

# Statutes of the Doctoral School of Chemical and Process Engineering

Version of 2020-06

These statutes were written by the coordination team of the Doctoral School of Chemical and Process Engineering. The coordination team of the Doctoral School, together with the officer responsible for study matters, is responsible for the content-related implementation of the subject-specific details according to § 3 (4) of the currently applicable curriculum.

The curriculum for the Doctoral Programme in Technical Sciences and the curriculum for the Doctoral Programme in Natural Sciences at Graz University of Technology are applicable in the currently valid version.

## 1. Scope of the Doctoral School

- (1) The doctoral programme at the Doctoral School of Chemical and Process Engineering (German title: Doctoral School für Verfahrenstechnik) aims to provide in-depth scientific training in chemical and process engineering. The degree programme focuses on deepening a doctoral candidate's understanding of (i) the scientific areas of classical chemical and process engineering (transport processes of mass and energy, chemical thermodynamics, reaction engineering, mechanical process engineering, particle technology, thermal process engineering, as well as paper, pulp and fibre technology) as well as of (ii) plant engineering, process simulation and process dynamics. In addition to the above mentioned theoretical subjects, more application-oriented research areas are also represented. The latter particularly include environmental engineering, pharmaceutical process technology, applications in energy technology and biotechnology, material and energy use of renewable raw materials, as well as specific aspects of chemical and process engineering.
- (2) The training takes place alongside research activities. Students who have been admitted to the programme in accordance with § 2 (1) of the curriculum may be associated with the Doctoral School of Chemical and Process Engineering independent of their previous degree, as long as the content of their doctoral studies can be classified as belonging to the subject area of chemical and process engineering.
- (3) Within the doctoral programme offered at Graz University of Technology, the Doctoral School of Chemical and Process Engineering is committed to supporting doctoral candidates who are already actively working in the field. The curricular part of the degree programme is hence designed to allow for participation of doctoral candidates who are already employed.

## 2. Academic degree to be awarded

- (1) Graduates of the doctoral programme at the Doctoral School of Chemical and Process Engineering who were admitted to the Doctoral Programme in Technical Sciences are awarded the academic degree “Doctor of Technical Sciences” (abb. Dr. techn.). Graduates who were admitted to the Doctoral Programme in Natural Sciences will be awarded the academic degree “Doctor of Natural Sciences” (abb. Dr.rer.nat.).
- (2) The officer responsible for study matters, in consultation with the supervisor and the doctoral candidate, must determine which of the two studies the doctoral candidate enrolls in during the admission procedure for the doctoral programme, considering the orientation of content of the doctoral thesis.

## 3. Objectives and subject-specific qualification profile

The objectives of the doctoral programme are to develop skills for independent scientific research, to advance knowledge of the graduates in the specific subject areas mentioned above, and to provide doctoral candidates with the abilities needed to present and defend research results at the highest level. Graduates of the Doctoral School of Chemical and Process Engineering have in-depth knowledge about the areas of their doctoral theses, extensive experience with the application of scientific methods in the technical and natural sciences, skills in presenting and defending research results, and have the ability for teamwork. A graduate of this Doctoral School is able to independently implement the latest scientific knowledge from the fields of technical and natural sciences and the related application areas.

## 4. Subjects of the Doctoral School and cooperation

- (1) The Doctoral School of Chemical and Process Engineering comprises the following institutes belonging to the subject area of chemical and process engineering, as well as associated members with a teaching qualification from a directly related subject area, along with doctoral candidates of the subject area chemical and process engineering. This Doctoral School is organised across faculties and universities. The list of institutes and members currently includes:
  - (2) Institutes
    - 6610 Institute of Bioproducts and Paper Technology
    - 6670 Institute of Chemical Engineering and Environmental Technology
    - 6690 Institute of Process and Particle Engineering
  - (3) Associated members  
Habilitation and appointed professors at Graz University of Technology and the University of Graz can apply for membership in the Doctoral School of Chemical and Process Engineering.
  - (4) External cooperation partners  
The Doctoral School of Chemical and Process Engineering is committed to openness and therefore explicitly invites academic staff with teaching qualification who are active in the subject area of the Doctoral School as either teaching or research staff at other domestic and foreign universities which have the right

to award doctorates.

Cooperation within the Doctoral School of Chemical and Process Engineering concerns the curricular part, the organisation of the doctoral seminar, the assessment of the doctoral thesis, as well as conducting the doctoral examination.

External cooperation partners with a teaching qualification at other universities that have the right to award doctorates may offer specialist courses at their own universities for the curricular part of the Doctoral School of Chemical and Process Engineering at Graz University of Technology.

(5) **Cooperation for the doctoral seminar**

The doctoral seminar is held annually either by the institutes associated with the Doctoral School or external cooperation partners. Organising the doctoral seminar is the responsibility of the cooperation partner at the respective university.

## **5. Structure of the coordination team**

- (1) The Doctoral School of Chemical and Process Engineering is headed by a tripartite coordination team, which is made up of one representative of the university professors, one representative of the (habilitated) associate professors and assistants in research and teaching, and one representative of the doctoral candidates in the field of chemical and process engineering.
- (2) The members of the coordination team of the Doctoral School of Chemical and Process Engineering are nominated by their respective peers. The coordination team elects a chairperson and a deputy chairperson.
- (3) The doctoral candidates of the Doctoral School elect a representative and a deputy representative for a two-year term. The representative participates in the preparation of the plans for the courses in “Scientific Methods” and the doctoral seminar. The representative has the right to be heard in the event of disagreement (as outlined in § 4 (8) of the curriculum).
- (4) Based on proposals from the members and in consultation with the officer responsible for study matters, the coordination team compiles course catalogues and assumes the tasks specified in the curriculum.

## **6. Guidelines for supervision and mentoring**

- (1) The supervisor of a doctoral thesis must conduct a formal dialogue with the doctoral candidate once a year, in which the progress of work is discussed and the goals for the following year are set. Doctoral candidates are required to upload a progress report (“annual report”) to the “Doktoratsmanagement” (doctoral management) tool in TUGonline once a year, which must be confirmed online by the supervisor. A form for this annual report is provided on the intranet-site (TU4U) of the Dean’s Office of the Faculty of Technical Chemistry, Chemical and Process Engineering, Biotechnology.
- (2) A list of courses (“course plan”) selected for the curricular part of the doctoral

programme must be submitted along with the first annual report (no later than 12 months after the start of the doctoral project) in coordination with the supervisor. Subsequent annual reports must indicate the progress made regarding the completion of these courses.

- (3) Mentoring should aim at providing informal and confidential support to the doctoral candidate. The mentors should support the mentees in making progress with their studies and in dealing with the supervisor throughout the entire duration of the doctoral programme.
- (4) Mentors should be connected to the field of the Doctoral School and have earned at least a doctorate or equivalent academic degree. They do not have to be explicitly affiliated with the Doctoral School of Chemical and Process Engineering or Graz University of Technology (e.g., mentors can be affiliated with a cooperating company). The mentor is to be nominated by the coordination team based on the recommendation of the doctoral candidate.
- (5) The coordination team must decide on mentors recommended by the doctoral candidate within 10 working days. Recommendations may be sent informally to the chairperson of the coordination team at any time.
- (6) To maintain confidentiality, both the mentor and the mentee must sign a separate non-disclosure agreement before mentoring begins.

## 7. Curricular Part

- (1) The scope of the curricular part according to the guidelines of § 6 of the curriculum totals 14 semester course hours per week (SWS) and consists of the following:

### **Subject-specific basic courses (6-8 SWS)**

The course catalogue for subject-specific basic courses includes all courses (with the exception of those of the bachelor's programme) offered at the institutes associated with the Doctoral School and commissioned by the officer responsible for study matters. Each doctoral candidate must submit a course plan for the curricular part, which must then be discussed with the supervisor and confirmed by the officer responsible for study matters. This list of selected courses should include courses both relevant for and supporting the work on the doctoral thesis. To support the concept of a broad basic educational foundation at a high level, doctoral candidates are strongly discouraged from choosing only lectures that are given at the institute of their supervisor.

It is expressly stated that doctoral candidates also have the option of choosing courses from outside the course catalogue of the Doctoral School (§ 6 (2) 4 of the curriculum). Examinations completed at recognised national or international post-secondary educational institutions, universities or non-university research institutions (for instance summer schools or specialist courses) may also be approved by the officer responsible for study matters if equivalence is met. Courses that doctoral candidates have already completed as part of their master's degree programme are not admissible.

### **Scientific Methods and Communication (4-6 SWS)**

Courses in this part of the curriculum aim at teaching the theoretical knowledge and practical skills required for developing research results using scientific methods and to present and defend these results.

#### 1. Doctoral seminar (2 SWS)

The doctoral seminar is offered once a year as a block session (1 SWS). The doctoral seminar is a mandatory part of the curricular part. The courses “Scientific Methods” (see below) and the doctoral seminar can be held jointly as a block session. The supervisors of doctoral theses must ensure that doctoral candidates are able to take part in the doctoral seminar twice. Successful active participation in the doctoral seminar must be confirmed by the supervisor by issuing a certificate with the assessment “successfully completed”. The supervisor is responsible for facilitating participation in the doctoral seminar and for providing evidence that the doctoral candidate has given at least one lecture.

Proof of active participation in an international scientific event (e.g. AIChE Annual Meeting, ProcessNet annual conference, TAPPI etc.) is recognised as proof of successful completion of the doctoral seminar totalling 1 SWS per event.

The presentation of the doctoral project including the research plan within the first year (§ 4 (1) of the curriculum) can take place outside of the doctoral seminar and may be held virtually. The results of the doctoral project in the last year of the doctoral programme may also be presented virtually outside of the doctoral seminar.

2. Scientific Methods (2 SWS) from the course catalogue compiled by the coordination team in consultation with the officer responsible for study matters.
3. Soft Skills (2 SWS, optional) from the course catalogue compiled by the coordination team in consultation with the officer responsible for study matters. If the doctoral candidate can show proof of Soft Skills totalling 2 SWS, then only 6 SWS of subject-specific basic courses must be completed.

### **Tutorial for postgraduate students (PV, 2 SWS)**

This tutorial for doctoral candidates aims to provide personal supervision of the doctoral candidate by the supervisor.

- (2) The course selection for the curricular part (i.e., the compilation of the course plan) must be made in consultation with the supervisor. Course catalogues with recommended courses for the Doctoral School of Chemical and Process Engineering are provided on the intranet-site (TU4U) of the Dean’s Office of the Faculty of Technical Chemistry, Chemical and Process Engineering, Biotechnology.

## **8. Publication guidelines**

- (1) Every doctoral candidate must provide evidence of at least one publication on the subject of the doctoral thesis in an internationally refereed scientific journal. The acceptance for publication shall be deemed sufficient as a proof of publication. The coordination team may, together with the officer responsible for study matters, also accept a publication in national or international conference proceedings, subject to a majority vote.

- (2) A submission of the doctoral thesis without publication is possible in exceptional cases (see § 6 (5) of the curriculum as well as § 10 (1) of these statutes).

## **9. Guidelines for preparing the doctoral thesis**

- (1) It is recommended that the doctoral thesis is written in the language commonly used for publications in the corresponding field of study. In justified cases, possible individual deviations from current practice may be deemed acceptable upon clarification with the supervisor. Information on the procedures for doctoral projects and the completion of doctoral studies is provided on the intranet-site (TU4U) of the Dean's Office of the Faculty of Technical Chemistry, Chemical and Process Engineering, Biotechnology.
- (2) A doctoral thesis may be submitted as a collection of several publications, e.g. articles or papers that have already been published or accepted for publication ("Manteldissertation" or "kumulative Dissertation" in German) according to § 5 (6) of the curriculum. If the doctoral thesis is a collection of several publications, the doctoral candidate's share of work must be clearly stated for each publication (e.g., in form of a table with the contributions of all co-authors, see § 5 (5) of the curriculum). Furthermore, the content and the connections between the individual publications in such a dissertation must be clearly explained in an introductory chapter.

## **10. Guidelines for the assessment of the doctoral thesis**

- (1) The doctoral thesis is assessed by two reviewers in accordance with § 31 (4) of the Excerpt of Statutes Legal Regulations for Academic Affairs. If no publication exists, at least three reviews must be obtained for assessments of the doctoral thesis.
- (2) Only one reviewer may be a staff member of Graz University of Technology.
- (3) Co-authors of doctoral thesis-relevant publications written by the doctoral candidate must not act as external reviewers. Relevant publications include (i) all publications that are part of the doctoral thesis (if the doctoral thesis is a collection of publications), and (ii) all publications by the doctoral candidate from which essential parts have been adopted in the doctoral thesis.
- (4) It is recommended that doctoral candidates, in coordination with the supervisor, prepare a list of suggested reviewers already 5 months before the planned doctoral examination. In any case, the selection of the reviewers should be completed at least two months before submitting the doctoral thesis (see § 5 (3) of the curriculum). Suggestions for reviewers must be briefly justified in written form before they are submitted to the coordination team.
- (5) The selection of the reviewers according to § 5 (2) of the curriculum is carried out by the coordination team of the Doctoral School. The habilitated members of the Doctoral School must be informed of the selection and have the option of giving their opinion on the selection.



- (6) Within 10 working days, the coordination team must decide if the reviewers suggested by the doctoral candidate are acceptable or new suggestions for reviewers must be submitted.
- (7) After acceptance by the coordination team, all reviewers should be made familiar with the preliminary version of the doctoral thesis. This enables the doctoral candidate to take any suggestions for improvement into consideration in due time.

### **11. Guidelines for the doctoral examination**

The doctoral examination consists of two parts, these are (i) a presentation with a maximum length of approx. 30 minutes followed by a discussion and (ii) an oral exam by the board of examiners with a maximum length of 1 hour on the subject area of the doctoral thesis. Members of the board of examiners may not be employed at the same institute (see § 7 (2) of the curriculum), but may all be staff members of Graz University of Technology. The qualifications necessary for becoming a member of the board of examiners are defined in § 23 (2) and (3) of the Excerpt of Statutes Legal Regulations for Academic Affairs.

### **12. Confidentiality agreement**

The habilitated members of the Doctoral School and the representatives of the doctoral candidates in the coordination team must provide a written confidentiality agreement. This agreement covers in particular (i) reports and statements issued by the doctoral candidate and his/her supervisor (§ 4 (4, 6) of the curriculum), (ii) any aspects regarding the assessment of a doctoral thesis (§ 5 (2) of the curriculum), and (iii) the full content of the doctoral project and the doctoral thesis, if access to the doctoral thesis is blocked or restricted by the officer responsible for study matters (§ 5 (1, 7) of the curriculum).

### **13. Transitional arrangement**

The present statutes are applicable to doctoral candidates who are subject to the curriculum for the Doctoral Programme in Technical Sciences and the curriculum for the Doctoral Programme in Natural Sciences at Graz University of Technology, version 2019, which came into effect on October 1, 2020. Regular doctoral candidates who began their Doctoral Programme in Technical Sciences or the Doctoral Programme in Natural Sciences at Graz University of Technology before October 1, 2020 and did not submit to the curriculum in the 2019 version, are entitled to continue and complete their doctoral programme in accordance with the statutes that were previously valid until September 30, 2024.