

PhD at IAIK

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Before the Admission

- You find a PhD supervisor at IAIK and agree on basic research questions for the PhD
- The supervisor signs a **supervision confirmation letter**

Start of the PhD

- You receive an **employment contract** with IAIK or an associated organization (e.g., Know Center, Lamarr Security Research, SIC) - typically for 1 year in the first step
- You register as a **PhD student** and can start taking courses for your doctoral studies

After 1 Year: **PhD Proposal**

- You submit a **proposal document** (2 weeks before your proposal defense), showing that you have demonstrated all skills necessary for conducting a PhD
- You **present and defend** your Proposal publicly before your **advisory committee**, which you select together with your supervisor
- If successful, you and your supervisor sign the **Educational Agreement** and your employment contract is extended

After Every Year: **Yearly Reports**

- Every year you write an **annual PhD Progress Report** by October 1
- Between October and December, you meet with your supervisor to discuss the report, typically in the annual **Staff Appraisal Meeting** (Mitarbeiter*innengespräch)
- In case of disagreement on the PhD progress, you meet with your advisory committee

After 1.5 to 3 Years: **PhD Candidacy**

- Apply to your committee when you have peer-reviewed content for **3 thesis chapters** or **2 accepted papers at excellent venues (A* or equivalent)**
- If successful, you evolve from PhD Student to **PhD Candidate**

After 3 to 5 Years: **PhD Defense and Thesis**

- You write your **doctoral thesis** (Dissertation) and **defend** it before a PhD committee
- You are then a **PostDoc**. In agreement with your group leader, you can choose to stay at IAIK for a total of up to 6 years, counting from your first day as a PhD Student

Document Scope and Introduction

Doing a PhD is a journey of personal development while pushing science forward. Although this is a very individual journey, we want to give it some structure and align it with the regulations of the university and the doctoral school. In this document, we describe our process, including our expectations.

These expectations also include concrete numbers (e.g., for the number of publications). We provide these numbers as orientation. However, clearly a PhD cannot be reduced to plain numbers. A PhD is a process where you gain both broad and deep knowledge of your field and learn how to do independent research as well as convince others that your research has merit. Hence, the central focus is on the research and its communication to the scientific community in order to spread the knowledge and to receive feedback. The metrics then follow automatically. It is certainly possible that a PhD with the minimum number of papers as set out by the doctoral school is as impactful as a PhD with twice as many papers. It is the actual content of the PhD that matters. It is in the realm of your PhD supervisor to help you find the best approach for conducting and communicating your work in your specific field of research. This document provides general guidelines, but does not replace the individual supervision.

Everything that is described in this document is there to help you structure your PhD and to support you in doing a successful PhD. In particular, the milestones in the process, i.e., the PhD proposal defense and later the PhD defense, are better understood as a chance to showcase and present your work and how it moves science forward rather than as exam situations. We always look very much forward to those presentations and also see them as outreach opportunities.

Overall, the document is structured chronologically. It starts with the first milestones and ends with the process of handing in your PhD thesis.

Your PhD Proposal

You submit your PhD proposal **within 12 months** after you start your employment as a PhD student at IAIK. The proposal consists of a document, presentation, and defense before an advisory committee. For files and templates, see <https://extgit.iaik.tugraz.at/iaik/phd-at-iaik>.

Prerequisites for the Proposal

In the first year, you are expected to **demonstrate all skills necessary for conducting a PhD** according to your supervisor's requirements. You should typically have **worked partly independently** on your own project topic defined together with the supervisor. This includes **writing** (e.g., submitted paper) and **speaking** (e.g., seminar talk about ongoing

work) about your results. A typical way of achieving this is submitting a paper to a conference or journal. We expect **at least one mature paper draft or submitted/accepted paper** when you submit the proposal. Your supervisor will tell you in more detail what they expect for a PhD student in their group to achieve during the first year. The PhD proposal is usually **in the last month of the first year**.

Advisory Committee

Your advisory committee will advise you throughout your PhD where needed to ensure you reach your goals. The advisory committee consists at least of **3 professors** (assistant / associate / full), including your supervisor and at most one professor who is not at IAIK. You choose your advisory committee when you submit your proposal. You can choose to add additional mentors (see Curriculum § 4 (5)).

Submission

You submit the following to phd@iaik.tugraz.at:

- A list of **3 advisory committee** members
- A **date** for the proposal defense, agreed with the committee
- A short **proposal document** (about 4 pages) containing
 - An introduction to the research field and main research questions of your PhD
 - A summary of your research work of the first year
 - Concrete next steps and a mid-term outlook on the PhD
 - State the courses (typically 2-3) that you plan to take as part of the PhD
 - An optional appendix summarizing contributions and activities related to the PhD, such as teaching, student supervision, project work, ...
- A draft **Educational Agreement** with working title and abstract (research field, research questions, methodology) for your thesis project

Presentation & Defense

You give a public presentation of 30 minutes covering the work of the first year and your planned thesis topic, followed by a 30-minute question session by the advisory committee.

After the defense, the committee members will retreat to decide on the result of the defense based on the skills demonstrated as a PhD student, report, presentation, and answers. They will inform you about their decision and may give additional recommendations and feedback.

Possible Outcomes

If the advisory committee decides your proposal was successful, your working contract is extended and you receive the signed Educational Agreement from your supervisor.

Congratulations! By accepting the proposal and issuing the Educational Agreement, your supervisor confirms the expectation that you bring in the prerequisites to conduct a PhD and that you can work together well. If the committee sees room for improvement, you can repeat the proposal once within 6 months to address feedback. In the unexpected event that the proposal is rejected, you cannot continue your PhD at IAIK and your employment ends.

Educational Agreement

The Educational Agreement is specified in the Curriculum (§ 4 (1)) and finalizes your acceptance as a doctoral student. It contains a brief description and working title of the proposed doctoral project and is uploaded in TUGRAZonline (login as student - “My doctoral project” / “Mein Doktorat” - “Phase 1 Educational Agreement” / “Ausbildungsvereinbarung”). You can find the form on <https://extgit.iaik.tugraz.at/iaik/phd-at-iaik> or <https://tu4u.tugraz.at/en/students/forms-downloads/>

Yearly Reports

The curriculum requires that you complete yearly reports (§ 4 (4)). At IAIK, these are typically combined with your yearly **Staff Appraisal Meeting** (Mitarbeiter*innengespräch) with your team leader and supervisor, which takes place between October and December. The report covers the period of one academic year, from **1 October to 30 September** in the following year. Get the template from <https://extgit.iaik.tugraz.at/iaik/phd-at-iaik> and fill in the details. Send the full report to your supervisor **by 1 October**. Then, in case you already have a signed educational agreement, you also upload the research summary part (see template) in TUGRAZonline (TUGRAZonline student view: “My doctoral project”/“Mein Doktorat” > “Phase 2” > “Complete progress report”/“Fortschrittsbericht ausfüllen”), where your supervisor comments on your report in written form (menu “Doctoral management”/“Doktoratsmanagement”). In case you and your supervisor agree that there is sufficient progress towards the PhD, all is fine. In case there is insufficient progress to the PhD or disagreement on the progress, clear goals and a timeframe for completion are formulated in alignment with your advisory committee. In case of failure to reach these goals, the employment ends. The PhD student and the supervisor can then agree if and under what conditions a PhD can be continued without employment.

PhD Candidacy

About half-way through your PhD, so after at least 1.5 and at most 3 years, you apply for PhD candidacy. Agree with your supervisor on when to submit the candidacy. A formal requirement for submission is that your research work has yielded peer-reviewed content for **3 chapters** of a PhD thesis (where 1 chapter typically corresponds to the **main**

contribution of 1 paper), or **2 chapters** of a PhD thesis based on the main contribution of **2 accepted papers at excellent venues (A* or equivalent)**. In order to submit your application to PhD candidacy, send an email to phd@iaik.tugraz.at. After confirmation by the advisory committee, you advance from a PhD Student to a **PhD Candidate**. This becomes effective with the first day of the second month after having sent the email and fulfilling all requirements. You need to reach the status of a PhD candidate within 3 years of starting your PhD. Meet with your advisory committee if there are issues with completing this stage in time.

Publications and Doctoral Thesis

You complete your doctoral studies typically **within 3 to 5 years**. Three years is the formal minimum time. According to the Curriculum § 4 (6): “Failure to submit a doctoral thesis within 5 years after admission to the doctoral programme requires justification in the respective report and a comment from the supervisor [in the yearly report].” - in that case, the thesis must still be completed within 6 years.

The statutes of the doctoral school formally require a minimum of 3 peer-reviewed articles in international journals or conferences to complete the doctoral studies. Overall, it is the quality of the scientific contributions that determines the quality of the thesis. It is therefore important to emphasize that fewer excellent high-impact papers are considered more desirable than more mediocre papers. Best grade generally requires having a full paper as main author at one of the top conferences of the field.

A dissertation at IAİK is typically based on **about 5 peer-reviewed publications**. The decision on when to submit a thesis is taken jointly between the PhD student and the supervisor based on the overall scientific contributions and the conventions of the field of research. Typically, one of the authors of a publication is the main author and this author includes this publication in the PhD thesis. A scientific contribution can only be part of one PhD thesis and cannot be claimed by multiple theses. In extraordinary cases of publications with joint first-authorship (e.g., multidisciplinary works) and with substantial well-separable, self-contained scientific contributions, these separate contributions can become parts of two PhD theses, in agreement with the corresponding supervisors.

During a typical PhD, there is close collaboration with other researchers. Besides own publications as the main author, a PhD student typically also contributes as a co-author to several publications that will be part of another PhD student's thesis.

According to the statutes of the doctoral school, a **cumulative dissertation (Manteldissertation)** is possible if the student and advisor agree on this format and certain conditions detailed in the statutes are satisfied - please check the current [statutes document](#). In particular, a cumulative dissertation needs to include a paper published at

an A* conference (CORE ranking) and, in the case of alphabetic author lists, a statement from all co-authors confirming that the doctoral student was the main author.

Courses and Doctoral School

When you start your PhD student position, you register for the Doctoral Programme in Technical Sciences (Dr. techn.) and belong to the Doctoral School of Computer Science.

You need to complete courses amounting to a **total of 14 SSt** (semester course hours, aka Semesterwochenstunden SWS - not ECTS!), divided into

- 6-8 SSt subject-specific basic courses (typically those offered by the institutes for the master's degree programmes, but no courses you already took for your MSc),
- 4-6 SSt for Scientific Methods and Communication, including the course "700.011 Scientific Methods" (2SSt), doctoral seminar (2x1SSt), and soft skills courses
- 2 SSt for the Privatissimum with your supervisor

Check out [IAIK's courses](#). We recommend that you complete most courses in the first half of your PhD studies. You are required to agree on a course plan with your supervisor for the proposal document.

You need to register (inscribieren) at TU Graz for the doctoral school: Check the [CS&BME PhD info](#), [TU Graz PhD admission requirements](#), and [TU Graz admission steps](#).

Effective Date and Transitional Rules

This PhD model is effective as of **March 1, 2022** and applies without transitional rules to all

- PhD students starting at IAIK from this date onwards
- PhD candidates at IAIK

For all others, the following transitional rules apply:

- PhD students at IAIK who do not have a signed educational agreement yet follow the new PhD model and have until January 31, 2023 to complete their proposal.
- All other PhD students decide together with their supervisor whether the proposal will be done according to the new or the old PhD model and on the timeline.

Further Information

- [Doctoral School of Computer Science - TU Graz](#)
- [Statutes of the Doctoral School of Computer Science](#)
- [Curriculum for the Doctoral Programme in Technical Sciences as of 1 October 2020](#)