

**Federal State Autonomous Educational Institution of Higher Education**

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**PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA NAMED AFTER PATRICE  
LUMUMBA  
RUDN University  
Academy of Engineering**

Approved at the meeting of the Academic  
Council of RUDN University  
Protocol No. UC-23 dated 26.12.2022

Opened by order of the Rector of RUDN  
University No. 29 dated 30.01.2023

**PROFESSIONAL EDUCATION PROGRAMME OF HIGHER EDUCATION**

44.04.02 Psychological and Pedagogical Education

field of studies / speciality code and title

Profile:

Pedagogy in Engineering

higher education programme title

The Educational Programme is developed in compliance with:

**Educational Standard of RUDN University**, approved by Order of the Rector No. 371 dated 21.05.2021

Level of education:

**master's**

(bachelor's / specialist's / master's – to fill in the required)

Graduate's Qualification:

**Master**

(graduate's qualification in compliance with the order of the Ministry of Education and Science of Russian Federation dated September 12, 2013, No. 1061)

Length of Educational Programme:

**2 years**

(full-time education)

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(part-time education)

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(correspondence education)

AGREED by:

Head  
of Educational Programme  
**Kovaleva E.A.**

Chairperson  
of Didactic Council  
**Sokolova N.L.**

Head  
of Academy of Engineering  
**Razoumny Yu.N.**



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(day, month, year)

(day, month, year)

### **1. Aim (mission) EP HE**

The program is focused on training highly qualified specialists in the field of pedagogy in engineering. In the process of training, students receive theoretical training and practical skills that allow them to work effectively after completing the study of the educational program, engaging in pedagogical and methodological activities in technical universities.

The program is designed in such a way that it allows students to form the most popular universal, general professional and professional competencies today, to develop skills for their implementation in professional activities in accordance with the requirements of the Federal State Educational Standard of Higher Education. In the process of training, students receive fundamental theoretical and applied knowledge that allows them to carry out activities in the field of pedagogy in engineering.

### **2. Relevance, specificity, uniqueness of the educational program**

Today, the demand for highly qualified engineering personnel is extremely high, which is explained by the acceleration of the pace of change that is taking place in the global economy. Thus, the relevance of training effective teachers of engineering disciplines is obvious.

The program is aimed at training masters in the field of engineering pedagogy, it combines both the study of traditional academic disciplines and the creative activity of undergraduates in the framework of prestigious international competitions.

The uniqueness of the program lies in the fact that it optimally combines pedagogical and engineering disciplines, as a result, the graduates of the program will be prepared for the organization of pedagogical activities, the creation and implementation of engineering educational programs, and the use of innovative technologies in educational activities.

### **3. Labor market needs for graduates**

Labor market experts predict that engineering specialties related to production will take the lead in the coming years. To date, there is an acute shortage of technical specialists with higher education in the field of communications and telecom, construction, mechanical engineering, electronics and electrical engineering, food and other industries.

Industries are already experiencing an acute shortage of design engineers and process engineers. This situation entails an increasing demand for teachers of engineering specialties.

This program is distinguished by its focus on teaching engineering disciplines in technical universities, and will allow to train professionals who are able to effectively organize, implement and control the educational process.

#### **4. Admissions criteria**

For admission to the program, entrance tests are passed in the form of an interdisciplinary exam.

#### **5. Key features of the curriculum**

5.1. EP HE is implemented with elements of e-learning / distance learning technologies (Microsoft Teams, Zoom, TUIS RUDN).

5.2. The language of implementation of the EP HE is English.

5.3. The EP of HE is implemented by the Peoples' Friendship University of Russia.

5.4. Information on the planned bases for conducting educational/industrial practices and (or) research

Potential partners: JSC Polyus Research Institute named after M.F. Stelmakh, JSC Shvabe, FSUE Research Institute Research and Production Association LUCH, UNIDO Center for International Industrial Cooperation in the Russian Federation, etc.

#### **6. The field of professional activity of masters includes**

6.1. Field(s) and/or sphere(s) of professional activity of a graduate who has mastered the EP of HE in which he (s) can carry out his/her professional activities:

01 Education and science (in the areas of: implementation of basic professional educational programs and additional educational programs; scientific research).

6.2. Type(s) of tasks of professional activity, for the solution of which the graduate is preparing as part of the development of the EP HE - pedagogical.

6.3. The list of generalized labor functions and labor functions related to the professional activity of a graduate of the EP HE, in accordance with which the program was developed

Code and name of the professional standard	Generalized labor functions			Labor functions		
	Code	Name	Skill level	Code	Name	Skill level
1.004 Teacher of vocational training, vocational education and additional professional education	I	Teaching in bachelor's, specialist's, master's and DPP programs focused on the appropriate level of qualification	7	I/ 01.7	Teaching courses, disciplines (modules) for bachelor's, specialist's, master's and (or) DPP programs	7

## 7. Requirements to the learning outcomes

7.1 At the end of the development of the EP HE, the graduate must have the following universal competencies (UC):

Code and name of competence	Code and the indicators of achievement of competence
UC-1 Able to carry out a critical analysis of problem situations on the basis of a systematic approach, to develop an action strategy	UC-1.1. Analyzes the problem situation and decomposes it into separate tasks. UC-1.2. Forms possible solutions to problems
UC-2 Able to manage the project at all stages of its life cycle	UC-2.1. Demonstrates knowledge of the characteristics of all stages of the project life cycle UC -2.2. Participates in project management at all stages of the life cycle
UC-3 Able to organize and lead the work of the team, developing a team strategy to achieve the goal	UC-3.1. Demonstrates knowledge of the principles of teamwork. UC-3.2. Supervises team members to solve assigned tasks
UC-4 Able to apply modern communication technologies, including in a foreign language(s), for academic and professional interaction	UC-4.1. Carries out academic and professional interaction, including in a foreign language. UC-4.2. Uses modern information and communication tools for academic and professional interaction
UC-5 Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	UC-5.1. Demonstrates an understanding of different cultures UC-5.2. Builds social interaction, taking into account the common and different features of cultures and religions
UC-6 Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem	UC-6.1. Assesses their resources and their limits (personal, situational, temporary), optimally uses them for the successful completion of the assigned task.

	UC-6.2. Determines the priorities of personal growth and ways to improve their own activities based on self-esteem
UC-7. Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data.	UC-7.1 Effectively finds sources of necessary information. UC-7.2 Owns methods of analysis and evaluation of information

7.2. Upon completion of the development of the EP HE, the graduate must have the following general professional competencies: (GPC):

<b>Code and name of competence</b>	<b>Code and the indicators of achievement of competence</b>
GPC-1 Able to carry out and optimize professional activities in accordance with regulatory legal acts in the field of education and the norms of professional ethics	GPC-1.1. Knows the regulations in the field of education and the norms of professional ethics GPC-1.2. Competently uses legal acts in the field of education and the norms of professional ethics in their professional activities
GPC -2 Able to design basic and additional educational programs and develop scientific and methodological support for their implementation	GPC-2.1. Possesses the skills of designing basic and additional educational programs GPC-2.2. Possesses the skills of developing scientific and methodological support for basic and additional educational programs
GPC-3 Able to design the organization of joint and individual educational and educational activities of students, including those with special educational needs	GPC-3.1. Competently projects the organization of joint and individual educational and educational activities GPC-3.2. Possesses the skills of organizing joint and individual educational activities of students with special educational needs
GPC-4 Able to create and implement the conditions and principles of spiritual and moral education of students on the basis of basic national values	GPC-4.1. Demonstrates knowledge of the principles of creating and implementing conditions for spiritual and moral education based on basic national values GPC-4.2. Effectively creates and implements the conditions of spiritual and moral education on the basis of basic national values
GPC-5 Able to develop programs for monitoring the results of students' education, develop and implement programs for overcoming learning difficulties	GPC-5.1. Demonstrates the skills of monitoring the educational outcomes of students GPC-5.2. Effectively develops and implements programs for overcoming learning difficulties
GPC-6 Able to design and use effective psychological and pedagogical, including inclusive, technologies in professional activities necessary for the individualization of training,	GPC-6.1. Competently owns the psychological and pedagogical technologies necessary for the individualization of learning, development,

development, education of students with special educational needs	education of students with special educational needs GPC -6.2. Demonstrates the skills of owning inclusive technologies necessary for the individualization of learning, development, education of students with special educational needs
GPC-7 Able to plan and organize interactions between participants in educational relations	GPC -7.1. Demonstrates the skills of planning the interaction of participants in educational relations OPK-7.2. Effectively organizes the interaction of participants in educational relations
GPC-8 Able to design pedagogical activities on the basis of special scientific knowledge and research results	GPC-8.1. Effectively designs pedagogical activities on the basis of special scientific knowledge and research results  OPK-8.2. Demonstrates possession of special scientific knowledge
GPC-9 Able to possess tools for working with large amounts of structured and unstructured information, use modern digital methods of processing, analysis, interpretation and visualization of data in order to solve problems professional and research psychological and pedagogical activities	GPC-9.1. Effectively uses modern digital methods of processing, analysis, interpretation and visualization of data in order to solve the tasks of professional and research psychological and pedagogical activities OPK-9.2 Demonstrates the skills of using tools for working with large amounts of structured and unstructured information

7.3. At the end of the development of the EP HE, the graduate must have the following professional competencies: (PC):

Code and name of competence	Code and the indicators of achievement of competence	Code and name of the PC
PC-1 Able to design basic and additional educational programs and develop scientific and methodological support for their implementation;	PC-1.1. Effectively uses the methods of designing basic and additional educational programs PC-1.2. Develops scientific and methodological support for the implementation of basic and additional educational programs	1.004 Teacher of vocational training, vocational education and additional professional education
PC-2 Able to design the organization of joint and individual educational and educational activities of students, including those with special educational needs;	PC-2.1. Effectively uses the methods of designing, organizing joint and individual educational and educational activities PC-2.2. Works effectively with students with special educational needs	
PC-3 Able to develop programs for monitoring the results of students' education, develop and implement	PC-3.1. Competently uses methods for developing programs for monitoring the results of students' education	

programs for overcoming learning difficulties	PC-3.2. Effectively uses methods for developing programs to overcome learning difficulties	
PC-4 Able to plan and organize interactions between participants in educational relations;	PC-4.1. Effectively plans the interaction of participants in educational relations PC-4.2. Effectively organizes the interaction of participants in educational relations	
PC-5 Able to design pedagogical activities on the basis of special scientific knowledge and research results.	PC-5.1. Effectively designs pedagogical activities on the basis of special scientific knowledge and research results PC-5.2. Competently uses the methods of designing pedagogical activity on the basis of special scientific knowledge and research results	





## 9. Matrix of competencies formed by students in the development of EP HE «Pedagogy in Engineering», Educational program specialization 44.04.02 Pedagogy and Psychology

	Name of disciplines (modules) in accordance with the curriculum	UK-1: Able to carry out a critical analysis of problem situations on the basis of a systematic approach, to develop an action strategy	UC-2: Able to manage the project at all stages of its life cycle	UC-3: Able to organize and lead the work of the team, developing a team strategy to achieve the goal	UC-4: Able to apply modern communication technologies, including in a foreign language(s), for academic and professional interaction	UC-5: Able to analyze and take into account the diversity of cultures in the process of intercultural interaction	UC-6: Able to determine and implement the priorities of their own activities and ways to improve them on the basis of self-esteem	UK-7: Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data obtained from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data
Block 1	Mandatory part							
	<b>Basic component</b>	UC-1.1. UC-1.2.	UC-2.1. UC-2.2.	UC-3.1. UC-3.2.	UC-4.1, UC-4.2	UC-5.1 UC-5.2	UC-6.1. UC-6.2	UC-7.1. UC-7.2
	<i>Philosophy of Education and Science / Философия образования и науки</i>	UC-1.1. UC-1.2.	UC-2.1. UC-2.2.	UC-3.1. UC-3.2.				
	<i>Professional Russian (as a Foreign Language) / Русский язык (как иностранный) в профессиональной деятельности</i>				UC-4.1, UC-4.2	UC-5.1 UC-5.2		
	<i>Cultural-historical and Activity Approach in Psychology and Education / Культурно-исторический и деятельностный подход в психологии и образовании</i>		UC-2.1. UC-2.2.					UC-7.1. UC-7.2

	<i>Methodology of scientific research / Методология научного исследования</i>							UC-6.1. UC-6.2
	<i>Forming of a Psychologically Comfortable and Safe Educational Environment / Формирование психологически комфортной и безопасной образовательной среды</i>							
	<i>Design and Expertise of Educational Systems / Проектирование и экспертиза образовательных систем</i>							
	<b>Variable component</b>	UC-1.1		UC-3.1 UC-3.2	UC-4.1 UC-4.2			
	<i>Innovative technologies in engineering education / Инновационные технологии в инженерном образовании</i>							
	<i>Digital education / Организация цифрового образования</i>							
	<i>Psychological - pedagogical technologies in education / Психолого-педагогические технологии в образовании</i>							
	<i>Management of educational process / Менеджмент образовательного процесса</i>							
	<i>Theory and practice of technical subjects tutorial / Теория и практика обучения общетехническим дисциплинам</i>							
	<i>Theory and practice of engineering education / Теория и практика инженерного образования</i>							
	Formed by the participants of educational relations							

	Digital production technologies / Цифровые технологии на производстве		UC-2.1 UC-2.2					
	Innovation technologies of hi-tech branches / Инновационные технологии наукоемких отраслей		UC-2.1 UC-2.2					
	Planning of mixed and on-line courses / Планирование и проведение смешанных и он-лайн курсов			UC-3.2				
	Design of an educational program / Проектирование образовательной программы			UC-3.2				
	Technological entrepreneurship / Технологическое предпринимательство		UC-2.1 UC-2.2.	UC-3.1 UC-3.2				
	Management of innovative activity at enterprise / Управление инновационной деятельностью на производстве	UC-1.2.	UC-2.1. UC-2.2.					
	Technologies of cross-cultural education / Технологии кросс-культурного образования					UC-5.1. UC-5.2.		
	Management of conflicts in educational environment / Управление конфликтами в образовательной среде			UC-3.1 UC-3.2				
Block 2	Mandatory part							
	<b>Variable component</b>							
	<i>Pedagogical training / Педагогическая практика (учебная)</i>							
	<i>Introductory practice / Ознакомительная практика</i>							

	<i>Research work / Научно-исследовательская работа</i>							
	<i>Pedagogical training / Педагогическая практика</i>							
	<i>Pre-graduate practice / Преддипломная практика</i>							
	Formed by the participants of educational relations							

General professional competencies										
		Name of disciplines (modules) in accordance with the curriculum	GPC-1: Able to carry out and optimize professional activities in accordance with regulatory legal acts in the field of education and the norms of professional ethics	GPC-2: Able to design basic and additional educational programs and develop scientific and methodological support for their implementation	GPC-3: Able to design the organization of joint and individual educational and educational activities of students, including those with special educational needs	GPC-4: Able to create and implement the conditions and principles of spiritual and moral education of students on the basis of basic national values	GPC-5: Able to develop programs for monitoring the results of students' education, develop and implement programs for overcoming learning difficulties	GPC-6: Able to design and use effective psychological and pedagogical, including inclusive, technologies in professional activities necessary for the individualization of training, development, education of students with special educational needs	GPC-7: Able to plan and organize interactions between participants in educational relations	GPC-8: Able to design pedagogical activities on the basis of special scientific knowledge and research results
Block 1	Mandatory part									
	<b>Basic component</b>		GPC-1.1	GPC-2.1	GPC-3.1	GPC-4.1	GPC-5.1		GPC-7.1	GPC-8.1



	Digital production technologies / Цифровые технологии на производстве								
	Innovation technologies of hi-tech branches / Инновационные технологии наукоемких отраслей								
	Planning of mixed and on-line courses / Планирование и проведение смешанных и он-лайн курсов								
	Design of an educational program / Проектирование образовательной программы								
	Technological entrepreneurship / Технологическое предпринимательство								
	Management of innovative activity at enterprise / Управление инновационной деятельностью на производстве								
	Technologies of cross-cultural education / Технологии кросс-культурного образования								
	Management of conflicts in educational environment / Управление конфликтами в образовательной среде								
Block 2	Mandatory part								
	<b>Variable component</b>								
	<i>Pedagogical training / Педагогическая практика (учебная)</i>								
	<i>Introductory practice / Ознакомительная практика</i>								
	<i>Research work / Научно-исследовательская работа</i>								
	<i>Pedagogical training / Педагогическая практика</i>								
	<i>Pre-graduate practice / Преддипломная практика</i>								
	Часть, формируемая участниками образовательных отношений								

		<b>General professional competencies</b>	
		Name of disciplines (modules) in accordance with the curriculum	GPC-9: Способен владеть инструментарием работы с большими массивами структурированной и неструктурированной информации, использовать современные цифровые методы обработки, анализа, интерпретации и визуализации данных с целью решения поставленных задач профессиональной и научно-исследовательской психолого-педагогической деятельности
Block 1		Mandatory part	
		<b>Basic component</b>	GPC-9.1 GPC-9.2
		<i>Philosophy of Education and Science / Философия образования и науки</i>	
		<i>Professional Russian (as a Foreign Language) / Русский язык (как иностранный) в профессиональной деятельности</i>	
		<i>Cultural-historical and Activity Approach in Psychology and Education / Культурно-исторический и деятельностный подход в психологии и образовании</i>	
		<i>Methodology of scientific research / Методология научного исследования</i>	GPC-9.1 GPC-9.2
		<i>Forming of a Psychologically Comfortable and Safe Educational Environment / Формирование психологически комфортной и безопасной образовательной среды</i>	
		<i>Design and Expertise of Educational Systems / Проектирование и экспертиза образовательных систем</i>	
		<b>Variable component</b>	GPC-9.1 GPC-9.2
		<i>Innovative technologies in engineering education / Инновационные технологии в инженерном образовании</i>	
		<i>Digital education / Организация цифрового образования</i>	GPC-9.1 GPC-9.2

		<i>Psychological - pedagogical technologies in education / Психолого-педагогические технологии в образовании</i>	
		<i>Management of educational process / Менеджмент образовательного процесса</i>	
		<i>Theory and practice of technical subjects tutorial / Теория и практика обучения общетехническим дисциплинам</i>	
		<i>Theory and practice of engineering education / Теория и практика инженерного образования</i>	
		Часть, формируемая участниками образовательных отношений	
		Digital production technologies / Цифровые технологии на производстве	
		Innovation technologies of hi-tech branches / Инновационные технологии наукоемких отраслей	
		Planning of mixed and on-line courses / Планирование и проведение смешанных и он-лайн курсов	
		Design of an educational program / Проектирование образовательной программы	
		Technological entrepreneurship / Технологическое предпринимательство	
		Management of innovative activity at enterprise / Управление инновационной деятельностью на производстве	
		Technologies of cross-cultural education / Технологии кросс-культурного образования	
		Management of conflicts in educational environment / Управление конфликтами в образовательной среде	
	Block 2	Mandatory part	
		<b>Variable component</b>	
		<i>Pedagogical training / Педагогическая практика (учебная)</i>	
		<i>Introductory practice / Ознакомительная практика</i>	
		<i>Research work / Научно-исследовательская работа</i>	
		<i>Pedagogical training / Педагогическая практика</i>	
		<i>Pre-graduate practice / Преддипломная практика</i>	



		Professional competencies				
Name of disciplines (modules) in accordance with the curriculum		PC-1 Able to design basic and additional educational programs and develop scientific and methodological support for their implementation;	PC-2 Able to design the organization of joint and individual educational and educational activities of students, including those with special educational needs;	PC-3 Able to develop programs for monitoring the results of students' education, develop and implement programs for overcoming learning difficulties	PC-4 Able to plan and organize interactions between participants in educational relations;	PC-5 Able to design pedagogical activities on the basis of special scientific knowledge and research results.
Block 1	Mandatory part					
	<b>Basic component</b>					
	<i>Philosophy of Education and Science / Философия образования и науки</i>					
	<i>Professional Russian (as a Foreign Language) / Русский язык (как иностранный) в профессиональной деятельности</i>					
	<i>Cultural-historical and Activity Approach in Psychology and Education / Культурно-исторический и деятельностный подход в психологии и образовании</i>					
	<i>Methodology of scientific research / Методология научного исследования</i>					

		<i>Forming of a Psychologically Comfortable and Safe Educational Environment / Формирование психологически комфортной и безопасной образовательной среды</i>					
		<i>Design and Expertise of Educational Systems / Проектирование и экспертиза образовательных систем</i>					
		<b>Variable component</b>	PC-1.1. PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2
		<i>Innovative technologies in engineering education / Инновационные технологии в инженерном образовании</i>	PC-1.1. PC-1.2				
		<i>Digital education / Организация цифрового образования</i>				PC-4.1 PC-4.2	
		<i>Psychological - pedagogical technologies in education / Психолого-педагогические технологии в образовании</i>		PC-2.1 PC-2.2			
		<i>Management of educational process / Менеджмент образовательного процесса</i>			PC-3.1 PC-3.2		
		<i>Theory and practice of technical subjects tutorial / Теория и практика обучения общетехническим дисциплинам</i>					PC-5.1 PC-5.2
		<i>Theory and practice of engineering education / Теория и практика инженерного образования</i>					PC-5.1 PC-5.2.
		Часть, формируемая участниками образовательных отношений					
		Digital production technologies / Цифровые технологии на производстве					
		Innovation technologies of hi-tech branches / Инновационные технологии наукоемких отраслей					

		Planning of mixed and on-line courses / Планирование и проведение смешанных и он-лайн курсов	PC-1.1. PC-1.2				
		Design of an educational program / Проектирование образовательной программы		PC-2.1 PC-2.2			
		Technological entrepreneurship / Технологическое предпринимательство					
		Management of innovative activity at enterprise / Управление инновационной деятельностью на производстве					
		Technologies of cross-cultural education / Технологии кросс-культурного образования					
		Management of conflicts in educational environment / Управление конфликтами в образовательной среде					
	Block 2	Mandatory part					
		<b>Variable component</b>	PC-1.1 PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2
		<i>Pedagogical training / Педагогическая практика (учебная)</i>	PC-1.1 PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2
		<i>Introductory practice / Ознакомительная практика</i>	PC-1.1 PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2
		<i>Research work / Научно-исследовательская работа</i>	PC-1.1 PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2
		<i>Pedagogical training / Педагогическая практика</i>	PC-1.1 PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2
		<i>Pre-graduate practice / Преддипломная практика</i>	PC-1.1 PC-1.2	PC-2.1 PC-2.2	PC-3.1 PC-3.2	PC-4.1 PC-4.2	PC-5.1 PC-5.2