Educational program at the Doctoral School of the Wrocław University of Science and Technology

Valid from 1.10.2023

Consolidated text taking into account resolution no. 636/47/2020-2024 of the Senate of Wrocław University of Science and Technology of 16.05.2024 effective from 1.10.2024 and resolution no. 358/24/2024-2028 of the Senate of Wrocław University of Science and Technology of 23.04.2026 effective from 1.10.2026.

§ 1. General provisions

1. Education at the Doctoral School of the Wrocław University of Science and Technology, hereinafter referred to as the "Doctoral School", lasts eight semesters, with the possibility of early completion provided that the education program is completed and all learning outcomes are achieved.

2. Education at the Doctoral School is conducted in the following disciplines:
   1) architecture and urban planning,
   2) automation, electronic, electrical engineering and space technologies,
   3) information and communication technology,
   4) biomedical engineering,
   5) chemical engineering,
   6) civil engineering, geodesy and transport,
   7) materials engineering,
   8) mechanical engineering,
   9) environmental engineering, mining and energy,
   10) mathematics,
   11) chemical sciences,
   12) physical sciences,
   13) management and quality studies.

3. The language of instruction at the Doctoral School is English.

4. The doctoral student's education ends with the submission of a doctoral dissertation with a positive opinion of the supervisor or the supervisors.

§ 2. Learning outcomes

1. Completion of compulsory courses included in the educational program and implementation of an individual research plan, including submission of a doctoral dissertation, leads to learning outcomes for qualifications at level 8 of the Polish Qualifications Framework, where the learning outcomes in terms of the knowledge of a modern foreign language are confirmed by a certificate or diploma confirming the knowledge of that language at B2 level or higher.

2. As a result of the education at the Doctoral School, the doctoral student achieves learning outcomes in accordance with the following table:

Symbol	Assumed learning outcomes	Code of the descriptive component	The way of achieving the learning outcome
KNOWLEDGE **Doctoral student knows and understands:**			
SzD_W1	the world's scientific and creative heritage and its implications for practice;	P8U_W	Individual research plan
SzD_W2	to such an extent that it is possible to revise existing paradigms – world heritage, including theoretical foundations, general issues and selected specific issues – specific to a scientific or artistic discipline;	P8S_WG	Individual research plan
SzD_W3	the main trends in the development of the scientific or artistic disciplines covered in the curricula;	P8S_WG	Compulsory courses
SzD_W4	research methodology;	P8S_WG	Compulsory courses
SzD_W5	the rules for the dissemination of scientific results, including in open access mode;	P8S_WG	Compulsory courses
SzD_W6	the fundamental dilemmas of modern civilization;	P8S_WK	Compulsory courses
SzD_W7	the legal and ethical conditions of scientific activity;	P8S_WK	Compulsory courses
SzD_W8	the economic and other relevant conditions of scientific activity;	P8S_WK	Compulsory courses
SzD_W9	basic principles of knowledge transfer to the economic and social spheres and commercialisation of results of scientific activity and know-how related to these results.	P8S_WK	Compulsory courses
SKILLS **Doctoral student is able to:**			
SzD_U1	analyse and creatively synthesise scientific and creative achievements in order to identify and solve research, innovation and creative problems; create new elements of this achievements; independently plan his/her own development and inspire others to develop; participate in the exchange of experience and ideas, including in the international environment;	P8U_U	Individual research plan
SzD_U2	use knowledge from different fields of science or art to creatively identify, formulate and innovatively solve complex problems or perform research tasks, in particular: - define the purpose and subject of scientific research, formulate a research hypothesis, - develop research methods, techniques and tools, and use them creatively, - draw conclusions on the basis of scientific research; critically analyse and evaluate the results of scientific research, expertise and other creative	P8S_UW	Individual research plan Compulsory courses

	work and their contribution to knowledge development; transfer the results of scientific activities to the economic and social spheres;		
SzD_U3	communicate on specialised topics to the extent that they enable an active participation in the international scientific community;	P8S_UK	Compulsory courses
SzD_U4	disseminate research results, including in popular forms;	P8S_UK	Individual research plan Compulsory courses
SzD_U5	initiate debates and participate in a scientific discourse;	P8S_UK	Compulsory courses
SzD_U6	be able to speak a foreign language at B2 level of the Common European Framework of Reference for Languages to a level that enables them to participate in the international scientific and professional environment;	P8S_UK	Certificate or diploma confirming the knowledge of that language at B2 level or higher Compulsory courses
SzD_U7	plan and implement an individual or collective research or creative activity, including in an international environment;	P8S_UO	Individual research plan Compulsory courses
SzD_U8	independently plan and act for one's own development and inspire and organize the development of others;	P8S_UU	Compulsory courses
SzD_U9	plan classes or groups of classes and implement them using modern methods and tools.	P8S_UU	Compulsory courses
SOCIAL COMPETENCES **Doctoral student is ready to:**			
SzD_K1	an independent study to enhance existing scientific and creative output; take up challenges in the professional and public sphere, taking into account: - their ethical dimension - accountability for their effects and the shaping of models of good practice in such situations;	P8U_K	Individual research plan
SzD_K2	critical evaluation of the achievements of a given scientific or artistic discipline; a critical assessment of their own contribution to the development of the scientific or artistic discipline in question; recognising the importance of knowledge in solving cognitive and practical problems;	P8S_KK	Individual research plan
SzD_K3	fulfilling the social obligations of researchers and creators, initiate public interest activities, thinking and acting in an entrepreneurial way;	P8S_KO	Individual research plan Compulsory courses
SzD_K4	maintaining and developing the ethos of research and creative environments, including: - carrying out scientific activities in an independent manner, - respecting the principle of public ownership of research results, taking into account the principles of intellectual property protection.	P8S_KR	Individual research plan Compulsory courses

3. The doctoral student is obliged to document the achievement of the learning outcomes specified in point 2 and meeting the conditions specified in the educational program of the Doctoral School before submitting the doctoral dissertation.

§ 3. Forms of education

1. The Doctoral School develops the following competences: soft skills, specialized in the field of education and in other disciplines, social, didactic and linguistic.

2. Education is conducted on the basis of an educational program and an individual research plan.

3. Education at the Doctoral School is carried out in the form of:

1) compulsory and additional courses conducted as lecture, original lecture, exercise, seminar, laboratory and project classes;
2) research work carried out in cooperation with the supervisor or supervisors;
3) implementation of an individual research plan including the preparation of scientific articles and a doctoral dissertation.

§ 4. Courses

1. The implementation of the educational program at the Doctoral School undergoes within units called courses. During their education at the Doctoral School, a doctoral student is required to complete compulsory courses and may complete additional courses.

2. The framework structure of the educational program at the Doctoral School is presented in the table below:

Course name	Hours	Semester	Learning outcome
COMPULSORY COURSES			
Recent research trends in scientific discipline	30	I-IV	SzD_W3, SzD_W6
Reporting seminar of scientific discipline	60 (4x15)	II, IV, VI, VIII	SzD_W4, SzD_U2, SzD_U3, SzD_U4, SzD_U5
Research skills	30	I-IV	SzD_W4, SzD_W5, SzD_W6, SzD_W8, SzD_W9, SzD_U2, SzD_U4, SzD_U7, SzD_K3, SzD_K4
Ethical and legal aspects of scientific activity	15	I-IV	SzD_W7, SzD_K3, SzD_K4
Personal development	15	I-IV	SzD_U8
Teaching skills	15	I-IV	SzD_U9
English language	60 (2x30)	I-IV	SzD_U6
Elective courses	60	I-IV	-
In total:	**285**		
ADDITIONAL COURSES			
Elective courses	60	I-VIII	-
Foreign language	60 (2x30)	I-IV	-

3. The following compulsory courses should be conducted by a doctoral student in accordance with his or her discipline of study:

1) recent research trends in scientific discipline;

2) reporting seminar of scientific discipline.

4. Elective courses include:

1) specialized courses conducted in various forms (e.g., lecture, original lecture or others) by the Doctoral School;
2) basic and interdisciplinary courses conducted in various forms (e.g., lecture, original lecture or others) by the Doctoral School;
3) humanities and management course conducted in various forms (e.g., lecture, original lecture or others) by the Department of Humanities and Social Sciences or by the Doctoral School
4) courses offered by visiting professors invited by the Dean of the Doctoral School or other units of the Wrocław University of Science Technology;
5) discipline or interdisciplinary seminars conducted by the Doctoral School

5. The course conducted as an original lecture may include various didactic forms, such as: lectures, auditorium exercises, seminars, classes or laboratory demonstrations.

6. The Dean of the Doctoral School, at the written request of the doctoral student supported by the supervisor, may recognize a course covered by the education program and completed outside the Doctoral School as completed, e.g., in another doctoral school or doctoral studies (also at another university) or during a summer / winter school for doctoral students or as external training. In the case of a compulsory course, it is necessary to demonstrate compliance with the learning outcomes assigned to the course being replaced.

7. A doctoral student holding a language certificate from external institutions or a diploma confirming the knowledge of the required foreign language at the language proficiency level of at least C1 of the The Common European Framework of Reference for Languages (CEFR) may be exempt from the obligation to pursue English language courses. Exemption from the obligation to pursue English language courses requires the submission of an appropriate certificate or diploma to the Dean's Office of the Doctoral School.

8. In justified cases, with the consent of the Vice-Rector responsible for education, courses in a language other than English may be conducted at the Doctoral School.

9. All compulsory courses included in the educational program should be completed by the end of the fourth semester, with the exception of the reporting seminars, which are to be completed in the summer semester, 15 hours per year in each year of education at the Doctoral School.

§ 5. Implementation doctorates

1. The framework structure of the educational program at the Doctoral School for doctoral students in the “Implementation doctorate” program is presented in the table below:

Course name	Hours	Semester	Learning outcome
COMPULSORY COURSES			
Recent research trends in scientific discipline	30	I-IV	SzD_W3, SzD_W6

Reporting seminar of scientific discipline	60 (4x15)	II, IV, VI, VIII	SzD_W4, SzD_U2, SzD_U3, SzD_U4, SzD_U5
Research skills	30	I-IV	SzD_W4, SzD_W5, SzD_W6, SzD_W8, SzD_W9, SzD_U2, SzD_U4, SzD_U7, SzD_K3, SzD_K4
Ethical and legal aspects of scientific activity	15	I-IV	SzD_W7, SzD_K3, SzD_K4
Personal development	15	I-IV	SzD_U8
Teaching skills	15	I-IV	SzD_U9
In total:	**165**		
ADDITIONAL COURSES			
Elective courses	60	I-VIII	-
Foreign language	60 (2x30)	I-IV	-

2. For a doctoral student pursuing the "Implementation doctorate" program, the provisions of § 4 points 1 and 3-9 apply.

§ 6. Content of compulsory courses

1. The latest research trends in scientific discipline - the course covers issues related to the presentation of the main trends in the development of the scientific or artistic disciplines covered in the curricula and the fundamental dilemmas of modern civilization in the context of scientific research carried out in the discipline.

2. Research skills - the course covers the following topics: research methodology; the rules for the dissemination of scientific results, including in open access mode; the fundamental dilemmas of modern civilization; the economic and other relevant conditions of scientific activity; basic principles of knowledge transfer to the economic and social spheres and commercialization of results of scientific activity and know-how related to these results; use knowledge from different fields of science or art to creatively identify, formulate and innovatively solve complex problems or perform research tasks; plan and implement an individual or collective research or creative activity, including in an international environment; fulfilling the social obligations of researchers and creators; maintaining and developing the ethos of research and creative environments.

3. Reporting seminar of scientific discipline - the course covers the following issues: presentation of the progress of the doctoral dissertation and its critical evaluation; discussion on the research topics related to the doctoral dissertation being carried out; using knowledge from various fields of science to creatively identify, formulate and innovatively solve research problems raised in the dissertation; research methodology in the area of the doctoral dissertation; preparation for presentation at scientific conferences and preparation for the defence of a doctoral dissertation; communicating on specialist topics to a degree enabling active participation in the international scientific environment; disseminating the results of scientific activity; initiating a debate and participating in the scientific discourse.

4. Ethical and legal aspects of scientific activity - the course covers issues related to the legal and ethical conditions of scientific activity, including: ethics of scientific research; honesty and credibility in

science; university social responsibility; the problem of personal data protection in scientific research; copyright and the freedom of research; co-authored works; research and development contracts; industrial property law.

5. Personal development - the course covers issues related to shaping and improving the skills of independent planning and acting for one's own development; shaping and improving the skills of organizing and supporting the development of other people. The course covers basic psychological knowledge and presents selected coaching competences. During the course, the doctoral student works on understanding himself/herself, his/her needs, competences and weaknesses related to private and professional life. The course also aims to provide the tools needed to improve communication skills, teamwork, dealing with one's own and group emotions, opposition and criticism. During his / her lifetime, the doctoral student learns to communicate more effectively with others and achieve the intended goals, and how to strategically respond to the needs of others. The course also raises awareness of the importance of trust and group collaboration.

6. Teaching skills - the course covers issues related to modern methods and techniques of teaching classes, including: shaping and improving the skills of planning classes or a group of classes and carrying them out with the use of modern methods and tools. The aim of the course is to shape and improve the skills of planning, organizing and implementing the process of educating and educating students. The course program covers selected issues concerning the development of an adult and lifelong learning, as well as the most important theoretical, practical and legislative arrangements necessary for the correct planning and conduct of didactic classes, taking into account classic and modern solutions in academic education. The course prepares for taking up the role of an academic teacher and encourages reflection on the improvement of one's own didactic workshop.

§ 7. Apprenticeships

1. The doctoral student of the Doctoral School is obliged to conduct didactic classes with students (teaching apprenticeships) in consecutive years of education in the number of hours as presented in the following table:

	1st year	2nd year	3rd year	4th year
Number of hours	0	30	30	0

2. Apprenticeships may be conducted in the form of conducting classes or participating in their conducting.

3. In the cases specified in the Regulations of the Doctoral School, the Vice-Rector responsible for teaching, at the request of the doctoral student supported by the supervisor and the Dean of the Doctoral School, may reduce the amount of apprenticeships for the doctoral student or completely release him from the obligation to undergo them.

4. A doctoral student pursuing the “Implementation doctorate” program is exempt from the obligation to carry out apprenticeships.

5. A doctoral student employed at the University as an academic teacher in the position of assistant in a group of research and teaching staff or in a group of teaching staff is exempt from undergoing apprenticeships.

§ 8. Individual study plan

1. A doctoral student is educated according to an interdisciplinary individual study plan, established for the first two years of education for the consecutive semester, and from the third year of education for the consecutive two semesters and approved by the appropriate head of the educational discipline and the Dean of the Doctoral School.

2. The individual study plan for a given semester is prepared in accordance with the provisions of the Regulations of the Doctoral School.

3. The individual study plan has to ensure the achievement of the learning outcomes listed in § 2 and the implementation of the compulsory courses specified in § 4 point 2, and in the case of doctoral students implementing the "Implementation doctorate" program in § 5 point 1.

4. As part of interdisciplinary education, an individual study plan should include courses assigned to various disciplines of education.

5. Individual study plan may include courses conducted by visiting professors or courses conducted in the form of on-line courses offered by other universities, including foreign universities. They may also be lectures or seminars held during a research internship at a domestic or foreign research centre and external training.

§ 9. Education of doctoral students in cooperation with another partner

1. Education at the Doctoral School may be conducted in cooperation with another partner, including foreign partner, with which Wrocław University of Science and Technology has made an agreement on joint education of doctoral students.

2. In the case referred to in point 1, the individual study plan is determined in accordance with the provisions of the agreements, in compliance with the requirements specified in § 8.