



# **DOCTORAL SCHOOL OF INFORMATION SCIENCE AND TECHNOLOGY**

## **Quality Assurance Plan and Procedures**

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The quality assurance system of the Doctoral School of Information Science and Technology (DS) of the University of Pannonia (UP) is based on the quality management principles contained in § 22 of the document entitled "Doctoral Rules" (UP Regulations) adopted by the Senate of the UP on September 28, 2023, however, in some of its elements, we apply further tightening in relation to quality expectations. This applies to five elements that determine the quality of the PhD training: (1) the entrance exam, (2) the study-research stage, (3) the research-dissertation stage and the supervision, including the announcement of the topics, (4) the comprehensive examination, and (5) obtaining the doctoral degree.

The quality assurance plan and the associated procedures are intended to facilitate the achievement of the following general quality assurance objectives:

- (1) As a result of the training, the students should be able to conduct independent research in the field of IT sciences, carry out quality research work in an international research environment and publish quality publications.
- (2) After a few years of successful teaching and research, the students who have obtained the degree should become qualified to supervise PhD students in their field of expertise.

The supervision of all quality-determining activities is carried out by the Disciplinary Doctoral and Habilitation Council of Information Science and Technology (DDHC) in accordance with the criteria and principles defined in the Regulations of the Doctoral School of Information Science and Technology (DS). In addition to the Regulations, the Training Plan of the DS also contains quality assurance elements.

Quality assurance is facilitated by following the procedures for the above elements, these procedures can be found in the annex to the document and in the Doctoral Procedures of the University of Pannonia ([http://new\\_phd.uni-pannon.hu/images/phocadownload/doktori\\_kepzes/Doktori\\_eljarasrend.pdf](http://new_phd.uni-pannon.hu/images/phocadownload/doktori_kepzes/Doktori_eljarasrend.pdf))

The quality assurance system of the DS is integrated into the quality management system of the UP, this document also contains the quality assurance elements in accordance with the principles and procedures of the university.

## **1. Entrance exam**

During the admission process, the candidate's academic progress, language skills, previous scientific activity (TDK results, publications) and performance in the entrance exam play a decisive role. The Faculty of Information Technology (FIT) prepares the best students during university education, during which students carry out their scientific work in the framework of intensive sessions from the late stage of their BSc studies in the context of a reasonable integration of master's and PhD education. Our interested and talented students can properly prepare for PhD admission during the preparatory studies and the individually consulted subjects (Project Laboratory, Thesis I-II).

The admission procedure is regulated in the Doctoral Rules and Doctoral Procedures of the UP, the criteria for evaluating candidates can also be found here. DDHC defines the composition of the admissions committee in this document. The admission evaluation methodology and the admission scores can be found in Appendix 7 of the UP Doctoral Rules.

Chapter 4 of DS Regulations provides the admission procedure for applicants for individual preparation, the corresponding procedure can be found in Appendix A.2.

In order to ensure the quality of admission, the chairman of the Admission Board is always a professor or professor emeritus core member of the DS for whom there are no applicants. Another member of the board is an active supervisor of the DS for whom there are no applicants, as well as a representative of the Doctoral Student Union.

## **2. Study and research stage**

The student completes his/her studies according to an individual curriculum, the working plan is accepted by DDHC.

When selecting subjects, doctoral students can choose from the doctoral subjects of the UP or any other domestic or foreign IT-related course in consultation with their supervisor, as the educational system of the DS, due to the interdisciplinary nature of IT and the global organization of IT science, recognizes and even supports students' listening to other doctoral programs. The consent of the DDHC is required for the admission of external subjects.

The DS organizes its subjects primarily into subject groups related to the major subjects of the comprehensive examination. For the subject groups, DDHC also provides a list of recommended external doctoral subjects, which are accredited in advance. DDHC's consent is not required to take these recommended subjects.

## **3. Research and dissertation stage and the supervision**

Supervising can only be conducted by researchers with a scientific degree and performing high-quality scientific activities. Before the topics are announced, the DDHC decides on the suitability of non-core member supervisors. The basic requirement for the supervisor is that his/her academic performance in the five years prior to the announcement of the topic must exceed the publication requirements for obtaining the degree for the students.

The DS monitors the students' progress in its semi-annual and annual reports held twice a year, in which the doctoral students must report on their research activities and their results. Both reports are in English. The report consists of a written and an oral part, no exemption can be given for the written part. The report committees evaluate the students in writing, and the evaluation is sent to both the students and their supervisors.

The report committee has three members, its head is a professor or professor emeritus core member of the DS, and the other two members are active supervisors of DS.

In order to guarantee the high-quality operation of the DS, the semi-annual and annual reports are publicly announced on the website of the FIT and the DS, as well as published for the UP.

Credit recognition is granted only for publications recorded in the MTMT system.

#### **4. Comprehensive examination**

The quality of the comprehensive examination is ensured by the rules applied to the choice of subjects and laid down in the Regulations of the DS. According to this, a major subject can be chosen only if the student has successfully completed at least three subjects from the subject group of the major subject. In all cases, the examiner of the major subject exam is a professor or professor emeritus, who is preferably the responsible instructor of the major subject.

To apply for the comprehensive examination, the Training Plan of the DS stipulates publication conditions beyond the fulfillment of academic obligations, as well as mandatory participation in a comprehensive examination. The procedure for the complex exam is set out in appendix A.3.

In order to ensure the quality of the comprehensive examination, the chairman of the examination board is always a professor or professor emeritus core member of the DS. At least two external members (not employed by the UP) with a PhD who are experts in the candidate's field and are competent in evaluating the dissertation part of the exam must be invited to the examination committee.

In order to guarantee the high-quality operation of the DS, all comprehensive examinations are publicly announced on the website of the FIT and the DS, as well as published for the UP public.

## **5. Obtaining the doctoral degree**

In order to obtain the PhD degree, the results of the research must be published according to the strict conditions laid down in the Regulations of the DS. For this, at least two publications are required per student - published in prestigious international journals (listed by the science citation index) that were not used to obtain a PhD degree in the field of IT sciences, which also determines the minimum number of publications. The DS always conducts a habitus examination before admitting students to defense. In the case of publications published in 2026 or after, publications published in journals rated "0" in the year of publication in the "List of Journal that engage in objectionable practices " (Norwegian list) on the MTMT website cannot be counted towards the fulfillment of the minimum publication requirement.

In order to maintain the quality level of PhD theses, the DS invites a professor or professor emeritus or a researcher with DSc degree as at least one of the reviewers of the thesis.

In order to ensure the quality of PhD defenses, the chairman of the defense committee is always a professor or emeritus professor core member of the DS.

The procedure for the doctoral defense is set out in Appendix A.4.

In order to guarantee the high-quality operation of the DS, all protections are publicly announced on the website of the FIT and the DS, we also publish them for the UP public, as well as in the doktori.hu database.

## **6. Quality assurance principles**

The quality assurance plan and the associated procedures are intended to achieve the following quality assurance principles:

### *Professional control*

The control of scientific public opinion must be enforced throughout the entire process of doctoral training and degree acquisition.

### *Publicity*

The main phases of the quality assurance system should be widely available to the professional and scientific publicity.

### *Feedback*

Lecturers, students and supervisors participating in doctoral training should receive continuous feedback on the quality of their activities and have the opportunity to provide feedback on their experiences.

### *Individual responsibility*

It should be clearly clarified who is responsible for what among those participating in doctoral training and why.

### *Documentation*

Documentation should be prepared, preferably in electronic form, on all decision points related to doctoral training and degree acquisition.

## **7. Regular quality improvement activities**

In accordance with the quality management system of UP, the following quality improvement activities must be carried out in each academic year as described in the UP Regulations:

1. Quality management inspection using the results of the satisfaction survey of doctoral students.
2. Determining annual quality goals and examining the fulfillment of last year's goals.
3. Updating the SWOT analysis of the DS.
4. Participation in the annual internal quality audit evaluating DS's quality development activities.

## **List of Abbreviations**

|      |  |
|------|--|
| DS   | Doctoral School of Information Science and Technology                                |
| DDHC | Disciplinary Doctoral and Habilitation Council of Information Science and Technology |
| IT   | information technology   |
| UP   | University of Pannonia   |
| FIT  | Faculty of Information Technology  |
| UDHC | University Doctoral and Habilitation Council   |

## **Appendices: Quality assurance procedures**

### **A.1. Documents of regular quality assurance procedures**

The current version of the following documents must be placed in the digital archive of the DS:

- Quality management inspection report
- Annual quality goals
- SWOT analysis of DS

### **A.2. PhD students with individual preparation**

**Conditions for applying for individual preparation (in addition to the provisions of the UP Regulations):**

- **Declaration of employment support**, in which the applicant's full-time workplace requests the DS for the applicant's training and at the same time declares that it provides the necessary conditions for individual preparation (research conditions, including the time required for this, study leave to write the thesis and to prepare for the comprehensive examination and the defense, and to consult with the supervisor). A declaration of workplace support is not required if the applicant's workplace is the UP, or a research center or higher education institution with an educational cooperation agreement with the FIT (beneficiary workplace).
- **Institute head's recommendation**, in which - in the case of an applicant with a non-beneficiary workplace - the dean of the FIT declares that the candidate's training is in the interest of the faculty.
- Topic and supervisor announced by the DI, which must be verified by the **supervisor's supporting statement**. In this, the supervisor undertakes to guide the applicant in the given topic.
- **The requested subjects of the comprehensive examination** with the countersignature of the applicant's chosen supervisor.
- Details of the applicant's previous (at least 5 years) **teaching work** (indicating taught subjects and lecture notes)

- **Declaration of any prior activity at another Doctoral School** (or if there was none).

The above documents must be submitted electronically in pdf format to the email address "**di@mik.uni-pannon.hu**".

The admission of the applicant to the DS is decided by the DDHC, the decision is approved by the UP University Doctoral and Habilitation Council (UDHC). When making a decision, a preliminary comparison of the applicant's academic performance with the minimum conditions for awarding the PhD degree is made. In case of admission, the head of the DS will notify the applicant and his/her consultant in writing or by email about

- accepting or possibly modifying the subjects of the comprehensive examination,
- additional publication activity that may be necessary to achieve the minimum requirements for the PhD degree, or about the applicant's compliance with the minimum requirements.

Then, the legal relationship of the student with individual preparation begins after the successful passing of the comprehensive examination and the approval of the UDHC, the student is involved in the research-dissertation stage of the training.

In the case of a **PhD defense**, the thesis and all supplementary materials must be submitted in the same way as state-funded or self-funded PhD students. The DDHC examines the minimum conditions for awarding the PhD degree before admitting the candidate to defend the same way as state-funded or self-funded PhD students.

### **A.3. Comprehensive examination**

#### **Conditions for admission to the comprehensive examination:**

- for state-funded and self-funded PhD students, the completion of at least 90 credits in the first four semesters of the doctoral program, including at least 30 publication credits, and all "study credits" prescribed in the training plan of the DS (48 credits),
- application to the DS for students with individual preparation,
- application for admission to a comprehensive examination.

The **comprehensive examination** is taken in the following steps carried out and coordinated by the PhD student (S), the Doctoral School Council (DDHC), the head of the DS (DS-H) and the secretary of the DS (DS-Secretary).

1. **Submission of a comprehensive examination admission application to the email address "di@mik.uni-pannon.hu" signed, in pdf (S)**, in which the student (with the support of his or her supervisor) indicates his or her major and minor subjects. In the case of state-founded and self-funded PhD students, the DDHC only accepts a major subject when applying for the complex exam, for which the doctoral student has successfully completed at least three subjects from the corresponding subject group. These students can submit their application for admission to the comprehensive examination in the fourth semester of the doctoral program, no later than the last working day of the 8th week of the semester.
2. **Composition of the committee (DS-H)** When proposing examiners, the head of the DS asks for the opinion of the supervisor(s) with the stipulation that at least two external members who hold at least a PhD degree and are experts in the candidate's narrower field of expertise must be invited to the committee. The chairman of the committee of the comprehensive examination is a professor or professor emeritus core member of the DS.
3. **Committee approval (DS-H and DDHC)** The head of the DS makes a proposal to the committee, which is approved by the DDHC, if necessary by electronic voting. In the event of approval, the student (S) and his supervisor(s) will be notified in a reminder.
4. **The selection of the exam material for the theoretical part of the comprehensive examination (S)** The student contacts his/her examiners in order to determine the exact topic of the comprehensive examination and begins the preparation. During the exact assignment of the theoretical material of the comprehensive examination, the examiner and the student also compile a line of exam questions.
5. **Time agreement (DS-secretary)** The DS secretary invites the members of the committee on behalf of the DS, and at the same time, in consultation with the student(s) and their supervisor(s), makes an appointment with the members of the committee and assigns the date and time of the comprehensive examination.

6. **Comprehensive examination date (DS-secretary)** The DS secretary notifies the committee, the candidate(s) and the supervisor(s) of the date and time of the comprehensive examination by e-mail.
7. **Technical organization of the comprehensive examination (DS-secretary)** The DS secretary then carries out the technical organization of the comprehensive examination (room reservation, official notification of the committee members, reimbursement of travel expenses, examination fee, announcement of the comprehensive examination on the website of the PE). The DS secretary also sends the invitation to the PhD comprehensive examination to the DS student mailing list.
8. **Application in Neptun system (S)** The student has to register for the comprehensive examination in the usual way in the Neptun system, at which point he/she has to meet the conditions for admission to the exam.
9. **Submission of a written scientific report (S)** At least two working days before the comprehensive examination, the student sends to the DS email address a written academic report, which contains:
  - a) the credit points he/she has completed so far (not only the amount, but also what he/she got them for)
  - b) a short, max. 2-page summary
  - c) his/her publication list
  - d) the work schedule for the remaining 2 years (including publications and writing the thesis) - max. 2 pages
  - e) supervisor's evaluation of his/her work - approx. half a page
10. **Information about the comprehensive examination.** PhD students can contact the DS secretary with their questions and comments regarding their comprehensive examination. The sample of the comprehensive examination scenario is published on the DS website.

All deviations from this procedure can be authorized by the head of the DS by submitting a request for a special procedure.

## **M.4. The doctoral defense**

### **The conditions for applying for defense:**

- The preparation and submission of the thesis and the thesis booklet together with other necessary materials (certificated copy of the language exam, separate printouts of articles, home defense report, application for the comprehensive examination /the defense can only be held after successful completion of the examination/, application for admission to the examination, etc.) to the secretary of DI (see details in point 2.5 of the Regulations).

The doctoral defense is carried out by the PhD student (S), the Directorate of Academic Affairs (DAA), the Doctoral School Council (DDHC), the head of the DS (DS-H), the secretary of the DS (DS-secretary) and coordinated by a member of the DS entrusted with coordination, and it takes place in the following steps.

1. **Submission of the documents specified as conditions for applying for the defense to the DS (S).**
2. **Composition of the committee (DS-C)** When proposing the members of the defense committee, the DS-C asks for the opinion of the supervisor and consults with the DS head with the stipulation that at least two of the 5 members are external specialists with at least a PhD degree. The chairman of the committee is a professor or professor emeritus core member of the DS. A substitute member should always be nominated.
3. **Commission approval (DS-H, DDHC, DS-secretary and DS-C)** DS-H makes a proposal to the committee, which is submitted to an electronic vote as necessary. In case of approval, the student (S), his supervisor and the Directorate of Academic Affairs (DAA) will be notified of the composition of the committee in a reminder. The DS secretary, on behalf of the DS, invites the members of the committee in advance and informs them of the expected date of the defense.
4. **Sending the thesis for evaluation (DS-secretary)** The DS secretary sends the dissertation to the designated reviewers for review with a letter of invitation signed by the head of the DS.
5. **Time agreement (DS-secretary)** After receiving the evaluations, the DS secretary, in consultation with the student and his/her supervisor, arranges a date with the members of the committee and, in consultation with the head of the DS, appoints the date of the defense

6. **Defense date (DS-secretary)** The DS secretary notifies the committee, the candidate(s), the supervisor(s) and the Directorate of Academic Affairs of the date of the defense by e-mail.
7. **Technical organization of the defense (DS-secretary)** The DS secretary then carries out the technical organization of the comprehensive examination (room reservation, presentation equipment (overhead projector, etc.), official notification of the committee members, reimbursement of travel expenses, examination fee, announcement of the defense on the website of the PE). He/she ensures that the thesis, thesis booklets, reviewer reports, and the answers to them are posted on the university's website.
8. **Disclosure (S and DS-secretary)** The secretary of the DS electronically sends out the invitation to the defense and the PDF file of the thesis booklet in Hungarian and English to all members of the DS, DDHC members, DS students, and the mailing list specified by the candidate. In addition, the DS secretary also makes the necessary entries on the doktori.hu website.
9. **Notification of other doctoral schools (DS-secretary)** The defense invitation and the thesis booklet are sent to related doctoral schools by the secretary of the DS.
10. **Information about the defense.** The screenplay of the doctoral defense is published on the website of the DS.