



## Information for doctoral candidates

### ***Before the opening of the doctorate proceedings***

#### **1. Before enrolment to the doctoral studies**

According to §16 of the admission regulations of TU Dresden (dated 01.06.2012), doctoral candidates are free to enrol for the duration of their doctoral project (maximum 3 years, i.e. 6 semesters). A prolongation can be applied for if a statement of the Faculty can be provided. Enrolment to the Faculty of Electrical and Computer Engineering will be according to the regulations for doctoral studies of Electrical Engineering dated 27.10.2013.

- The doctoral studies include an oral examination (replacement of the rigorosum) with a total of one course of 4 SWS (credit hour per week) or two courses with 2 SWS each (no tutorials or practical courses) which are related to the lecture only
- Courses from undergraduate studies are not allowed since they have already been examined. An exception can be made if the doctoral candidate did not do the undergraduate studies at the Faculty
- In any case, the chosen lectures must not have been part of the Bachelor/Master/Diploma studies
- The acceptance of the examination subjects must be applied for in writing with the doctoral board of the Faculty who's confirmation of acceptance is required
- Partial examinations in case of two courses are not accepted
- The examination can take place before the opening of the doctorate proceedings, the date has to be arranged for by the doctoral office

#### **2. Doctoral proceedings in English language**

Before the opening of the doctorate proceedings, an application in writing has to be submitted if:

- the dissertation shall be submitted in English language
- the oral examination (rigorosum) shall be carried out in English language
- the disputation shall be carried out in English language

**Templates for the application can be found in *Promovendus* via the link „Downloads“ in the doctoral record.**

#### **3. Requirements for a dissertation (doctoral thesis)**

The dissertation represents an important contribution to the further development of the scientific field, which may include:

- announcement and description of new findings
- connection of previously unrelated facts
- development of new theories
- review of completed and ongoing scientific work

- development of new equipment, new experimental procedures or new calculation methods

The dissertation must clearly disclose the following:

- the own contributions of the doctoral candidate
- the experimental, mathematical and computational skills necessary for a professional researcher in this scientific field
- a good general overview of previous and current research of the scientific field, acquired through the study of literature
- the ability of the doctoral candidate to develop a logical structure and a good linguistic presentation of the content
- the ability of the doctoral candidate to distinguish between the important and the unimportant of the own work as well as the work of others

The dissertation is usually

- not a complete presentation or list of every studied topic, sub-topic or other work
- not a chronological presentation of the done work
- not a research report which shows all details about the status of tests, software or similar which could be important for other researchers

#### **4. Structure of the dissertation (doctoral thesis)**

Dissertations usually have the following content structure:

- a) Table of contents
- b) Introduction: classification of the work, presentation of the problem and the motivation for its solution
- c) Status of the work area: Overview of previous work in this area, in particular work which the dissertation is based on or to which it is related
- d) Presentation of contribution to the acquaintance of new knowledge:
  - presentation of own ideas
  - mathematical analysis
  - experimental evidence
  - discussion of results
  - conclusions and suggestions for further research
- e) Summary (of the results)
- f) List of literature/references
- g) Appendices

Dissertations should not include:

- a summary of all work that the doctoral candidate carried out during his research activities, unless they are directly related to the dissertation
- details which merely show the doctoral candidate's understanding of specific scientific facts but are only remotely related to the topic of the dissertation
- unimportant details like repetitive calculations or data and description of standard experiments which are not related to the topic
- full printouts of calculation programs

## 5. Hints for writing the dissertation (doctoral thesis) Hinweise für die Erstellung der Dissertation (Doktorarbeit)

- A good dissertation is written in an understandable technical language. The development of thought is comprehensible. The logically correct order is not necessarily the same order in which the ideas were originally developed. Conceptions of terminology and phrasing are explicit.
- Explanations which are only indirectly related to the topic of the work but are supposed to support the presentation, information of secondary importance, extensive calculations or similar should be put in the appendices.
- Devices and procedures of experimental work have to be described in such a way that the reader is convinced of their rightful planning and credibility. Sufficient details are given to allow for a repetition of the experiment and the observation of the same results.
- In case available or self-developed software was used, the programs should be described in such details that the reader is convinced of the reliability of the calculation results according to the application conditions. The application conditions should be described in detail.
- Significant elements of expression of engineers are formulas, equations, tables, pictures and diagrams. They should be self-explanatory in connection with the table headings or picture captions and, in addition, explained and assessed in the text.
- Information is presented in a clear and well-arranged structure. Therefore, for example, diagrams should only have a reasonable number of graphs.

The dissertation should enable the reviewers to decide:

- if an important contribution to the acquisition of new knowledge has been achieved
- if the doctoral candidate fulfills the requirements for the scientific degree of a doctor of engineering

For the writing of the dissertation, the "Guidelines for Safeguarding Good Scientific Practice, Avoiding Scientific Misconduct and Dealing with Violations" of the Technische Universität Dresden, dated 05.03.2014, have to be followed.

**Abbreviations of the title of the dissertation or company logos are not allowed, ring bindings are not accepted. Such copies will be handed back to the doctoral candidate for revision.**

## ***Opening of the doctorate proceedings***

### **1. Evaluation of a dissertation with „summa cum laude (with distinction)“**

A dissertation can only get the grade „with distinction“ if the results of the own scientific work are not only published in the dissertation but are also presented to the scientific public in an appropriate manner. The distinction exists in particular if the dissertation has been published in prestigious international scientific journals with a peer-review system or during significant international conferences with a high selection rate.

As a minimum requirement to grade the dissertation „with distinction (summa cum laude)“, the doctoral candidate should be the first author of publications of conference-proceedings and of one peer-review-journal to the extent of 20 points according to the following rating:

Minimum requirements (with a duration of the doctorate of 5 years)	20 points
<b>Publications:</b>	
<ul style="list-style-type: none"><li>• in a supraregional international journal with peer-review process</li><li>• if cited in ISI Web of Knowledge, PubMed or IEEExplore, per citation</li></ul>	7 points + 1 point
<ul style="list-style-type: none"><li>• in international conference-proceedings (with peer-review)</li><li>• in workshop-proceedings (with Peer-Review)</li><li>• in national journal, national conference-proceeding</li></ul>	5 points 2 points 3 points
<ul style="list-style-type: none"><li>• as granted patent or patent application</li><li>• as submitted patent</li></ul>	4 points 1 point
<b>Awards:</b>	
<ul style="list-style-type: none"><li>• award for scientific work: national</li><li>• award for scientific work: regional/local</li></ul>	6 points 2 points
<b>Sonstiges:</b>	
<ul style="list-style-type: none"><li>• stipends (Studienstiftung des deutschen Volkes, DAAD usw.)</li></ul>	2 points

### **2. Reviewers and doctoral committee**

The application for the opening of the doctorate proceedings has to be generated in *Promovendus*. Suggestions for reviewers, examiners and members of the doctoral document can be made but have no claim to consideration. When suggesting the reviewers, it needs to be considered that

- at least two reviewers have to review the dissertation (usually including one external reviewer,)
- there should be no joint scientific publications with the external reviewer
- in case of a cooperative doctorate, one reviewer must be a professor at the responsible University of Applied Sciences

The suggestions need to be evaluated and confirmed or, if necessary, changed by the doctoral board.

### **3. Rigorosum**

On the day of the disputation, the doctoral candidate needs to prove his knowledge in the scientific field of his dissertation during a non-public, scientific oral examination (rigorosum) in the presence of the doctoral committee. The rigorosum will take place directly before the disputation. If the doctoral candidate chose to enroll for the doctoral studies of the Faculty, the rigorosum can take place before the opening of the doctorate proceedings (replacement of the rigorosum). In this case, a separate application for acceptance of the rigorosum needs to be handed in.

### **4. Hints for the presentation slides for the Disputation**

- The slides and the scientific presentation (Disputation) have to be in the same language
- Picture should only be used if they convey knowledge which cannot be conveyed through other means

### **5. Short version of the dissertation – theses**

Theses present the essential results of the work on a few pages in form of assertions. Printed copies of the theses are displayed for all attendants of the disputation and are meant to foster the scientific debate during the disputation. They do not include any proofs or justifications.

The theses must be written in the same language as the dissertation.

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