

**THE EDUCATION PROGRAMME
AT THE CRACOW UNIVERSITY OF TECHNOLOGY DOCTORAL SCHOOL
effective from the academic year 2026/2027**

I

General provisions

1. The education programme of the Cracow University of Technology Doctoral School, hereinafter referred to as the Doctoral School or the CUT DS, has been developed pursuant to the act *Law on Higher Education and Science* of the 20 July 2018 (J. of L. of 2018, item 1668, as amended), *the Act* of the 22 December 2015 on *the Integrated Qualifications Systems* (J. of L. of 2018, item 2153) and *the Regulation of the Minister of Science and Higher Education* of the 14 November 2018 on *the second degree characteristics of learning outcomes for levels 6 – 8 qualifications according to the Polish Qualifications Framework* (J. of L. of 2018, item 2218). The education programme also takes into account the principles and recommendations for doctoral training set out in European documents, including the Salzburg Principles (2005), the Salzburg II Initiative (2010), and the ‘Principles of Innovative Doctoral Training’ adopted in the EU Council Conclusions (2011).
2. Education at the Doctoral School is offered in the disciplines in which Cracow University of Technology is authorised to confer the degree of doctor */doktor/*.
3. At the Doctoral School, doctoral students pursue education in one discipline or in an interdisciplinary mode.
4. Education at the Doctoral School:
 - a. prepares the student to obtain the doctoral degree;
 - b. lasts 8 or 6 semesters and concludes with the submission of the doctoral dissertation together with a positive opinion from the supervisor or supervisors;
 - c. is carried out on the basis of the education programme and the Individual Research Plan (IRP).
5. The education programme, upon the motion of the CUT Doctoral School Council and having obtained the opinion of the University Council of the Doctoral Students’ Association (UCDSA), is approved by the Senate. Changes in the education programme are developed by the CUT Doctoral School Council and – having obtained the opinion of the University Council of the Doctoral Students’ Association (UCDSA) – submitted to the Senate for approval, ensuring a timeframe that allows them to be made available no later than 5 months before the start of recruitment.
6. Changes to the syllabuses of the courses included in the education programme of the CUT Doctoral School are introduced by the persons responsible for the course and approved by the CUT Doctoral School Council by 30 March of a given year, with the stipulation that changes to syllabuses of elective courses require additionally a positive

opinion of the head of the scientific council for the relevant discipline. Changes are effective from the academic year following the year in which they were introduced.

7. Tuition at the Doctoral School may be offered in Polish or English.
8. The number of the ECTS points assigned to the education programme at the Doctoral School is at least 40 ECTS.
9. Classes stipulated in the education programme at the Doctoral School are mandatory.
10. Completion of the Doctoral School education programme and the individual research plan leads to achieving the learning outcomes reflecting their general characteristics for the level 8 qualification of the Polish Qualifications Framework specified in the effective regulation of the Minister of Science and Higher Education of 14 November 2018 on the second degree characteristics of learning outcomes for levels 6 – 8 qualifications according to the Polish Qualifications Framework (J. of L. of 2018, item 2218).
11. The methods for verifying the learning outcomes achieved as part of the education programme are specified in the individual course syllabi. The learning outcomes achieved within the individual research plan are verified during the evaluation of its implementation.

II

8-semester plan for the completion of the Education Programme

Semester	Courses	ECTS	Symbol of the learning outcomes at the CUT DS	Reference to		Number of hours
				the universal first degree characteristics of the PQF*	the second degree characteristics of learning outcomes**	
1	Pedagogy and Psychology (15h)	1	E_W05, E_U10, E_U11	P8U_U, P8U_W	P8S_WK, P8S_UU	75h
	English – specialist text writing (15h) /International module I³	1	E_U04, E_U08	P8U_U	P8S_UK, P8S_UK	
	Selected aspects of conducting scientific research (45h): a) Obtaining grants b) Scientific research methodology c) Scientific information d) Intellectual property protection – patent bases e) Ethics in scientific research	3	E_W03, E_W04, E_W05, E_W06, E_W07, E_U01, E_U03, E_U09, E_K04, E_K05, E_K06, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_WK, P8S_UW, P8S_UO, P8S_KO, P8S_KR	
2	Elective courses selected from the list (30h)¹	2	E_W01, E_W02, E_U01, E_K01, E_K03	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK	60h
	English - oral academic discourse (15h) /International module II³	2	E_U04, E_U08	P8U_U	P8S_UK, P8S_UK	
	Doctoral seminar in the discipline (15h)	2	E_W01, E_W02,	P8U_W, P8U_U,	P8S_WG, P8S_UW, P8S_UK,	

			E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_K	P8S_UO, P8S_UU, P8S_KK, P8S_KR	
3	Elective courses selected from the list (30h) ¹	2	E_W01, E_W02, E_U01, E_K01, E_K03,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK,	45h
	Doctoral seminar in the discipline (15h) /International module III³	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
4	Elective courses selected from the list (30h) ¹	2	E_W01, E_W02, E_U01, E_K01, E_K03,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK,	45h
	Doctoral seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
5	Elective courses selected from the list (30h) ¹	2	E_W01, E_W02, E_U01, E_K01, E_K03,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK,	45h
	Doctoral seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
6	Economics or philosophy (15h)	2	E_W05, E_W06, E_K06	P8U_W, P8U_K	P8S_WK, P8S_KO	30h
	Doctoral seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU,	

			E_K01, E_K02, E_K03, E_K07		P8S_KK, P8S_KR	
7	Preparation of the doctoral dissertation	2	E_W04, E_U05, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UK, P8S_KR	15h
8	Preparation for the doctoral dissertation defence	1	E_U05, E_U06, E_U07, E_K07	P8U_U, P8U_K	P8S_UK, P8S_KR	10h
1-6	Professional internship²	10	E_U10, E_U11	P8U_U	P8S_UU	75h

* The description of the assumed learning outcomes encompasses all the universal first degree characteristics specified in the act of the 22nd December 2015 on the Integrated Qualifications System (J. of L. of 2016, item 64, as amended) relevant for a given level of the Polish Qualifications Framework (PQF).

** All second degree characteristics of learning outcomes specified in the regulation of the Minister of Science and Higher Education of the 14th November 2018 on the second degree characteristics of learning outcomes for levels 6 – 8 qualifications according to the Polish Qualifications Framework (J. of L. of 2018, item 2218).

NOTES:

1. Elective courses are to be selected from a list of courses within the framework of specific disciplines in which education is provided. In the case of interdisciplinary education, the doctoral student selects elective courses from the list of disciplines in which they develop their doctoral thesis.
2. The scope of the professional internship in the form of teaching classes or participation in teaching classes:
I year – 15 h
II year – 30 h
III year – 30 h
3. Module taken in English, upon approval of the Head of the Doctoral School of Cracow University of Technology, in the form of international classes (e.g. Blended Intensive Programme /BIP/ modules taken within the framework of the Stars EU Alliance.
4. Within elective courses, additional learning outcomes may be achieved that are not listed in the schedule table of the education programme.

III

6-semester plan for the completion of the Education Programme

Semester	Courses	ECTS	Symbol of the learning outcomes at the CUT DS	Reference to		Number of hours
				universal first degree characteristics of the PQF *	the second degree characteristics of learning outcomes **	
1	Pedagogy and Psychology (15h)	1	E_W05, E_U10, E_U11	P8U_W, P8U_U	P8S_WK, P8S_UU	75h
	English – specialist text writing (15h) /International module I³	1	E_U04, E_U08	P8U_U	P8S_UK, P8S_UK	
	Block A – Selected aspects of conducting scientific research (45h): a) Obtaining grants b) Scientific research methodology c) Scientific information d) Intellectual property protection – patent bases e) Ethics in scientific research	3	E_W03, E_W04, E_W05, E_W06, E_W07, E_U01, E_U03, E_U09, E_K04, E_K05, E_K06, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_WK, P8S_UW, P8S_UO, P8S_KO, P8S_KR	
2	Elective courses selected from the list (30h)¹	2	E_W01, E_W02, E_U01, E_K01, E_K03	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK	60h
	English – oral academic discourse (15h) /International module II³	2	E_U04, E_U08	P8U_U	P8S_UK, P8S_UK	

	Seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
3	Elective courses selected from the list (30h)¹	2	E_W01, E_W02, E_U01, E_K01, E_K03,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK,	45h
	Seminar in the discipline (15h) / International module III³	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
4	Elective courses selected from the list (30h)¹	2	E_W01, E_W02, E_U01, E_K01, E_K03,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK,	45h
	Seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
5	Elective courses selected from the list (30h)¹	2	E_W01, E_W02, E_U01, E_K01, E_K03,	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_KK,	60h
	Seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	
	Preparation of the doctoral dissertation (15h)	2	E_W04, E_U05, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UK, P8S_KR	
	Economics or philosophy (15h)	2	E_W05, E_W06, E_K06	P8U_W, P8U_K	P8S_WK, P8S_KO	

6	Seminar in the discipline (15h)	2	E_W01, E_W02, E_U01, E_U02, E_U06, E_U07, E_U09, E_U10, E_K01, E_K02, E_K03, E_K07	P8U_W, P8U_U, P8U_K	P8S_WG, P8S_UW, P8S_UK, P8S_UO, P8S_UU, P8S_KK, P8S_KR	40h
	Preparation for the doctoral dissertation defence (10h)	1	E_U05, E_U06, E_U07, E_K07	P8U_U, P8U_K	P8S_UK, P8S_KR	
1-6	Professional internship²	10	E_U10, E_U11	P8U_U	P8S_UU	75h

* The description of the assumed learning outcomes encompasses all the universal first degree characteristics specified in the act of the 22nd December 2015 on the Integrated Qualifications System (J. of L. of 2016, item 64, as amended) relevant for a given level of the Polish Qualifications Framework (PQF).

** All second degree characteristics of learning outcomes specified in the regulation of the Minister of Science and Higher Education of the 14th November 2018 on the second degree characteristics of learning outcomes for levels 6 – 8 qualifications according to the Polish Qualifications Framework (J. of L. of 2018, item 2218).

NOTES:

1. Elective courses are to be selected from a list of courses within the framework of specific disciplines in which education is provided. In the case of interdisciplinary education, the doctoral student selects elective courses from the list of disciplines in which they develop their doctoral thesis.
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3. Module taken in English, upon approval of the Director of the Doctoral School of Cracow University of Technology, in the form of international classes (e.g. Blended Intensive Programme /BIP/ modules taken within the framework of the Stars EU Alliance.
4. Within elective courses, additional learning outcomes may be achieved that are not listed in the schedule table of the education programme.

IV

Cracow University of Technology CUT Doctoral School Field of science: Engineering and Technology Scientific disciplines: Architecture and Urban Sciences; Automatic Control, Electronics, Electrical Engineering and Space Technologies, Information and Communication Technology; Chemical Engineering; Civil Engineering; Geodesy and Transportation; Materials Engineering; Mechanical Engineering; Environmental Engineering and Mining and Power Engineering			
Level of the Polish Qualifications Framework: 8 PQF			
Symbols of the learning outcomes	LEARNING OUTCOMES	Reference to	
		the universal first degree characteristics of the PQF ¹	the second degree characteristics of learning outcomes ²
1	2	3	4
	KNOWLEDGE: THE GRADUATE KNOWS AND UNDERSTANDS	Description component code	Description component code
E_W01	to a degree that enables the revision of existing paradigms – the global body of knowledge, including theoretical foundations, general problems and selected specific topics – relevant to the given scientific discipline;	P8U_W	P8S_WG
E_W02	the main trends of development in the scientific disciplines in which they pursue education;	P8U_W	P8S_WG
E_W03	the methodology of scientific research;	P8U_W	P8S_WG
E_W04	the principles of disseminating the results of scientific activity, including through open access;	P8U_W	P8S_WG
E_W05	the fundamental dilemmas of contemporary civilisation;	P8U_W	P8S_WK
E_W06	the economic, legal, ethical, and other significant factors affecting scientific activity;	P8U_W	P8S_WK

E_W07	the basic principles of knowledge transfer to the economic and social sphere and of the commercialization of scientific activity results, as well as the associated know-how.	P8U_W	P8S_WK
	SKILLS: THE GRADUATE IS ABLE TO	Description component code	Description component code
E_U01	use knowledge from various fields of science or the arts to creatively identify and innovatively solve complex problems or carry out research tasks, in particular to: <ul style="list-style-type: none"> – define the aim and subject of scientific research, – formulate a research hypothesis, – develop research methods, techniques and tools, and apply them creatively, – draw conclusions based on scientific research; 	P8U_U	P8S_UW
E_U02	carry out critical analysis and evaluation of scientific research results, expert activities, and other creative work, as well as assess their contribution to the development of knowledge;	P8U_U	P8S_UW
E_U03	transfer the results of scientific activity to the economic and social spheres;	P8U_U	P8S_UW
E_U04	communicate on specialist topics to a degree that enables active participation in the international scientific environment;	P8U_U	P8S_UK
E_U05	disseminate the results of scientific activity, also in popular forms;	P8U_U	P8S_UK
E_U06	Initiate debate;	P8U_U	P8S_UK
E_U07	participate in scientific discourse;	P8U_U	P8S_UK
E_U08	use a foreign language at the B2 level of the Common European Framework of Reference for Languages, enabling participation in international scientific and professional environments;	P8U_U	P8S_UK
E_U09	plan and carry out individual and team research projects, also in an international environment;	P8U_U	P8S_UO
E_U10	independently plan and engage in activities for their own development, as well as inspire and organize the development of others;	P8U_U	P8S_UU
E_U11	plan classes or groups of classes and conduct them using modern tools and methods.	P8U_U	P8S_UU

	SOCIAL COMPETENCES: THE GRADUATE IS PREPARED TO	Description component code	Description component code
E_K01	evaluate critically the body of work within the given scientific discipline;	P8U_K	P8S_KK
E_K02	evaluate critically their own contribution into the development of the given scientific discipline;	P8U_K	P8S_KK
E_K03	recognize the significance of knowledge in solving cognitive and practical problems;	P8U_K	P8S_KK
E_K04	fulfil the social responsibilities of researchers and creators;	P8U_K	P8S_KO
E_K05	initiate actions for the benefit of the public interest;	P8U_K	P8S_KO
E_K06	think and act in an entrepreneurial manner;	P8U_K	P8S_KO
E_K07	uphold and develop the ethos of research and creative communities, including: <ul style="list-style-type: none"> – conducting scientific activity independently, – respecting the principle of public ownership of the results of scientific activity, taking into account the principles of intellectual property protection. 	P8U_K	P8S_KR

Explanation of symbols used:

1. Universal characteristics of PQF levels (first cycle):

P = PQF level (8)

U = universal characteristics

W = knowledge

U = skills

K = social competences

Example:

P8U_W = PQF level 8, universal characteristics, knowledge

The graduate knows and understands the global scientific and creative legacy and its implications for practice.

2. Characteristics of PQF levels typical of qualifications attained in higher education (second cycle) :

P = PQF level (8)

S = characteristics typical of qualifications attained in higher education

W = Knowledge

G = depth and scope - the completeness of the cognitive perspective and interrelations

K = context, determinants, results

U = Skills

W = use of knowledge – problems solved and tasks completed

K = Communication – receiving and creating statements, dissemination of knowledge within the scientific environment; using a foreign language;

O = Work organization – planning and team work

U = Learning – planning one's own development, as well as the development of others.

K = Social competences

K = Evaluations – a critical approach

O = Responsibility - fulfilling social obligations and acting in the public interest⁰⁰

R = Professional role – independence and the development of professional ethos

Example:

P8S_WG = PQF level 8, a characteristic typical of qualifications obtained within higher education, knowledge – depth and scope.
The graduate knows and understands the global body of knowledge, including theoretical foundations as well as general issues and selected detailed problems relevant to the given scientific discipline.

¹ The description of the intended learning outcomes includes all universal first-degree characteristics specified in the Act of 22 December 2015 on the Integrated Qualifications System (Journal of Laws 2016, item 64, as amended) appropriate for the given level of the Polish Qualifications Framework.

2. All second-degree characteristics of learning outcomes specified in the Regulation of the Minister of Science and Higher Education of 14 November 2018 on the second-degree characteristics of learning outcomes for qualifications at levels 6–8 of the Polish Qualifications Framework (Journal of Laws 2018, item 2218).

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I hereby certify that this translation into English is a true and exact rendering of the Polish document presented to me.

Number of the translation act in the sworn translator's repertory of acts: 34/2025

Kraków, 9 December 2025.

Sworn translator: Alicja Półtorak - Filipowska

entered in the Register of Sworn Translators kept by the Ministry of Justice at TP/229/05.