⁴ Information sheet 2

⁵ Form 1

There are various ways of organizing a doctoral student day, for example also in the form of a scientific conference. Proof⁶ of the successful presentation at the doctoral student day must be submitted at the opening of the doctoral procedure.

2.6 Doctoral Thesis

A doctoral thesis (dissertation) is a scientific research work that documents an independently produced research achievement concluding with new scientific findings. The dissertation can be written in German or English. The scope depends on the field of expertise. In Computer Science, works of 100 to 150 pages are common. It is recommended to print double-sided as well as single-line with a font that matches your own style in font size 11.

The time required to write this “book” is often underestimated, which is why promotions often take longer than planned. You should therefore always document your results. Several reviewers then later evaluate the work, so that it makes sense to discuss the planned content of the work with possible reviewers at an early stage. There should be no “secret” dissertations. Certainly, sometimes confidentiality of results must be agreed upon. However, the scientific results of a thesis can be presented “anonymously” in a dissertation if necessary.

2.7 Scientific Misconduct

One should be aware that scientific misconduct (plagiarism, data manipulation, etc.) during the preparation of the dissertation can lead to the revocation of the doctoral degree even after the fact. The supervisor is expected to minimize the risk of scientific misconduct on the part of their candidates. Regular meetings with the doctoral candidate, in which results can be discussed and checked for plausibility, are helpful in this respect, as is the use of plagiarism software when it comes to the written work.

3. The examination

3.1 Preparation of the exam

The PhD commission consists of at least five persons entitled to award doctorates: a chairperson (a FIN professor), three reviewers and one additional member (also a FIN professor). The members of the supervision group are also included. Although the supervisor and/or the doctoral candidate may propose reviewers for the doctoral thesis, the Faculty Council ultimately selects three independent reviewers when the doctoral procedure is opened. Typically, the supervisor is the first reviewer and at least one of the reviewers is an external professor.

The supervisor submits proposals for the reviewers, the chairperson of the PhD commission as well as one member and one substitute member of the PhD commission. In most cases, the reviewers and members of the PhD commission proposed by the supervisor and the doctoral candidate are then also elected by the Faculty Council at the official opening of the procedure. It is therefore advisable to ask the intended reviewers beforehand about their willingness to review the dissertation. The proposals of the reviewers and the other members of the commission should be submitted to the Dean's Office at a very early stage, i.e. at the latest when applying for the opening of the doctoral procedure.

⁶ Form 2

It is advisable to involve the chairperson of the PhD commission in the doctoral procedure at a very early stage and, if necessary, to provide them with a copy of the dissertation in good time (a few weeks before the official submission). It is often extremely difficult to find a suitable date for the final defense of the dissertation, as all members of the PhD commission should be present during the defense. Very busy reviewers naturally make full use of the maximum period of three months provided for the preparation of the report. In addition, all expert opinions must be available for inspection by professors, junior professors and members of the Faculty Council of the FIN at least two weeks before the defense. It is therefore advisable to arrange a schedule with the reviewers when the doctoral project is opened and to coordinate a proposed date with all members of the commission. The defense typically takes place three months after the opening of the proceeding.

3.2 Formal opening of the doctoral procedure

If the supervisor agrees to the submission of the dissertation, the doctoral thesis is formally submitted to the FIN. To open a doctoral procedure (at least 14 days before the relevant Faculty Council meeting), the following documents must currently be submitted to the **examination office**:

- Application for the opening of the doctoral procedure (*addressed to the Dean*)
- seven bound copies of the dissertation (*the title page must be designed according to form 3*)⁷
- Certified transcript (the examination office of the FIN is authorized to do so) of the degree that qualifies for doctoral studies (*this is not necessary if a certified transcript is already submitted when applying for the doctoral status*)
- Curriculum vitae/scientific career as paper print and PDF file; this should also contain information on further education courses attended
- Publication list including the title of the talk at the doctoral student day as paper print and PDF file
- Proof of attendance in the doctoral student day (*is usually automatically forwarded to the examination office after the doctoral student day*)
- Summary in German language. This summary must be included in all copies of the dissertation and a further version must be attached to the documents to be submitted (as paper print and PDF file)
- A written [declaration of honor](#)⁸ to be signed by the PhD candidate that they have written the dissertation independently, that they have not already used it as a dissertation or as another examination paper and that they have fully specified the aids used. This declaration must be included in all copies of the dissertation and a further version must be attached to the documents to be submitted.

⁷ Form 3

⁸ Form 4

- Declaration on any previous applications for a doctorate
- Declaration on the acknowledgement of the PhD regulations
- From August 2018, the official certificate of good conduct was replaced by the following declaration (form 6)

Declaration on criminal conviction

“I hereby declare that I have not been convicted of any crime related to science.”

Magdeburg, date of the opening of the doctoral procedure

First name, surname and signature

- Suggestion of reviewers with exact postal and email addresses, in consultation with the supervisor
- Proof of Thesis Proposal

Also recommended:

- Proposal for the composition of the doctoral committee (chairperson, member and substitute member) in consultation with the supervisor
- Schedule agreed with the doctoral supervisor for the submission of the reviews and, if possible, the doctoral colloquium as early as possible.

3.3 Internal Quality Control

The Dean's Office informs the members of the Faculty Council as well as all professors in detail about the submitted application at least two weeks before the corresponding meeting of the Faculty Council. The staff examines the dissertation before the corresponding Faculty Council Meeting. In the case of concerns expressed in writing or raised orally with the Dean, the Dean can consult other colleagues before the opening of the proceedings or, if necessary, ask the FIN Research Commission to clarify whether the submission of the dissertation is recommended. These mechanisms serve both the quality control of the dissertation and the protection of the candidates.

Formally, the doctoral procedure is opened by the Faculty Council. The Faculty Council also appoints the PhD commission and the reviewers.

3.4 Decision on the Acceptance of the Dissertation

The reviewers can rate the dissertation according to the following grading scale:

magna cum laude, cum laude, rite, non sufficit.

In addition, reviewers may recommend that the overall grade be awarded summa cum laude if the defense proceeds accordingly.

Once all reviews have been received, the PhD commission decides whether to accept and continue the procedure or to reject it. The expert opinions are reviewed for at least two weeks by the members of the PhD commission, the members of the Faculty Council and all professors. Notification will be given by the Dean's office.

If a negative opinion is issued or there are appeals, further opinions are obtained. If two negative opinions are submitted, the dissertation will not be accepted.

At the end of the two weeks, the candidate can also inspect the expert opinions.

3.5 Dissertation defense

The public defense is a collegial event led by the chairperson of the PhD commission. The goals and results of the dissertation are discussed in terms of their relevance and scope for the subject as well as their interdisciplinary references. The defense starts with a 30-minute presentation by the doctoral candidate. Then the reviewers comment on the results of the dissertation, e.g. by reading extracts of their expert opinions. This is followed by an extensive public discussion, which begins with the reviewers' questions. In total, the doctoral colloquium takes about 90 minutes.

The PhD commission decides directly afterwards on the passing/failing of the doctoral colloquium and evaluates the colloquium with the above grading scale. The PhD commission proposes the overall grade to the Faculty Council, whereby the grades summa cum laude, magna cum laude, cum laude or rite can be awarded. The grade summa cum laude can be awarded if the overall grade summa cum laude has been explicitly proposed in at least two expert opinions (if the disputation proceeds accordingly). In addition, the doctoral committee must unanimously support the award of the grade summa cum laude.

The PhD commission may demand editorial changes to the thesis as a condition, which must be made in the obligatory copies. The supervisor of the dissertation is responsible for checking these changes.

In the unofficial part of the defense, the doctoral hat is ceremonially handed over at our Alma Mater directly after the defense and the doctoral student is introduced to the public in a spectacle at the Otto von Guericke Memorial. In the following Faculty Council meeting the predicate is determined by decision of the Faculty Council.

4. Completion of the Doctorate

The work is published online, and the deposit copies are delivered to the library (publication via a publisher is possible, but often involves higher costs). The university library publishes more detailed regulations on how the deposit copies are to be handed in. The title page of the deposit copies must be prepared according to form 5.⁹

The examination office publishes a form for this purpose that must be submitted to the library together with the deposit copies. If the versions of the dissertation text intended for publication comply with the regulations that apply to them, this form is signed by the responsible librarian and sent to the examination office.

After that, the certificate is issued and awarded. Only then, one may officially use the title Dr.-Ing. The doctorate is thus completed. The title will also be entered in the identity card.

Appendices

<i>Doctoral status</i>	Information sheet 1	
<i>Thesis Proposal</i>	Information sheet 2	Only available online
<i>Thesis Proposal - Proof</i>	Form 1	
<i>Doctoral Student Day - Proof</i>	Form 2	
<i>Title page of the dissertation at the opening of the doctoral procedure</i>	Form 3	
<i>Declaration of honor</i>	Form 4	
<i>Cover page of the deposit copies</i>	Form 5	

⁹ Form 5