Quality Assurance Plan of the Doctoral School of Environmental Sciences (KTDI) of the University of Szeged

Content

Preamble

The foundations of quality assurance for teaching, scientific activities, and degree-granting procedures at the Doctoral School of Environmental Sciences (KTDI) of the University of Szeged are based on the relevant parts of Act CCIV of 2011 on Higher Education, Government Decree 387/2012 (XII. 19.) on doctoral schools, the order of doctoral procedures and habilitation, and the Doctoral Training and Degree-Grading Regulations of the University of Szeged (https://u-szeged.hu/doctoral/regulations/regulations-governing-250318), which entered into force on 27 January 2025. The Doctoral Regulations of the University of Szeged outline the aspects of quality assurance in doctoral training and degree conferral, emphasizing the values to be created through adherence to these principles.

The quality assurance principles of KTDI align with the documents titled "Quality Assurance Guidelines for Doctoral Training and Doctoral Degree Acquisition at the University of Szeged" (https://u-szeged.hu/doctoral/regulations/regulations-governing-250318) and "Quality Development Regulations of SZTE" (https://u-szeged.hu/smi/szabalyzatok/minosegfejlesztesi).

Special attention has been given to the ESG, EFQM, BSC, and QSC quality standards, models, and guidelines in developing the KTDI quality assurance framework. The primary aim of this plan is to incorporate in the training expectations the cycles of a) planning, b) procedures, c) control, and d) feedback, along with the values they embody and the anticipated outcomes.

KTDI ensures the high standard of doctoral training and the degree acquisition process at all stages, following the criteria outlined in this plan. It includes procedures and institutions for the ongoing monitoring of requirements imposed on students and lecturers, emphasizing continuous development through feedback.

KTDI's quality assurance plan, training plan, operating regulations, and self-evaluation reports are accessible on the KTDI website (https://sci.u-szeged.hu/english/phd-programs/doctoral-school-of-environmental) and the website of the National Doctoral Council (https://doktori.hu/doktori-kepzes/doktori-iskolak/152-doctoral-school-of-environmental-sciences)

The five-year development goals of the Doctoral School are summarized in the document titled **Five-Year Quality Assurance Strategy of the Doctoral School of Environmental Sciences**, published on the DI website (https://sci.u-szeged.hu/english/phd-programs/doctoral-school-of-environmental). Among these, quality objectives aimed at enhancing the quality of doctoral training are central. These objectives are monitored annually by the Council of the Doctoral School, based on performance indicators specified in the strategy. At the end of each cycle, KTDIT evaluates the discrepancies between planned and actual indicator values and devises improvement measures accordingly.

1. Quality assurance requirements for the management/organization of the doctoral school

The coordination of quality assurance tasks for doctoral training is overseen by the Doctoral School Council (KTDI) and the President of the KTDI. Operational tasks are managed by the Doctoral School (DI)—based on proposals from the President and approval by the KTDI. The quality assurance manager (ex officio the President of the DI) executes responsibilities according to the annual quality assurance plan approved by the KTDI.

Quality assurance responsibilities are shared among lecturers, researchers, supervisors (who oversee training), and staff responsible for administrative tasks, educational organization, and student affairs. The KTDI develops and adopts a five-year quality development strategy, published on the DI website (https://sci.u-szeged.hu/english/phd-programs/doctoral-school-of-environmental). Its development involves staff and students, with the head of DI leading this process. The KTDI reviews and assesses the status and tasks of quality assurance annually, primarily focusing on training, accountability, research, publications, domestic and international academic relations, projects, organizational aspects, and administrative processes based on relevant documentation.

The DI strives to implement the following principles in its quality management system:

a) *The principle of publicity, transparency and continuous documentation.* Correct documentation related to doctoral training, broad information of the professional and scientific public at every step of the doctoral training and research processes is a fundamental requirement. Documentation is prepared for all decision points related to doctoral training, which is available from the secretary of KTDI. Checking the documentation is a fundamental task of the quality management system. Continuous information of the professional and scientific public creates the primary conditions for transparency, relationship building, external control and utilization of results.

b) *The principle of professional control, feedback and benchmarking.* DIT regularly monitors and evaluates the work of doctoral students, lecturers, researchers, supervisors, administrative and management staff and provides personalized feedback on the quality of their activities. An important element of quality management is the doctoral training in leading foreign and domestic workshops of similar profile, the continuous monitoring of the scientific performance of doctoral students studying there and the utilization of adaptable elements.

c) *The principle of quality-centeredness and scientific novelty and practical applicability.* An important task is to continuously improve the activities of both students and lecturers, to develop a commitment to quality. From a scientific perspective, one of the most important requirements for doctoral dissertations is to achieve new scientific results, but it is also important that the choice of topic of the dissertations and the results of the research help formulate answers to socio-economic questions, i.e. - where this requirement can be interpreted - the results should also be applicable in practice.

d) *The principle of fulfilling scientific ethical requirements and protecting intellectual property.* DI strives to fully comply with and enforce the basic principles of scientific ethics in all its training, research, administrative and management activities. The development of the quality management system must also contribute to ensuring that doctoral training and research, as well as administrative and management activities at DI are always in full compliance with the aspirations and provisions of the European Union and the Republic of

Hungary for the protection of intellectual property , as well as with the publication regulations of SZTE (file:///C:/Users/User/Downloads/publikacios_szabalyzata_2025.05.26-2.pdf).

e) *The principle of individual responsibility and efficiency.* Although the establishment and operation of a scientific school is a team effort, it can only be successful if it is clearly clarified who has what tasks and responsibilities in the process of training and research, and if the internal division of labor allows for scientific personality, uniqueness, and personal responsibility. Scientific individuality – and the development of scientific individuality – is an indispensable condition for the work in DI.

KTDI's five programs—**Environmental Biology** (Program Leader: Zoltán Bátori), **Environmental Earth Science** (Program Leader: Elemér Pál-Molnár), **Environmental Chemistry** (Program Leader: Zoltán Kónya), **Environmental Physics** (Program Leader: Zoltán Bozóki), and **Environmental Technology** (Program Leader: Cecília Hodúr)—operate with significant autonomy. Each program designates a representative to review training regulations and quality assurance plans, including student representatives, ensuring broad participation in decision-making.

The KTDI training plan, operating regulations and quality assurance plan are adopted by the KTDI Council (KTDIT), reviewed annually and amended if necessary. The program director checks and revises the topics of the courses belonging to the doctoral programs annually. He/she informs the doctoral school council about the results of the review, if necessary, proposing changes. KTDI prepares an annual report on its operational, educational, research and other activities for the Doctoral Council of Natural and Technical Sciences (TDT) and the University Doctoral Council (EDT). The EDT evaluates the operation of the Doctoral School of Environmental Sciences within the framework of the annual report prepared in accordance with the university doctoral quality assurance regulations. Before submitting the annual report to the TDT, KTDIT sends the annual report to the supervisors and the representative of the doctoral students so that they can make their comments and suggestions for its modification in writing. The DI makes the accepted annual quality assurance reports available upon request. KTDI reviews its training plan, operating regulations and quality assurance plan annually in accordance with these reports, at the same time as them, and may amend its strategic plan based on the results of the review. The annual quality assurance report includes the experiences related to the admission procedure, the complex examination, the preliminary defenses, defenses and graduation, as well as student and faculty feedback (especially regarding student satisfaction with the training, courses, faculty, supervisor and administrative administration), observations and data related to student progress (including annual data on admission data, graduation, degree award and dropout), as well as the experiences and suggestions drawn from the semi-annual reports and the conclusions that can be drawn based on them, as well as the improvement proposals made based on them.

The Procedure for Submitting and Assessing Student Legal Redress Applications at SZTE is regulated by SZTE (file:///C:/Users/User/Downloads/rules_of_procedure_on_the_submission_ang_adjucation_of_student_request_for_legal_redress.pdf) The procedure for student complaints, appeals and legal remedies within KTDI , taking into account the provisions of the university doctoral regulations , is as follows: The secretary of the DI forwards the complaint to the Appeals, Complaints and Legal Redress Committee, which also has a member who is a lecturer and a PhD student delegate. The appeal protocol against the decision: at first level, the KTDI council, at second level, the TDT, at third level, and in the final

case, the rector. In the case of issues affecting student legal status, the DIT is the deciding body, with the appeal options specified above.

KTDI's public documents in Hungarian and English (operating regulations, training plan, which includes the admission scoring rules (Annex 1) and the KTDI course list (Annex 2), the protocol of the home defense (Annex 3) and the formal requirements of the co-authorship statement (Annex 4), as well as KTDI's quality assurance plan and self-assessment are public and available on doktori.hu (https://doktori.hu/doktori-kepzes/doktori-iskolak/152-doctoral-school-of-environmental-sciences), as well as on the KTDI website (https://sci.u-szeged.hu/english/phd-programs/doctoral-school-of-environmental) and on the SZTE Coosapce interface available to active KTDI students.

2. Quality assurance requirements for instructors and supervisors

Each doctoral student is supervised by a supervisor approved by KTDI when the research topic is approved.

Requirements for persons performing supervisor and teaching duties at KTDI

Supervisors and instructors are faculty members or researchers with academic degrees who, based on proposals from program leaders and demonstrated scientific performance, are deemed suitable for participation in the school's activities. They must actively conduct research within the disciplines and research areas of the doctoral school.

Active research activity is a key criterion: supervisors must have at least five WoS publications related to the research topic in the last four years and be able to provide the necessary infrastructure and funding.

The qualifications for quality supervision include:
- scientific degree (PhD, CSc, DSc),
- international research activity on the given topic,
- successful participation in professional competitions,
- experience gained in university education.

Advertise a research topic
Due to its interdisciplinary nature, KTDI allows the announcement of research topics related to the subject areas of biology, chemistry, geology, physics and engineering sciences, and environmental science. The topic to be announced within a given program is proposed by the supervisor, evaluated by the program leader, and then approved by KTDIT on the proposal of the program leader. A topic can be announced for which the supervisor can provide the scientific and infrastructural background of the research, and in the opinion of the program leader, an international standard dissertation can be submitted on the topic within 4 years. DI provides office and laboratory accommodation for full-time doctoral students participating in doctoral training – with the help of the given Faculty/Institute. Continuous development of the literature supply is a priority task of DI. The SZTE József Attila Study and Information Center provides high-level assistance for this with its services that are also available to PhD students.

KTDIT annually reviews the composition of the core members and teaching staff, as well as the requirements set and formulated for the supervisors. If the requirements set are no longer met for a given supervisor, their supervisor mandate will be terminated. It is the task of KTDIT to review this. The supervisor mandate may also be terminated at the supervisor's request. An external supervisor may only be involved in the supervision of a student as a co-supervisor together with an internal supervisor, if the given research topic justifies this.

The instructors' opinions are given partly through the completion of the OMHV questionnaires and partly on the basis of the semester reports signed by both the student and the supervisor (with regard to individual courses). The evaluation of the OMHV questionnaires and the semester report are reviewed by the program leaders and the DI head each semester and, if necessary, they provide feedback to the instructor . In the event of a less than average evaluation, the DI head initiates a personal discussion with the instructor concerned and formulates development proposals. In the semester report, the student is required to give a short textual evaluation of the supervision, while the supervisor is required to give a short textual evaluation of the student's work, which is confirmed by the student and the supervisor by signing. Both the student and the supervisor may indicate their dissatisfaction in this form, which is reviewed jointly by the program leader and the DI head and recorded in the minutes. Students can upload their reports to the appropriate area of Coospace until the end of the exam period of the given semester, and students will be notified of their acceptance through the SZTE Coospace system.

KTDI topic announcers are obliged to maintain their data sheet on the doktori.hu website. KTDI updates topic announcements every six months, during which the KTDI administrator sends a circular to the topic supervisors, drawing their attention to the updating of previously announced topics, at which point the topic supervisors can indicate if they do not request the topic to be announced. Topic supervisors can propose a new topic announcement at any time with the consent of the program manager in the manner described above.

Student evaluation of the work of instructors must be carried out every semester and for every subject.

3. Quality assurance requirements during the recruitment process

The general requirements for the KTDI admission exam are set out in the SZTE "Doctoral Training and Doctoral Degree Acquisition Regulations of the University of Szeged" and the regulations of the Doctoral Council of Natural and Technical Sciences. The members of the Admissions Committee are appointed by the head of KTDI, and the members may be the heads of the training/research programs or their representatives, as well as the administrator of KTDI.

Admission process

Students applying for admission indicate the program they are applying for on the admission form in SZTE Modulo and upload their results so far. Foreign students can upload their admission application and documents through SZTE's Dream Apply system. The head and administrator of the DI have access rights to view the uploaded data. The uploaded data and documents are reviewed by the admission committee before admission.

Students take an oral exam before an admissions committee of at least three members appointed by KTDIT. In justified cases, an online entrance exam is also permitted; in the case of domestic students, this is decided by the president of KTDI based on a prior request. When admitting foreign students, an online exam does not need to be requested. KTDIT makes a proposal for the date and place of the exam, and assigns at least five topic areas individually for each student, which are related to the training/research program chosen by the applicant, the chosen research topic, and are based on the themes of the most important basic subjects taught in environmental science programs. The applicant receives the topic areas and the date from the committee at least 2 weeks before the exam. The members of the committee and the candidates receive an official written notification of the date of the oral exam from the administrator of KTDI.

The primary purpose of the oral examination is to clarify whether the applicant has sufficient professional knowledge to meet the requirements of the training and degree. The committee will aggregate the points of the oral examination with the applicant's other points (the points awarded for the diploma grade, the points awarded for previous scientific work, and the extra points awarded for language skills) in the manner prescribed in the regulations of the Doctoral Council of Natural and Technical Sciences. The admissions committee will rank the candidates based on the scoring system. The scoring system is uniform at the TTIK, the essence of which is that the applicant can obtain one third of the points based on university studies and the diploma, one third based on the performance in the entrance examination, and one third based on individual performance exceeding the mandatory university requirements (student association work, other scientific activities). A detailed description of the scoring system is contained in *Appendix 1* . Taking into account the points obtained during the admission procedure, the DI admission committee makes a proposal every year for filling scholarship places. The proposal is reviewed by KTDIT. In the case of applicants for fee-reimbursed places or with scholarships from external bodies and institutions, the task is only to assess suitability. The condition for admission is to achieve half of the maximum possible score, 42.5. The DIT may regulate the scoring system for foreign applicants differently.

The doctoral school's annual quality assurance report includes the annual experiences of the admissions process and reviews the admissions process accordingly every 3 years.

4. Quality assurance requirements during doctoral training

The credit system in KTDI, in accordance with the Regulations on Doctoral Training and Doctoral Degree Acquisition of the University of Szeged https://u-szeged.hu/doctoral/regulations/regulations-governing-250318), ensures the fulfillment of the principle of uniform assessment, the transparency and predictability of the system of requirements.

In doctoral training, all study requirements must be specified in credits (study points), and credits can only be awarded for activities that end with a (grade 3 or 5) assessment. In the first phase of doctoral training (training and research phase (semesters 1-4)), at least 120 credits must be collected, and in the following four semesters (research and dissertation phase (semesters 5-8)), at least another 120 credits must be collected, i.e. at least 240 credits must be collected in total by the end of the eight-semester (48-month) training to obtain the absolutorium. At least 20 credits must be completed in each reporting period.

The KTDI credit regulations, the courses that can be taken with their credit value, and the recommended schedule for taking them are detailed in the KTDI training plan. The list of courses (Training Plan, Appendix 2) is checked annually by the program leaders, the topics of the courses are reviewed annually by the instructors and updated if necessary. The admission of a new course can be approved by KTDIT at the initiative of the program leader. In case of completion of a doctoral course at another university, its acceptance and crediting must be requested from the head of KTDIT.

The KTDI administrator ensures that courses available for each semester are announced in the SZTE Neptun system. Theoretical subjects (lectures) are announced exclusively at the request and with the consent of the instructor. Students request the announcement of individual courses after consultation with the supervisor. The instructor is solely responsible for verifying the completion of the courses during the reporting period. Each course can only be completed with the instructor under whose name the course was announced by KTDI.

The work of each doctoral student is supervised by a supervisor, whose identity is approved by KTDI. The supervisor's task is to monitor and assist the doctoral student's progress in doctoral training during the training, to manage the doctoral student's research work and publication activities, and to ensure the necessary material conditions for this. The theoretical courses (lectures) necessary for the complex exam are provided by KTDI and its instructors. The student can clearly follow the crediting of educational credits in the Neptun system. The verification of the educational credits necessary for the complex exam and for obtaining the absolutorium at the end of the 4th and 8th semesters is the responsibility of the KTDI administrator and the Dean's Office of SZTE. The KTDI training plan contains detailed guidelines regarding the KTDI courses and their credits, as well as the scheduling of their admission.

The supervisor provides the doctoral student with the necessary professional knowledge regarding academic obligations and directs his/her research work based on the continuously updated research plan. The supervisor is responsible for publishing the results in the best possible journals and other publications and for promoting their publication in Open Access format. After the publications are accepted, credits can be calculated for them (see training plan). The student is obliged to ensure that the publications are uploaded to the university repository and that the bibliographic data is uploaded to MTMT and regularly updated. After the admission and enrollment of the students, the administrator of KTDI draws their attention to the registration in mtmt and assigns their identifier to the student profile on doktori.hu.

Doctoral students are regular participants and lecturers in departmental and institute seminars. If necessary, KTDI organizes research seminars to promote and monitor the progress of students, where doctoral students are regular lecturers. The seminars are open and can also be attended by graduate students. Of the doctoral student's reports, a total of 4 reports (Work Reports) can be assessed with credit during the 4 years.

KTDI supports international mobility of students and the expansion of their network. A study trip related to the topic of the dissertation can be evaluated with credit (see Training Plan). The supervisor is responsible for verifying the study trip, and the program manager decides on its acceptance. In the case of a stay abroad (part-time training) lasting more than two months, KTDI may also accept research work and courses completed abroad. The credit value of courses completed in part-time training abroad/at another university is determined by KTDIT. Before starting the stay abroad, the

student must discuss it with his/her supervisor and apply for its approval from the program manager. The program manager decides on the acceptance, which he/she is obliged to report to the head of KTDI. In two stages of the training, a maximum of one semester per stage, a stay abroad of more than two months can be applied for.

At the end of each semester, the doctoral student prepares a report that includes the credits completed and the research-related exemptions, including publication activities. The report is also commented on by the supervisor. The reports are also reviewed by the program director and KTDIT, and the student is notified of their acceptance.

The Doctoral School Council organizes a student forum every year, in which all students of the School can participate and express their opinions and suggestions regarding the training. The head of KTDI ensures that the largest possible number of lecturers and supervisors participate in the forums. The discussion of the most important problems and suggestions arising at the forum must be put on the agenda of the next meeting of KTDIT. What was said at the student forum forms an important part of the annual quality assurance report.

At the end of the training and research phase (semesters 1-4) and as a condition for starting the research and dissertation phase (semesters 5-8), a complex examination must be taken, which evaluates the academic and research progress. One of the prerequisites for the complex examination is the completion of 15 credits from theoretical courses (training plan, Appendix 2). The complex examination and its procedure are regulated by Chapter V of the Regulations for Doctoral Training and Obtaining a Doctoral Degree of the University of Szeged. The exam consists of two parts: academic and part concerning research progress. The doctoral student may repeat both the study and research parts of the failed complex exam once, during the same exam period. If the exam is unsuccessful, the doctoral student status is terminated and the training is completed.

The composition of the examination committee is proposed by KTDIT in accordance with the provisions of Chapter V of the Regulations on Doctoral Training and Doctoral Degrees of the University of Szeged. All members of the examination committee have a scientific degree. When appointing committee members (at least 3 people), the general legal regulation of conflict of interest must also be taken into account. A person who has a joint publication with the doctoral candidate cannot be a committee member. The composition of the committee and the topics that constitute the study part of the complex exam (it is mandatory to specify 2 topics) are discussed by the TDT and after its approval, the date of the exam is agreed. The topics are selected taking into account the student's research topic and are tailored to the individual. The proposed exam date is forwarded by the KTDI administrator to the dean's office. The official invitation to join the committee, as well as the notification to the committee and the candidate about the date and location of the examination, is sent by the Dean's Office at least two weeks before the examination date. The complex examination can also be conducted online, and this is organized jointly with the Dean's Office staff. The supervisor must submit a written opinion to the chair of the complex examination committee prior to the complex examination, which opinion must include whether the candidate is suitable to meet the educational and publication requirements for the degree by the end of the second stage of the training.

During the complex exam, the committee takes into account the candidate's subject knowledge in the given research area, their achieved scientific performance, and takes into account the feasibility

of further plans for the research phase and the scientific results that can be derived from it. The basic aspects of the evaluation are:

- the supervisor's preliminary, written opinion
- the student's subject knowledge and discussion skills regarding the research topic appropriate to their level of education
- the research and publication activities presented by the student to date
- the student's research and publication plans for the second phase of the training

The complex exam is done by scoring and oral assessment. During the evaluation, the committee decides whether, based on the above criteria, the candidate is found suitable to fulfill the publication requirements of the dissertation set by KTDI in the second stage of the training and to write the doctoral dissertation at an appropriate level.

In the case of individual candidates, the credit value of the complex exam is 120. The Doctoral School Council will credit previous academic performance based on individual assessment. The KTDIT will review the complex exam protocols, discuss the experiences at the first KTDIT meeting after the complex exam, and if necessary, modify or clarify the evaluation criteria based on the experiences.

KTDIT can track student progress through the Neptun system, and receives aggregated data on dropouts from the Dean's Office of the Faculty (SZTE TTIK) corresponding to the program. Student feedback on teaching work is partly provided (especially student satisfaction measurement) through the SZTE's uniformly organized and operated Student Opinion System for Teaching Work (OMHV https://www.juris.u-szeged.hu/karunkrol/minosegbiztositas/omhv-oktatoi-munka) . The results of the OMHV questionnaires are reviewed annually by the head of KTDIT, who provides feedback to the teachers and KTDIT if necessary.

5. Quality assurance requirements during the acquisition of a doctoral degree

One of the conditions for submitting a doctoral dissertation is to obtain an absolutorium, which requires completing at least 240 credits in accordance with the KTDI training plan. The completion of credits is checked by the KTDI administrator and the dean's office, and the absolutorium is issued by the dean's office. The publication condition for submitting a doctoral dissertation is that the doctoral student is the author of two articles related to the topic of the dissertation, published in a journal referenced by SCI (Science *Citation Index*), or accepted for publication, and that at least one of them is the first author (in justified cases, 1 SCI and 1 Scopus-referenced paper is also acceptable - if permitted by KTDIT). The extent of the contribution to the results contained in each publication is confirmed by the co-authorship declaration (Appendix 4, Training Plan) in the case of articles not with the first author . One of the two theses may be an accepted patent if the topic of the thesis justifies it. The fulfillment of the publication requirement is checked by the head and secretary of KTDI.

The dissertation is a summary work presenting the candidate's objectives, new scientific results, knowledge of the literature, and research methods. The form of the dissertation should be descriptive, and its total length (without appendices) should be at least 75 pages, and preferably not exceed 100 pages. The dissertation should be such that the reviewers can clearly judge the performance of the doctoral candidate. The dissertation must include the professional background, antecedents, and purpose of the work; a description of the experiments providing evidence (in sufficient detail to judge the validity and generalizability of the results), and the interpretation of the

results, as well as the conclusions drawn from them. The dissertation must be written in Hungarian, but may also be prepared in English upon the decision or individual permission of KTDIT . The approval of the permission is the responsibility of KTDIT. Non-Hungarian citizens – if their native language is not Hungarian – must write their dissertation in English. In addition to being excellent experts in the subject, the members of the committee for the degree-granting procedure conducted in a foreign language must also have a high level of knowledge in the language of the defense.

The dissertation must be accompanied by a thesis booklet, which contains the introduction, objectives, experimental materials and methods, as well as the results formulated in specific points that form the essence of the dissertation, i.e. the thesis points. The length of the thesis booklet should not exceed 15 pages. The thesis booklet must include a list of scientific publications that serve as the basis for the dissertation and are not related to the topic of the dissertation. The scientific field classification (Q value) of the journal and the current (SCI) impact factor values must be provided for the publications and they must be summarized. The exact identifiers of the lectures and posters that are related to the doctoral student's work must also be provided. The names of the KTDI and the candidate's supervisor(s) must appear on the first page of the dissertation and the thesis booklet. In the case of domestic students, we request an approx. one-page summary of the results in English.

The prerequisite for submitting a doctoral dissertation is a successful pre-defense. KTDI has made the pre-defense (home defense) mandatory for PhD students starting after 01.09.2016, and its organization is the responsibility of the supervisor. The home defense is public, and the supervisor must notify the head of the DI of its date and the names of the invited reviewers 2 weeks before the defense. The supervisor sends the minutes, which contain the reviewers' recommendations ("recommended for defense or "not recommended for defense") on the dissertation (Training Plan, Appendix 3), to the head of KTDI together with the attendance sheet. If the dissertation is "recommended for defense", the Candidate corrects the errors and modifies the documents, the dissertation and the thesis booklets based on what was said and written. The rules regarding the home defense are detailed in the Training Plan. In addition to the thesis, at the home defense, special attention must be paid to the thesis points and their formulation.

The condition for submitting the dissertation for public discussion is that the submitted dissertation must be checked for plagiarism before being uploaded to the Doctoral Repository, the costs of which are covered by SZTE. Plagiarism screening can be requested with the help of the University Library via the address plagium@ek.szte.hu. The screening can be requested by the supervisor or the administrator of the KTDI and based on the result, the head of the doctoral school decides on the acceptance or modification of the dissertation. The modified dissertation must be submitted again for plagiarism checking. The dissertation can only can be uploaded to the SZTE Doctoral Dissertations Repository after it has been found to be suitable based on the results of the plagiarism check. The head of KTDI issues a certificate to the candidate about the results of the plagiarism screening. KTDI summarizes the experiences related to plagiarism screening annually, which forms part of its annual quality assurance report. Based on the experiences, the acceptability criteria for the results of the plagiarism screening are reviewed annually by KTDIT.

To obtain a degree, the candidate must have a minimum complex B2 level in English, i.e. an intermediate level of oral and written, state-recognized language exam. The verification of compliance with the language requirement is carried out by the Dean's Office of the Faculty of Arts, Sciences and Humanities of SZTE.

Attachments

1. Annex

Calculation of admission points:

Study results:
-   For graduates not older than 3 years (max. 25 points)
    (BSc degree average – 3.5) · 20/3
    (MSc degree average – 3.5) · 10
    (university degree average – 3.5) · 50/3
-   For graduates older than 3 years (max. 20 points)
    (BSc degree average – 3.5) · 16/3
    (MSc degree average – 3.5) · 8
    (university degree average – 3.5) · 40/3

The results must be rounded to the nearest whole number according to the rounding rule.

Scientific results:
-   For graduates less than 3 years old (max. 25 points)
-   For graduates more than 3 years ago (max. 30 points)

Detailed scoring of scientific results:
-   12 points are awarded to those who achieve 1st-3rd place or receive a special award at a national TDK conference.
-   You will receive 5 points, but can receive a maximum of 10, if you submitted material to the TDK conference.
-   You will receive 5 points, but can receive a maximum of 10, if you are a co-author of a presentation or poster at a prestigious international conference, or a speaker at a domestic conference.
-   You will receive 12 points for each paper you presented at a prestigious international conference.
-   You will receive 10 points, but can receive a maximum of 20 points if you are a co-author of a paper published in a journal with an impact factor.
-   A co-author of a paper published in a journal without an impact factor receives 5 points, but can receive a maximum of 10 points.

Professional aptitude test:
Admission interview in the presence of a committee of at least three members, on pre-determined topics (max. 30 points).

Language skills:
Achievements beyond the language exam required for obtaining the diploma can be scored in English, French, German, Italian, Spanish or Russian (max. 5 points). Higher level C 5 points, intermediate level C 3 points, higher level A or B 3 points, intermediate level A or B 2 points.

2. Annex

	THEORETICAL COURSES OF THE DOCTORAL SCHOOL OF ENVIRONMENTAL SCIENCES				
	Object	Performer	*Department*	**credit**	**hours/week**
	Environmental biochemistry and biotechnology block / Environmental biochemistry and biotechnology				
	Basic Biotechnology I.	Kornel Kovacs	Department of Biotechnology	3	2
	Basic Biotechnology II.	Gabor Rákhely-	Department of Biotechnology	3	2
	Molecular Biotechnology	Andras Toth	Department of Biotechnology	3	2
	Basic Biochemistry	Edith Hermesz Marta Kotorman	Department of Biochemistry	3	2
	Biochemistry for Chemists Biochemistry for Chemists	Monica Kiricsi	Department of Biochemistry	3	2
	Biotechnology of waste treatment	Katalin Perei	Department of Biotechnology	3	2
	Biotechnology of wineries	Andras Toth	Department of Biotechnology	3	2
	Application of Cyanobacteria in Biotechnology	Zoltán Gombos	Department of Biotechnology - SZBK	3	2
	Nitrate Removal by Biotechnology	Stephen Kiss	Department of Biotechnology	3	2
	Biotechnology in business	Ernő Duda Jr.	Department of Biotechnology	3	2
	Methods for investigation of protein structures	Attila Borics	Department of Biochemistry	3	2
	Environmental Stress Biology	Edith Hermesz	Department of Biochemistry	3	2
	Stress Biology	Edith Hermesz	Department of Biochemistry	3	2
	Advanced Biochemistry	Edith Hermesz Marta Kotorman	Department of Biochemistry	3	2
	Application of the MATLAB program package for evaluating experimental data	Geza Groma	Department of Biochemistry	3	2
	Conservation Ecology block				
	Population biology	Zsolt Penzes	Department of Ecology	3	2
	Conservation biology	Zoltán Bátori	Department of Ecology	3	2
	Behavioral ecology	István Maák	Department of Ecology	3	2
	Elementary interactions and the ecology of communities	Attila Torma	Department of Ecology	3	2
	Phylogenetics	Zsolt Penzes	Department of Ecology	3	2
	Phytosociology.	Csaba Tolgyesi	Department	3	2
	Population genetics	Zsolt Penzes	Department of Ecology	3	2
	Entomology	Attila Torma	Department of Ecology	3	2
	Molecular ecology	Zsolt Penzes	Department of Ecology	3	2
	Environmental Geography block / Environmental Geography				
	Physical Geography		Product Geography Geoinf.	3	2
	Global Environmental Problems	John Rakonczai	Product Geography Geoinf.	3	2
	Pedology		Product Geography Geoinf.	3	2
	Impacts and consequences of Global Environmental Changes in Hungary	John Rakonczai	Product Geography Geoinf.	3	2
	Environmental monitoring		Product Geography Geoinf.	3	2

	Introduction to Geographical Information Systems	Laszlo Mucsi	Product Geography Geoinf.	3	2
	Geomorphology		Product Geography Geoinf.	3	2
	Urban ecology	Laszlo Mucsi	Product Geography Geoinf.	3	2
	Urban climate	John Unger	Climate. Landscape geography	3	2
	Landscape ecology	Agnes Goulash Eszter Takacs	Climate. Landscape geography	3	2
	Geophysical methods in the evaluation of the environment		Product Geography Geoinf.	3	2
	Soil and groundwater protection	Carnival Andrea	Product Geography Geoinf.	3	2
	Spatial models in earth sciences	Joseph Szatmari	Product Geography Geoinf.	3	2
	Big Data - Data mining for geoinformatics	Joseph Szatmari	Product Geography Geoinf.	3	2
	GIS modeling	Joseph Szatmari	Product Geography Geoinf.	3	2
	Environmental conditions of Hungary	Zsuzsanna Ladanyi	Product Geography Geoinf.	3	2
	GIS databases	Ferenc Kovacs	Product Geography Geoinf.	5	4
	Soil erosion modeling	Charles Barta	Product Geography Geoinf.	3	2
	Application of GIS and RS in Earth Sciences	Tobak Zalán, Boudewijn van Leeuwen	Product Geography Geoinf.	3	2
	Drought and soils	Charles Barta	Product Geography .Geoinf.	3	2
	Landscape Planning	Peter Szilas	Product Geography .Geoinf.	3	2
	Environmental Risk Assessment		Product Geography .Geoinf.	3	2
	Natural Hazards	Gabor Mezosi	Product Geography .Geoinf.	3	2
Environmental Geology block / Environmental Geology
	Topics in Mineralogy	Elemér Pál-Molnár	Mineral Rock. Geok. Tsz	3	2
	Topics in Petrology	M. Tivadar Toth	Mineral Rock. Geok. Tsz	3	2
	Topics in Sedimentology	John Geiger	Geology, Paleontology Tsz	3	2
	Secondary sampling and geostatistical analysis of spatio-temporal monitoring systems	John Geiger	Geology, Paleontology Tsz	3	2
	General Geology	Paul Sumegi	Geology, Paleontology Tsz	3	2
	Environmental Geology	M. Tivadar Toth Paul Sumegi	Mineral Rock. Geok. Tsz	3	2
	Environmental Geochemistry	Magdalena Hetenyi	Mineral Rock. Geok. Tsz	3	2
	Applied paleoecology Applied Palaeoecology	Paul Sumegi	Geology, Paleontology Tsz	3	2
	Mineralogy and Petrology	Pál-Molnár Elemér M. Tívadar Tóth	Mineral Rock. Geok. Tsz	3	2
	Geology of Hungary Geology of Hungary	Paul Sumegi Bela Raucsik	Geology, Paleontology Tsz	3	2
	Applied Environmental Geology	M. Tivadar Toth Paul Sumegi	Mineral Rock. Geok. Tsz	3	2
	Laboratory and Field Methods in Environmental Geology	Gabor Bozso Paul Sumegi	Mineral Rock. Geok. Tsz	3	2
	Environmental Geochemistry	Magdalena Hetenyi	Mineral Rock. Geok. Tsz	3	2
	Petrography and Geochemistry of Siliciclastic Rocks	Andrea Varga Raucsik	Mineral Rock. Geok. Tsz	3	2
	Water-Rock Interactions/Diagenesis	Andrea Varga Raucsik	Mineral Rock. Geok. Tsz	3	2
	Hydrogeology	John Szanyi	Mineral Rock. Geok. Tsz	3	2
	Numerical modeling	János Szanyi and Balázs Kovács	Mineral Rock. Geok. Tsz	3	2
	Topics in Clay Mineralogy	Bela Raucsik	Mineral Rock. Geok. Tsz	3	2
	Applied Isotope Geochemistry	Mrs. Andrea Varga and Mrs. Béla Raucsik	Mineral Rock. Geok. Tsz	3	2
	Geological mapping	John Geiger M. Tivadar Toth	Geology, Paleontology Tsz	3	2

Applied Geomathematics and Geostatistics	John Geiger M. Tivadar Toth	Geology, Paleontology Tsz	3	2
Geological fundamentals of waste deposition	Paul Sumegi M. Tivadar Toth	Geology, Paleontology Tsz	3	2
Geological fundamentals of environmental protection	Paul Sumegi	Geology, Paleontology Tsz	3	2
Environmental Mineralogy	Elemér Pál-Molnár Gabor Bozso	Mineral Rock. Geok. Tsz	3	2
Organic Matter in Soils and Recent Sediments	Magdalena Hetenyi	Mineral Rock. Geok. Tsz	3	2
Numerical modeling of fractured fluid reservoirs	M. Tivadar Toth	Mineral Rock. Geok. Tsz	3	2
Environmental Chemistry Block / Environmental Chemistry				
Environmental Chemistry	Zoltán Konya Ildiko Toth	Organ. and Analytical Chem. Tsz	3	2
Waste treatment and Waste management	Gabor Kozma Andras Sapi	Applied and Environmental Chemistry	3	2
Environmental Colloid Chemistry	Etelka Tombácz	MK Institute of Food Engineering	3	2
Atomic Spectroscopy	Gabor Galbacs	Service and Analytical Spy Unit	3	2
Advanced Oxidation Processes for Environmental Protection	Basic Fairy	Service and Analytical Spy Unit	3	2
Bioengineering Operations	Cecilia Hodur	MK Food Industry. Art. and Environment.	3	2
Membrane Separation Processes	Cecilia Hodur	MK Food Industry and Environment	3	2
Environmental Techniques	Zsuzsanna Laszlo	MK Food Industry and Environment	3	2
Technology of Environmental Protection	Gabor Kozma Andras Sapi	Applied Environmental Chemistry	3	2
Chemistry of Zeolites and Mesoporous Materials		Applied Environmental Chemistry	3	2
Advanced Water Treatments	Ildiko Toth	Applied Environmental Chemistry	3	2
Alternative energy sources	Stephen Hannus	Applied Environmental Chemistry	3	2
Nanotechnology for Environmental Protection	Zoltán Konya	Applied Environmental Chemistry	3	2
Air pollution, air protection	Gabor Kozma Andras Sapi	Applied Environmental Chemistry	3	2
Equilibrium on interface and colloid stability of dispersions in aqueous medium	Etelka Tombácz	MK Institute of Food Engineering	3	2
Surface Chemistry and heterogeneous catalysis 1.	Imre Dékány, Andras Erdöhelyi, Janos Kiss	Applied Environmental Chemistry	3	2
Surface Chemistry and heterogeneous catalysis 2.	Imre Dékány, Andras Erdöhelyi, Janos Kiss	Applied Environmental Chemistry	3	2
Advanced technologies of waste treatment	Akos Kukovecz	Applied Environmental Chemistry	3	2
Case studies in industrial catalysis	Akos Kukovecz	Applied Environmental Chemistry	3	2
Environmental and food safety block / Environmental- and food safety				
Food safety	Dr. Anita Vidacs	Institute of Food Engineering	3	2
Packaging innovation – food safety and sustainability	Dr. Erno János Gyimes	Institute of Food Engineering	3	2
General Food Technologies for PhD Students	Dr. Pal Balazs Szabo	Institute of Food Engineering	3	2

Regulation of food industry innovations	Diana Banati Dr.	Institute of Food Engineering	3	2
Food labeling	Dr. Diána Bánáti	Institute of Food Engineering	3	2
Pandemics and food safety	Diana Banati Dr.	Institute of Food Engineering	3	2
Food safety - advanced	Diana Banati Dr.	Institute of Food Engineering	3	2
Toxicology Toxicology for PhD students	Dr. Dora Szepesi-Bencsik	Institute of Food Engineering	3	2
The food safety significance of acrylamide	Dr. Tamás János Szigeti	Institute of Food Engineering	3	2
Environmental Physics block				
Applied Optics	Nicholas of Erdely	Optics and Quantum. Tsz	3	2
Biophysics	Peter Maroti	Department of Biophysics	3	2
Scientific Communication	Tamas Szorenyi	Optics and Quantum. Tsz	3	2
Photoacoustic Spectroscopy	Zoltán Bozoki	Optics and Quantum Mech.	3	2
Technology of Virtual Measurements	Robert Mingesz	Experimental Physics Tsz	3	2
Geophysical fluid dynamics	Zoltán Bozoki	Optics and Quantum. Tsz	3	2
Microphysics and chemistry of clouds	Nicholas Beard	Optics and Quantum. Tsz	3	2
Environmetal Physics of aerosols in atmosphere	Tibor Ajtai	Optics and Quantum. Tsz	3	2
Course recommended for everyone / course for everyone				
Biomarkers of environmental hazards	Andras Papp	Medical University, Institute of Public Health	3	2
Health problems caused by xenobiotics	Laszlo Nagymajtenyi	Medical University, Institute of Public Health	3	2
Quality Protection	Mrs. Lászlóné Dr. Márta Gálfi	Environmental Biology and Environmental Education (JGYPK)	3	2
Life cycle analysis	Mrs. Lászlóné Dr. Márta Gálfi	Environmental Biology and Environmental Education (JGYPK)	3	2
LabVIEW for analysis of the measurements	David Tatrai	Optics and Quantum. Tsz	3	2
Complex architectures in LabVIEW	David Tatrai	Optics and Quantum. Tsz	3	2

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1. …………
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Date of the home doctoral defense:
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Place of the home doctoral defense:
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Reviewer(s)' suggestion:
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Candidate   Supervisor(s)

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