

## Statutes of the Doctoral School of Physics

*(Please note: The English version of this document is a courtesy translation. Only the German version is legally binding.)*

The Doctoral School of Physics is a joint, cross-university project between the physics institutes of Graz University of Technology and the Department of Physics of the University of Graz within the framework of the NAWI Graz cooperation for natural sciences. This document describes the scope of responsibilities of Graz University of Technology in this cooperation. The Doctoral School of Physics considers itself an internationally oriented Doctoral School, therefore the language of the School is English.

The Doctoral School constitutes the formal framework in which the members of the Doctoral School act. The coordination team for 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. References in this document refer to the version that came into effect on 1 October 2024.

### **1. Scope of the Doctoral School of Physics**

The doctoral programme at the Doctoral School of Physics deals with problems of the technical sciences in the technical and natural science field of physics and closely related subject areas. The doctoral programme advances the abilities of the doctoral candidates, not only in the natural sciences mentioned and in the field of their research subject, but also in related areas. The training takes place alongside research activities. Students who have been admitted to the programme in accordance with § 2 (1) of the doctoral programme curriculum may be associated with the Doctoral School of Physics independent of their previous degree, as long as the content of their doctoral subject may be classified as belonging to the subject area of physics. The officer responsible for study matters is responsible for deciding on admission. In order to ensure a basic understanding of the subject area, the officer responsible for study matters can, if necessary, designate parts of the curricular workload as an introductory portion to working in the field of physics.

### **2. Academic degree to be awarded**

Graduates of the doctoral programme at the Doctoral School of Physics 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 are awarded the academic degree “Doctor of Natural Sciences” (abb. Dr.rer.nat.).

### 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 area of their doctoral thesis as well as related subject areas, and to provide graduates with the abilities needed to present and defend research results at the highest level.

Graduates of the Doctoral School of Physics 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 the ability for teamwork. Graduates of this Doctoral School are able to independently implement the latest scientific knowledge from the fields of technical and natural sciences and their areas of application.

### 4. Subjects of the Doctoral School

#### a. Associated institutes

The Doctoral School of Physics comprises the following institutes belonging to the subject area of physics as well as associated representatives with teaching qualification from directly related subject areas along with doctoral candidates of the subject area physics. The list of associated institutes currently includes:

- Institute of Experimental Physics
- Institute of Solid State Physics
- Institute of Theoretical and Computational Physics
- Institute of Materials Physics
- Institute of Electron Microscopy and Nanoanalysis

#### b. Cooperation partners

The Doctoral School is operated in cooperation with the Department of Physics of the University of Graz within the framework of the NAWI Graz cooperation, and thus builds on the existing cooperation framework for the joint bachelor's and master's degree programmes. Students at both universities can and are encouraged to take the courses offered by the partner university. The PhD seminar is held jointly according to § 6 (3) 2 of the curriculum.

Staff of Graz University of Technology and the University of Graz with a teaching qualification can apply for membership in the Doctoral School of Physics with the officer responsible for study matters in consultation with the coordination team.

### 5. Structure and tasks of the coordination team

The Doctoral School of Physics is headed by a tripartite coordination team, which is made up of one representative from each of the groups named in § 3 (3) of the curriculum for doctoral programmes. The members of the coordination team of the Doctoral School of Physics are nominated by their respective peers and the student representation. Each group also appoints at least one substitute member. The coordination team elects a chairperson and a deputy chairperson.

The coordination team assumes the tasks specified in the curriculum for the Doctoral Programme in Technical Sciences and in the curriculum for the Doctoral Programme in Natural Sciences at Graz University of Technology.

#### ***Officer(s) responsible for study matters***

The officer responsible for study matters at the Doctoral School of Physics is the responsible Dean of Studies in charge of the Master's Degree Programmes Technical Physics and Physics.

When making decisions on doctoral candidates under their own supervision, the officer responsible for study matters is required to recuse himself/herself from their tasks as officer responsible for study matters due to possible conflicts of interest (see (7) of the Graz University of Technology's Code of Conduct) and allow their deputy to take over.

### ***Doctoral candidate representative in the coordination team***

The doctoral candidates of the Doctoral School elect a representative and at least one deputy representative for a two-year term. The representative participates in the preparation of the course plans for “Scientific Methods” and the PhD seminar. The representative has the right to be heard in the event of disagreement (as outlined in § 4 (8) of the curriculum).

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

The key aspects of the doctoral programme process and the modalities of supervision are regulated in § 4 of the curriculum.

Educational agreement and presentation: During the first six months of the doctoral programme, doctoral candidates and supervisors jointly develop an educational agreement in accordance with § 4 of the curriculum. The doctoral project must then be presented in the PhD seminar.

Mentoring: Doctoral candidates have the right to a mentor. Mentors should come from the Doctoral School of Physics or associated institutions and have earned at least a doctorate or equivalent academic degree. They do not have to be explicitly affiliated with the Doctoral School of Physics or Graz University of Technology (e.g. mentor from cooperating company). According to § 4 (5) of the curriculum, doctoral candidates can nominate a person to act as their mentor at any time. If no specific person is requested by the doctoral candidate, the coordination team may look for a suitable person together with the doctoral candidate.

Mentoring should aim to provide 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. These more experienced individuals can provide feedback on the feasibility of a research plan and help the young scientists and researchers expand their professional network by providing contacts, recommending which conferences to attend or helping to select which journals to publish in to increase visibility in a particular field.

Co-supervision: Doctoral candidates are assigned a supervisor who is a member of Graz University of Technology with a teaching qualification as well as a member of the Doctoral School of Physics. Additional qualified staff may also assist in the supervision of doctoral theses in the form of co-supervision. All co-supervisors at the Doctoral School of Physics must hold a doctorate or a teaching qualification or both.<sup>1</sup>

If two supervisors co-supervise a doctoral thesis equally, both supervisors must have teaching qualifications. Members of Graz University of Technology with teaching qualifications who are assigned to the Doctoral School of Physics may also equally share co-supervision duties with a member of a different recognised domestic or foreign university who has a teaching qualification. In such a case of equal co-supervision, a written agreement between the doctoral candidate and the supervisors must be signed within six months of the start of the doctoral programme. This

---

<sup>1</sup> A common reason for co-supervision is the acquisition of project funds to finance a doctoral thesis by an assistant professor who is still working on their habilitation.

agreement must specify the division of tasks for areas in which only one supervisor is intended to act and must be submitted along with the educational agreement normally required for the doctoral programme. The co-supervision agreement must be submitted to the coordination team.

Progress report: Doctoral candidates have to upload a progress report in TUGRAZonline via “Mein Doktorat” (My Doctoral Programme) once a year. The progress report should reflect on the successes/failures and personal development in the past year and provide an outlook on the following year. The form to be used for the progress report is provided on the website of the Dean’s Office for Physics on TU4U, the intranet of Graz University of Technology. A list of the courses selected for the curricular workload of the doctoral programme must be submitted along with the first progress report (no later than 12 months after the start of the doctoral project). Further progress reports must indicate the progress made regarding the completion of these courses and include an adapted course list if necessary.

### **7. Instructional classes**

In accordance with § 6 of the curriculum, the scope of the curricular workload amounts to a total of 18 ECTS credit points and consists of subject-specific basic courses in the amount of 9–12 ECTS credit points, courses from Scientific Methods and Communication in the amount of 4–7 ECTS credit points, and an exclusive tutorial for doctoral programmes amounting to 2 ECTS credit points.

#### **a. Subject-specific basic courses (9–12 ECTS credit points)**

The course catalogue for subject-specific basic courses includes all courses (with the exception of those in the curriculum of a bachelor’s degree programme) offered at the institutes associated with the Doctoral School and commissioned by the Dean of Studies. All doctoral candidates must submit a list of the courses selected for the curricular workload, which must then be discussed with the supervisor(s) and confirmed by the officer responsible for study matters. This list of the courses selected should include courses both relevant for and supporting the work on the doctoral thesis.

It is expressly stated that doctoral candidates also have the option of choosing courses from outside the course catalogue of the Doctoral School (see § 6 (2) 4 of the curriculum).

Examinations completed at recognised national or international post-secondary educational institutions and universities may also be approved by the officer responsible for study matters if equivalence is met and there are no significant differences with regard to the acquired learning outcomes. Courses that have been completed to fulfil the admission requirements for the doctoral programme may not be counted as subject-specific basic courses. Participation in summer and winter schools may be credited, with a one-week event counting for 1.5 ECTS credit points. A maximum of 3 ECTS credit points can be earned through attendance of such schools.

#### **b. Scientific Methods and Communication (4–7 ECTS credit points)**

- i. The seminar Scientific Work (2 ECTS credit points) aims to impart the theoretical knowledge and practical skills needed to develop and publish research results using scientific methods.
- ii. In the PhD seminar (1 ECTS credit point), this knowledge is expanded upon using practical exercises to teach doctoral candidates how to present and defend their research results. The seminar is held at least twice a year in the form of a DocDay. All doctoral candidates and all members of the Doctoral School are invited to participate. As part of these seminars, all doctoral candidates must present their research project within the first year as well as their research achievements at the end of their doctoral programme.

iii. It is also possible to complete courses on Soft Skills with a maximum total of 3 ECTS credit points. This reduces the required total of the subject-specific basic courses by up to 3 ECTS credit points. A current list of possible courses is available on the intranet-page (TU4U) of the Dean's Office of the Faculty of Mathematics, Physics and Geodesy. Upon request, other courses with corresponding course content may be accepted by the officer responsible for study matters.

**c. Exclusive tutorial for doctoral programmes (2 ECTS credit points)**

The exclusive tutorial for doctoral candidates is offered by all teaching staff with a teaching qualification and aims to provide personal supervision of the doctoral candidate by the supervisor.

### **8. Publication guidelines at the Doctoral School**

Every doctoral candidate must provide evidence of at least one publication on the subject of the doctoral thesis in an internationally referenced scientific journal. The acceptance for publication shall be deemed sufficient as proof of publication. The coordination team may, together with the officer responsible for study matters, also accept a publication in international conference proceedings, subject to a majority vote. If no publication exists, at least three reviews must be obtained for assessments of the doctoral thesis.

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

It is strongly recommended to write the doctoral thesis in English. According to § 5 (6), a doctoral thesis in the form of a collection of several publications ("Manteldissertation" or "kumulative Dissertation" in German) must include at least three published or accepted articles or papers, of which the doctoral candidate must be the first author for at least two. The included articles or papers must be prefaced by an introductory chapter that clearly presents the fundamentals, content and context of the doctoral thesis subject area. It is recommended to consult with the coordination team to determine whether a compilation doctoral thesis is appropriate.

The "Leitlinie für den Einsatz von Künstlicher Intelligenz (KI)-gestützten Tools im Bereich der Lehre" (Guideline for the Use of Artificial Intelligence (AI)-Supported Tools in Teaching) of Graz University of Technology must be strictly adhered to when making use of AI-supported tools.

The final version of the doctoral thesis must be submitted to the Dean's Office no later than eight weeks before the oral examination. A current check list for the completion of studies process is available on the intranet-page (TU4U) of the Dean's Office of the Faculty of Mathematics, Physics and Geodesy.

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

The appointment of evaluators and the assessment of the doctoral thesis are regulated in § 5 of the curriculum. The doctoral candidate must submit a list of recommended evaluators to the coordination team of the Doctoral School of Physics at the latest two months before submitting the doctoral thesis and after consultation with the supervisor. The proposal is to be accompanied by a list of the doctoral candidate's own published works and works possibly still in progress of being accepted for scientific publication, which are to be used for the doctoral thesis. After a pre-selection by the coordination team, all evaluators must familiarise themselves with the preliminary version

of the doctoral thesis as well as the regulations of Graz University of Technology. This enables the doctoral candidate to take any suggestions for improvement into consideration in good time.

For doctoral theses in the Doctoral School of Physics, at least one evaluator must be appointed from outside NAWI Graz. If no publication exists according to point (8), an additional external review must be obtained for assessments of the doctoral thesis.

It is expressly pointed out that doctoral candidates have the right to inspect the reports within the statutory period (cf. § 84 (1) Universities Act (UG) as amended).

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

#### **a. 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 examination by the board of examiners with a maximum length of 1 hour on the subject area of the doctoral thesis. It is possible for external examiners to join the doctoral examination remotely using digital media. However, this requires the consent of the entire board of examiners. Furthermore, the reliability of the technical method used must be tested in advance.

#### **b. Structure of the board of examiners**

The composition of the board of examiners is defined under § 7 (1) and (2) of the currently valid curriculum. Evaluators do not have to be members of the board of examiners.

### **12. Confidentiality agreement**

The non-student members of the Doctoral School of Physics and the doctoral candidate representatives in the coordination team must provide a written confidentiality agreement. This agreement refers in particular to (i) reports and statements issued by the doctoral candidates and the supervisors (§ 4 (4, 6) of the curriculum), (ii) any aspects regarding the assessment of a doctoral thesis (§ 5 (2) of the curriculum), and (iii) the overall scope of the doctoral project and the doctoral thesis as a whole, if the officer responsible for study matters has approved the application for exclusion of use of the submitted copies for a maximum of five years after handover of the doctoral thesis and project (§ 5 (1) and (7) of the curriculum).

### **13. Self-evaluation of the Doctoral School**

By decision of the Curricular Committee for doctoral programmes and university certificate programmes, the Doctoral School must conduct a self-evaluation every six years. This self-evaluation is carried out by the coordination team, which also writes the self-evaluation report. The report records the Doctoral School's publication output, graduation rates, study duration, and professional prospects of doctoral graduates in coordination with the Quality Management, Evaluation & Reporting organisational unit. The doctoral candidate members of the Doctoral School's coordination team regularly survey doctoral students; the results of these surveys are also included in the report. The completed self-evaluation report must be discussed within the Doctoral School and forwarded to the Curricular Committee for doctoral programmes and university certificate programmes.

**14. Transitional arrangement**

The present statutes are applicable to doctoral candidates who are subject to the curriculum for the Doctoral Programme at Graz University of Technology, version 2024, which came into effect on 1 October 2024. Doctoral candidates who began the Doctoral Programme at Graz University of Technology before 1 October 2024 and did not submit to the curriculum in the 2024 version are entitled to continue and complete their doctoral programme in accordance with the previously valid statutes until 30 September 2028. If the degree programme is not completed by 30 September 2028, doctoral candidates become subject to the curriculum and statutes of the Doctoral Programme as amended.

	NAME	DATE
Document number	ST 92081 DSPH 192-01	
Created / last updated	Chair of the Coordination Team DSPH Markus Aichhorn	5 May 2025
Checked	Curricular Committee for doctoral programmes and university certificate programmes	27 May 2025
Approved	Decision by the Senate	23 June 2025
Published	University Gazette	2 July 2025
Entry into force		3 July 2025