

Doctoral School of Physics
University of Pécs
Quality Assurance Plan



Pécs, 2023.

The Doctoral School of Physics (FDI) operates in accordance with the Doctoral Regulations of the University of Pécs (PTE) and the Faculty of Science (TTK), as well as the higher-level regulations that govern them. These regulations — including the FDI's own Regulations and Training Plan — define the organizational framework of the PhD training, the admission requirements for PhD applicants, and the procedures for earning the doctoral degree. The key principles and checkpoints associated with each area clearly outline the duties and responsibilities of decision-makers and supervisors.

1. Mission of the Doctoral School

The mission of the FDI is to train future researchers and educators in the fields of physics, as well as developers who can apply the knowledge and methodologies of physics at a high professional and innovative level to meet the needs of society.

The mission of the FDI is to educate applied and theoretical research physicists capable of conducting high-quality research and development at leading universities, research institutes, and development centers worldwide.

2. Announcement of Doctoral Research Topics

Each year (February–March), the Doctoral School invites PhD topic proposals from participating organizational units and cooperating research institutes. Each proposed topic must include the details of the proposer(s). The FDI Council evaluates every submission and approves only those topics where the intellectual and infrastructural background for research is ensured, and where the completion of a high-quality dissertation within 3–4 years is realistic.

Supervision conducted outside the university is possible only at institutions that have a cooperation agreement with the Doctoral School, where the student's employment status is regulated, and their rights and obligations are clearly defined.

Active research activity is a key requirement for supervisors. The suitability of potential supervisors is evaluated according to the principles of the Hungarian Accreditation Committee (MAB) at the time of topic proposal. The assessment of supervisors' past performance ensures that students are not repeatedly assigned to supervisors with a record of unsuccessful supervision.

The approved and advertised doctoral research topics and supervisor profiles are published on www.doktori.hu and on the Doctoral School's website. Admission requirements and the regularly updated list of admitted students are also publicly available on the Doctoral School's website.

An applicant becomes a supervisor when a student is admitted to and enrolled in the Doctoral School under their announced topic. As a rule, no more than three doctoral students may be supervised by the same person, except in justified cases.

3. Admission to the Doctoral Programme

Applicants undergo an admission process evaluated by an Admission Committee appointed by the FDI Council. The purpose of the interview is to assess the applicant's preparedness and to establish a ranked admission recommendation. The professional aptitude points awarded during

the admission interview partially evaluate the candidate's familiarity with their chosen research topic.

The FDI's admission point system (outlined in its Regulations) ensures that applicants with the strongest academic records and evidence of student research activity (TDK work) are given preference. Applicants are admitted based on their total point scores, ensuring that the most talented candidates are selected. The allocation of state-funded PhD scholarships is decided by the Faculty Doctoral and Habilitation Council, based on the recommendation of the FDI Council.

4. Doctoral Training

High-quality participation in research activities is ensured jointly by supervisors and lecturers. The entire staff of the Doctoral School is responsible for providing all students with access to the necessary infrastructure and resources. The FDI Council monitors compliance with MAB requirements regarding the qualifications and performance of lecturers and supervisors.

Lectures and courses offered by the teaching staff are approved by the FDI Council according to the official Training Plan. Updating course content and introducing new lectures annually are the responsibilities of the FDI instructors, overseen by the FDI Council. The completion of credit-bearing courses is monitored by program leaders. Assessment methods are determined individually by instructors but remain subject to the Council's review.

A theoretical course is considered completed when the student passes an examination with a grade of "pass." In case of a "fail," one retake examination is permitted. A practical course is deemed completed upon the course instructor's certification of satisfactory participation.

At the end of the first two semesters, students must submit a written report or present a seminar summarizing their progress. Based on these, and on the results of the comprehensive examination at the end of the fourth semester, the FDI Council continuously evaluates the performance of PhD students and their supervisors, providing professional guidance as needed.

Participation in national and international conferences is required, as determined by supervisors, to ensure engagement with the broader scientific community. Supervisors are also expected to support students' participation in international research stays and professional internships.

The FDI Council oversees the annual review of research topics. The procurement of new instruments, books, and databases, as well as continuous improvement of infrastructure, is the responsibility of the Head of the School and its core members. Members of the Doctoral School are expected to facilitate the invitation of guest lecturers from Hungary and abroad.

For individual doctoral candidates (independent researchers), the FDI Council may permit the initiation of the degree-awarding procedure if the specified academic requirements are met.

5. Requirements for Obtaining the Doctoral Degree

The rules ensuring the quality of the PhD degree are set out in the University of Pécs Doctoral Regulations.

Publication requirements:

The candidate must have at least two peer-reviewed publications in journals with an impact factor, whose results are incorporated into the dissertation. The total impact factor of these papers must not be less than 2. Furthermore, where applicable to the research field, the candidate must be the first author of at least one of these papers.

Candidates must demonstrate active participation in professional conferences and submit a dissertation that reflects a coherent scientific concept. The dissertation is reviewed by two official opponents, at least one of whom is not affiliated with the Doctoral School or the University of Pécs. The candidate must defend their thesis before a defense committee that includes at least one external member.

PhD candidates must hold an officially recognized English language certificate at least at the intermediate (B2) level, and a basic (A2–B1) certificate in another language.

6. Quality Management Processes of the Doctoral School

The quality management system of the Doctoral School is based on the principle that quality assurance applies not only to the final outcome — the awarded doctoral degrees — but to the entire sequence of processes: **admission, training, and degree awarding**.

To ensure traceability, individual data must be recorded for each student in the admission records, student books, academic registries, and electronically in the university's study system (NEPTUN), as well as in the minutes of comprehensive examinations, workplace and public defenses, and in the documented minutes of council meetings and correspondence archives.

Quality assurance primarily focuses on the training activities and their compliance with standards, ensuring the overall quality of doctoral education. Its core objective is to preserve and continuously enhance the quality of training and the degree-awarding process. The main requirements applied in the Doctoral School are:

- Work must be conducted based on pre-approved written training and research plans, institutional work schedules, and official instructions.
- Supervision and evaluations must take place **before, during, and after** the training process.
- All documentation must be maintained continuously and in a retrievable manner.

Quality control forms an integral part of the assurance process — the awarding of the doctoral degree itself is grounded in such monitoring. The responsible authorities and bodies overseeing quality management and control throughout the training and degree-awarding procedures are summarized below.

Management	Process – Education	Process – Research	Control / Oversight
Training and Research Phase			
	Teaching	Research	
Supervisors	Training Plan	Research Plan	FDI Council
Program Leaders and FDI Secretary	Course organization and supervision	Literature review, research, evaluation of results	Head of FDI
Supervisors and Heads of Organizational Units	Independent professional development and teaching activity	—	Head of FDI, Program Leaders
Head of FDI and FDI Council	Comprehensive Examination —		FDI Council
Research and Dissertation Phase			
	Teaching	Research	
Supervisors	Training Plan	Research Plan	FDI Council
Program Leaders and FDI Secretary	Course organization and supervision	Literature review, research, evaluation of results	Head of FDI
Supervisors and Heads of Organizational Units	Independent professional development and teaching activity	Publications, conference presentations	Head of FDI, Program Leaders
Head of FDI	Admission to the degree procedure		FDI Council, Faculty Doctoral and Habilitation Council (TDHT)
Supervisors and Heads of Organizational Units	Dissertation and internal (workplace) defense		Head of FDI
Head of FDI, Faculty TDHT	Public defense		Faculty TDHT, University Doctoral Council (DT)
Chair of the University DT	Degree conferral		University DT, Rector

Table 1. Quality management and control system of the Doctoral School of Physics (FDI) throughout the training and degree-awarding processes.