Statutes of the Doctoral School of Biomedical Engineering at the Faculty for Computer Science and Biomedical Engineering at Graz University of Technology

Status: January 10, 2018

(1) Content of the Doctoral Program at the Doctoral School of Biomedical Engineering

The doctoral program offered by the Doctoral School of Biomedical Engineering focuses on scientific-technical issues. These are assigned to the engineering sciences subject of biomedical engineering as well as to closely related fields. The program aims at consolidating students’ knowledge not just in the fields of biomedical engineering, but also in neighboring fields. The program reflects current research. Students who have been admitted to the program in accordance with § 2, section 1 of the doctoral program curriculum may be assigned to the Doctoral School of Biomedical Engineering independent of their previous degree, as long as the content of their doctoral subject may be classified as belonging to the subject area of biomedical engineering.

(2) Academic Degree

Graduates of the doctoral program at the Doctoral School of Biomedical Engineering who were admitted to the Doctoral Program in Engineering Sciences will be awarded the degree of “Doctor of Engineering Sciences”, abbreviated “Dr. techn”. Graduates who were admitted to the Doctoral Program in Natural Sciences will be awarded the degree of “Doctor of Natural Sciences”, abbreviated “Dr. rer. nat”.

(3) Objectives and Subject-Specific Qualification Profile

The objective of the doctoral program is to provide students with the skills required for undertaking independent scientific work in their specific field of engineering and natural sciences as well as in related areas, in addition to the skills required for presenting and defending results at the very highest level. Graduates of the Doctoral Program in Biomedical Engineering will have in-depth knowledge of the subject area of their dissertation, extensive experience in applying the scientific methods pertaining to biomedical science, the ability to present and defend results and the ability to work constructively within a team. Graduates will have acquired the skills to apply latest scientific findings from the fields of engineering and natural sciences independently and in a wide range of applications.
(4) List of Member Institutes at Graz University of Technology

The Doctoral School of Biomedical Engineering consists of the following institutes:

- 7090 Institute of Neural Engineering
- 7170 Institute of Medical Engineering
- 7180 Institute of Health Care Engineering with European Testing Institute
- 7190 Institute of Biomechanics

(5) Inter-University Cooperation

The doctoral school welcomes inter-university cooperation initiatives as well as cooperation initiatives with research laboratories and industrial players. Where students spend some time at external research institutions, it is recommended that they attend the subject-specific training or doctoral seminars offered at these research institutions. This attendance will, as a rule, be recognised as equivalent to the attendance of doctoral seminars offered at the doctoral school, to the extent that such attendance is required. Attendance of lectures and tutorials that are connected to the dissertation and are not offered at TU Graz shall also be recognised. No further special stipulations apply to this doctoral school.

(6) Structure and Tasks of the Coordinating Team

The Coordinating Team of the Doctoral School of Biomedical Engineering is structured as follows: (Professors:Mid-level faculty members:Doctoral candidates) as in (1:1:1) with deputies (1:1:1). The members of the Coordinating Team shall be elected by the curiae every two years. The team appoints a chairperson and a deputy chair from among its members. The tasks of the Coordinating Team are defined by § 3(4) of the doctoral study plan. Furthermore, the Doctoral School of Biomedical Engineering recommends a trial presentation to be held prior to the viva voce. The date and time for this trial run must be communicated to the Doctoral School of Biomedical Engineering as well as to the students allocated to this school. The dates and times of the viva voce must be communicated to all students allocated to the Doctoral School of Biomedical Engineering as well as to all institutes allocated to the doctoral school.

(7) Guidelines for the Supervision of Doctoral Candidates at the Doctoral School of Biomedical Engineering

As a rule, supervisors of doctoral candidates will be habilitated lecturers at the institute to which the doctoral candidate is allocated. A regular exchange between the doctoral candidate and his/her supervisor based on progress reports provided by the doctoral candidate shall be agreed on in writing at the beginning of the working relationship and adhered to throughout. A copy of this written schedule must be presented to the head of the Doctoral School. It is the task of all doctoral supervisors to challenge and support doctoral candidates in equal measure. This support is for instance given in the form of targeted, timely feedback on presented results, in the mediation of subject-specific contacts within and outside the university and in the provision of opportunities for representing interim and final results.
(8) **Guidelines for the Assessment of the Doctoral Dissertation**

In accordance with the regulations of the doctoral study plan, the assessors of a dissertation completed at this doctoral school must not be employed at the same institute. It is recommended that a colleague from a different university is consulted in the role of second assessor. Exceptions may be granted subject to approval of the supervisor and the Dean of Studies of the nearest related subject.

(9) **Publication Guidelines at the Doctoral School of Biomedical Engineering**

As a rule, the Doctoral School of Biomedical Engineering requires that doctoral candidates publish three articles in international (peer-reviewed) journals prior to completing their doctoral program or have them "in press". However, at least one article as a first author and an additional article as a co-author must be published or "in press" in a high ranking Journal for the related subject area. An article with co-authorship may be replaced by the authorship of a relevant patent. The patent counts if it is either submitted by Graz University of Technology or by a company. The dissertation has to be written in English and can be submitted as a cumulative dissertation with a paratext. For a cumulative dissertation with a paratext at least three peer-reviewed papers in acknowledged journals as a first author or two as a first author and two as a co-author, with substantial contribution within the subject area of the Thesis, must be accepted. Within a cumulative dissertation the own scientific contribution of the four articles need to be described in an introductory chapter.

(10) **Scope of the Curricular Workload within the Doctoral Program**

The basic extent of the curricular workload for the Doctoral Program at the Doctoral School of Biomedical Engineering is 14 semester course hours, which are allocated down as follows: subject-specific basic modules acc. to § 6(2): 8 semester course hours; modules from "Scientific Methods and Communication" acc. to § 6(3): 4 semester course hours, of which 2 hours must be made up by the doctoral seminar; private tutorial acc. to § 6(4): 2 semester course hours. The sections and paragraphs specified here refer to the doctoral study plan.

(11) **Subject-Related Basic Modules**

Subject-specific basic modules must be selected by the doctoral candidate in close cooperation with his/her supervisor from the range of modules offered by Graz University of Technology. The subject plan is subject to approval by the Dean of Studies of the most closely related study course. The selected subjects must correspond to the scope of the specific dissertation project as closely as possible, with the goal of providing doctoral candidates with the best possible level of qualification. The doctoral school recommends for instance modules from § 5a (list of elective courses) in the study program for the master's degree course in Biomedical Engineering, Mechanical Engineering, Teleinformatics, etc. Modules that were completed as part of the course that qualified the doctoral candidate for admission to the doctoral program (e.g. master’s degree course) may not be chosen as subject-specific basic modules. To support the concept of a broad basic educational foundation at a high level, students are strongly discouraged from choosing only lectures that take place at their supervisor’s institute.
(12) **Modules within “Scientific Methods and Communication”**

The “Scientific Methods and Communication” part of the curriculum aims at teaching the theoretical knowledge and practical skills required for developing research results using scientific methods and to present and defend these results as illustrated by the following modules. Due to the size of the doctoral school, the modules offered within the broader context of "Scientific Methods and Communication" shall be offered in a doctoral seminar that comprises 2 semester course hours in total and is not confined to a given semester. The seminar may be offered in several groups. Mandatory attendance is required throughout the course of the dissertation. Every doctoral candidate at the doctoral school must present a progress report on his/her dissertation at least once per semester and attend the seminar as a listener outside the own institute at least one further time per semester. Attendance is confirmed by the conducting lecturer on an attendance sheet kept by the student. The certificate of attendance shall be issued by the conducting lecturer upon presentation of the attendance sheet.

As part of this seminar, progress and results of doctoral projects that are currently in progress at the Doctoral School of Biomedical Engineering are presented. In this seminar, doctoral candidates will report on the progress of their research work. All doctoral candidates in the first semester of their doctoral degree must introduce their project outline to the doctoral seminar. The Dean of Studies may accept applications to include other modules or courses in the most closely related field of studies if they are equivalent in terms of content.

(13) **Private Tutorial**

This is an opportunity for one-to-one engagement with the student’s work offered by the supervisor and entails the studying and discussion of presented concepts, interim results, formulations etc. and concrete feedback provided by the supervisor.

(14) **Rules for the Composition of the Board of Examiners for the Viva Voce**

The board of examiners for the viva voce must at least consist of three people, and, as a rule, it consists of the Dean of Studies for the most closely related degree course, and the two assessors of the dissertation. At least one member of the examining board must come from outside TU Graz.

(15) **Rules for Conducting the Viva Voce**

Referee's reports must be provided as a signed hardcopy before the start of the thesis defense. If these examiner's reports are not available, the thesis defense must be canceled. The candidate’s supervisor has the responsibility to communicate this requirement to the external referees. The referee's report must contain the candidate’s name, the title of the dissertation and a mark.

The date and time for the viva voce as well as the composition of the board of examiners must be announced at least two weeks in advance via e-mail to all members of the doctoral school. As a rule, the viva voce consists of a presentation given by the doctoral candidate of the research work (duration ca. 30 min) that he/she has completed and the content of his/her dissertation, e.g., the scientific problem formulation, the selected research methodology, the main areas of emphasis and the main results. Furthermore, there will be an examination during which questions are asked on the dissertation and its presentation as well as closely related subject areas. The examination will be conducted by the board of examiners. All persons
present shall have the right to ask questions on the presentational part of the viva voce, at the
discretion of the chairperson.

(16) Confidentiality Agreements

In some cases, the work that the doctoral candidate completes during his/her studies is financed
through cooperation projects with industry players (Universities, research labs, etc.) who usually
require the results obtained during the program and documented in the dissertation to be treated
confidentially.
Dissertations, however, are subject to the disclosure requirement stipulated in § 86, University
Studies and Organization Act 2002. In well-founded exceptional cases, access to the
dissertation may be blocked by mutual agreement between the doctoral candidate, his/her
supervisor and the industrial partner in question, thus ensuring confidentiality for the duration of
the block. However, in accordance with section (9), all partners should still aim for publication of
dissertation results to an extent that is acceptable to all parties concerned. Any confidentiality
agreements that must be concluded should also regulate the doctoral candidates’ right to
present results at conferences and at the doctoral seminar.

(17) Temporary Regulation

Doctoral candidates within Biomedical Engineering who started their doctoral study before the
enforcement of the present statutes can complete the doctoral study according to the (old)
statutes of the Doctoral School of Electrical and Biomedical Engineering.