

Educational program at the Doctoral School No. 2

§ 1. General provisions

1. Educational program shared by all PhD students of Doctoral School No. 2 specifies:
 - 1) learning outcomes, in line with the requirements of the second level learning outcomes characteristics for qualifications at level 8 of the Polish Qualifications Framework¹;
 - 2) program requirements ensuring the achievement of the learning outcomes not directly related to the implementation of an individual research plan;
 - 3) the offer of classes allowing for meeting the program requirements;
 - 4) model individual educational program.
2. The educational program is the basis for designing an individual educational program for each PhD student.

§ 2. Learning outcomes

1. As a result of education undertaken at Doctoral School No. 2, the following learning outcomes are achieved:
 - 1) knowledge-wise
a person who completed education at the Doctoral School No. 2 knows and understands:
 - a) global achievements covering theoretical foundations and general issues, as well as the selected detailed issues – appropriate to the chosen scientific disciplines represented at the School, including the latest scientific achievements in the field of conducted research, to the extent allowing for the revision of the existing paradigms,
 - b) the main development trends of the scientific disciplines represented at the School,
 - c) methodology of research in the scientific disciplines represented at the School,
 - d) the principles of promoting the results of scientific activity, also in the open access form,
 - e) fundamental dilemmas of modern civilization,
 - f) economic, legal, ethical and other significant determinants of scientific activity,
 - g) basic principles of knowledge transfer to the economic and social field, as well as commercialization of the results of scientific activity and know-how related to these results, including protection of intellectual property issues,
 - h) mechanisms for financing research and raising funds for research,
 - i) methods and modern techniques of teaching.
 - 2) skills-wise
a person who completed education at the Doctoral School, can:
 - a) effectively acquire information related to scientific activity from different sources, also in foreign languages, and properly select and interpret these information,
 - b) utilize knowledge from various scientific fields to creatively identify, formulate and innovatively solve complex problems or perform research tasks, especially problems and tasks of significant application potential, in particular:
 - a) define the purpose and subject of research, formulate a research hypothesis,
 - b) develop research methods, techniques and tools and use them creatively,

¹ requirements specified in Annex No. 1 to the Regulation of the Minister of Science and Higher Education of November 14, 2018 on the characteristics of learning outcomes at levels 6-8 of the Polish Qualifications Framework

- c) infer on the basis of the research results,
- c) perform critical analysis and evaluation of the results of research, expert works and other creative activities, as well as their contribution to the development of knowledge, in particular – evaluate usefulness and the ways to use the results of theoretical works in practice,
- d) transfer the results of research activity to economic and social field in cooperation with socio-economic environment,
- e) document the results of research and develop research papers in accordance with the adopted rules, particularly – following the rules of copyright respect,
- f) promote the results of research activity, also in popular forms,
- g) initiate the debate and participate in scientific discourse, present her/his achievements and ideas in a comprehensible way and provide appropriate arguments in scientific discussions and public debates on various topics,
- h) communicate in English at B2+ level of the Common European Framework of Reference for Languages to the extent allowing for participation in international scientific and professional environment, as well as in other environments,
- i) plan and implement -in a methodologically correct way – individual research undertakings in connection with research conducted in a larger group, also in an international environment,
- j) independently plan and act for own and other people development,
- k) plan – in a methodologically correct way – classes or groups of classes and realize them with the use of modern methods and tools;

3) social competence-wise

a person who completed education at the Doctoral School, is ready to:

- a) acknowledge the importance of knowledge in solving cognitive and practical problems,
- b) continuously enhance professional and personal skills, in particular through following and analysing recent achievements related to the represented scientific discipline,
- c) critically assess the achievements within the represented scientific discipline and own contribution to the development of this discipline,
- d) initiate actions in favour of the public interest, fulfil the social obligations of researchers and authors, including:
 - engaging in training of specialists in the represented discipline and other activities leading to the development of a knowledge-based society,
 - transferring to the public, i.a. through mass media, information and opinions on the scientific and technological achievements, in a proper, commonly comprehensible by a given group of recipients manner, validating other points of view,
- e) think and act in a creative and entrepreneurial way,
- f) behave professionally, obey the rules of professional ethics, maintain and develop the ethos of research and creative environments, including:
 - a) conducting research activity independently,
 - b) respecting the principle of public ownership of the results of scientific activities, including the principles of intellectual property protection.

2. Learning outcomes are achieved as a result of:

- 1) implementation of an individual educational program;
- 2) implementation of an individual research plan;
- 3) staying in the academic environment of the School and participating in various forms of activities organized by it;
- 4) participating in the life of the academic community – national and international.

§ 3. Program offer

1. Program offer for PhD students at the Doctoral School No. 2 covers:
 - 1) classes conducted by the all-university units;
 - 2) classes conducted by Doctoral School No. 2;
 - 3) classes conducted by other Doctoral Schools of the Warsaw University of Technology.
2. Classes offered by the all-university units are:
 - 1) ‘Researcher’s Workshop’ – a set of classes modeling universal competences – regardless of the scientific discipline;
 - 2) classes offered by the Center for Advanced Studies;
 - 3) classes offered by the Foreign Language Centre.
3. Classes offered by Doctoral School No. 2 include:
 - 1) advanced specialized classes in scientific disciplines represented at the School: chemical engineering, materials engineering, chemical sciences, physical sciences.
 - 2) interdisciplinary seminar;
 - 3) other organized activities (Summer School, conferences, workshops etc.).
4. The program offer enables a PhD student who does not know Polish to meet program requirements².

§ 4. Program requirements

1. Program requirements for Doctoral School No. 2, i.e. requirements that must be met by individual educational program of each PhD student at Doctoral School No. 2, include:
 - 1) basic requirements specifying - for each of the basic groups of classes - the minimum number of classes from this group in an individual educational program;
 - 2) additional requirements.
2. Fundamental program requirements for Doctoral School No. 2 are specified in Table 1.
Table 1. Fundamental program requirements for Doctoral School No. 2.

classes	the number of the required ECTS credits	other requirements
‘Researcher’s Workshop’ classes	8	–
advanced specialized classes, including: – classes from the field of represented scientific discipline – classes from the field of other disciplines	20 at least 10 at least 6	–
interdisciplinary seminar		20 hours per year
teaching practice – conducting classes or participating in conducting classes		30 hours per year

3. Apart from the requirements specified in Table 1, an individual educational program must meet the following, additional program requirements:
 - 1) at least 8 ECTS credits must be achieved as a result of completing classes conducted in English;
 - 2) at least 4 ECTS credits must be achieved as a result of completed advanced specialized classes conducted by the Center for Advanced Studies;

² In the number of classes conducted in English is not sufficient to meet the program requirements, the program requirements may be implemented by completing a special type of Individual Reading/Research Course conducted by one of the persons authorized by the Council of the School. The content and number of such classes, as well as the method of verifying the learning outcomes, is determined on an individual basis.

- 3) compulsory ‘Researcher’s Workshop’ modules modeling competences (knowledge and skills) in the field of:
 - a) economic, legal, ethical and other significant determinants of scientific activity,
 - b) transferring the results of scientific activity to the economic and social field,
 - c) presenting and popularizing the results of scientific activity, also in popular forms,
 - d) planning and implementing scientific undertakings,
 - e) planning classes and implementing classes with the use of modern methods and tools.
4. Program requirements can be met as a result of:
 - 1) completing classes from the program offer for PhD students at Doctoral School No. 2;
 - 2) completing classes or other forms of organized activity (international summer school, conference/seminar/workshops for PhD students etc.) at other university or institution – Polish or foreign;
 - 3) recognition of the learning outcomes achieved by the PhD student as a result of non-formal education (outside the higher education and science system) as equivalent to the outcomes achieved as a result of the classes included in the program offer for PhD students at Doctoral School No. 2,
 - 4) completing second cycle classes at the Warsaw University of Technology or other university, necessary to supplement knowledge related to the subject of research conducted by a PhD. student.

Decisions referred to in points 2-4 are taken by the Head of the Doctoral School – at the request of a PhD student, accompanied by the opinion of her/his supervisor, in accordance with the rules described in the Regulations.

§ 5. Individual educational program and its implementation

1. Each PhD student at Doctoral School No. 2, realizes individual educational program, defining: Each PhD student undergoing education at Doctoral School No. 2 realizes individual educational program specifying:
 - 1) organized classes;
 - 2) teaching practice in the form of conducting or co-hosting classes;
 - 3) other forms of classes and activities carried out by the PhD. student in particular semesters.
2. Individual educational program is developed by a PhD. student in cooperation with his supervisor (supervisors) and approved by the Council of Doctoral School No. 2 after formal verification by the Head of Doctoral School No. 2.
3. Individual educational program must meet the following:
 - 1) program requirements (basic and additional) defined for Doctoral School No. 2;
 - 2) registration conditions for another semester/year, specified in the Regulations.
4. When developing an individual educational program, a model individual educational program for Doctoral School No. 2 may be used, determining possible placement of the classes in subsequent semesters.
5. The structure of a model individual educational program is presented in Table 2.

Table 2. Model individual educational program at Doctoral School No. 2.

semester	classes
1	<ul style="list-style-type: none"> - a subject offered by the Center for Advanced Studies - a subject from the field of the represented scientific discipline - Researcher’s Workshop: Methodology of research work - Researcher’s Workshop: Presenting the results of research - Researcher’s Workshop: Conducting classes - interdisciplinary seminar

2	<ul style="list-style-type: none"> - a subject offered by the Center for Advanced Studies - a subject from the field of the represented discipline - Researcher's Workshop: Writing publications - Researcher's Workshop: Open science - interdisciplinary seminar
3	<ul style="list-style-type: none"> - a subject from the field of represented discipline - a subject from the field of other scientific discipline represented at the Doctoral School - Researcher's Workshop: Ethical aspects of scientific activity - interdisciplinary seminar
4	<ul style="list-style-type: none"> - a subject from the field of represented discipline - a subject from the field of other scientific discipline represented at the Doctoral School - Researcher's Workshop: Intellectual property protection - interdisciplinary seminar
5	<ul style="list-style-type: none"> - a subject from the field of represented discipline - Researcher's Workshop: Preparing an application for a research grant - interdisciplinary seminar
6	<ul style="list-style-type: none"> - Researchers' Workshop: Commercialization of research results - interdisciplinary seminar
7	<ul style="list-style-type: none"> - Researcher's Workshop (selectable) - interdisciplinary seminar
8	<ul style="list-style-type: none"> - interdisciplinary seminar

6. Individual educational program can be modified during its realization. A PhD student submits the proposed changes to the Head of Doctoral School upon accepting them by his supervisor. The Head of the Doctoral School formally verifies the modified program and decides whether it requires approval by the Council of the School or not.