



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

The program is focused on training of highly qualified specialists in the field of creation and management of innovations at various stages of the life cycle. Innovation management deals with the tasks of development and application of innovations and innovation management theory in different fields, including economic, marketing and environmental issues, nature protection, issues of analysis, modeling, optimization, applied problems of mathematical modeling, improvement of management in order to increase the efficiency of their functioning. Students study theory and get practical skills to work effectively being engaged in innovation management in the design, research, production and operation of systems and controls in the industrial and defense industries, in the economy, in transport, in agriculture, medicine, etc. The curriculum is designed in such a way that allows students to form the most popular professional competencies at the present time and develop skills for their implementation in professional activities in accordance with the requirements of the Federal State Educational Standard of Higher Education. In the course of training, students receive fundamental theoretical and applied knowledge that allows them to carry out activities in the field of creating and managing innovations at various stages of the life cycle.

## **2. Relevance, specificity, uniqueness of the curriculum**

Innovation today is a key competitive advantage for organizations focused on continuous development and sustainable growth. This is due to the accelerating pace of change that is taking place in the global economy. Qualified managers who are able to implement promising ideas in a timely manner and with high quality are highly demanded. This, in turn, requires a special approach to training managers, based on the synthesis of sound theoretical positions and practical outputs.

The graduate program provides training and research activities in the field of innovation management, it combines both the study of traditional academic disciplines and the creative activity of undergraduates in the framework of prestigious international competitions.

The master program optimally combines technical, managerial and economic disciplines in its unique way, as a result, graduates of the program will be prepared to develop innovative development programs at various levels, manage high-tech

industries, solve managerial and economic problems at all stages of business management, create an innovative business.

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

In recent years, the share of industrial organizations implementing innovations has tripled and is over 20% at the beginning of 2020. The innovative activity of industrial production organizations increased 1.5 times (from 10% in 2016 to 15% at the beginning of 2020). In the field of information technology, software development and telecommunications, the trends are similar: the share of organizations implementing technological innovations has doubled and is about 15%. Statistical data confirm the need of the labor market for specialists in the field of innovation management.

The program is focused mainly on high-tech industries, and will prepare professionals capable of creating innovations, economically justifying complex high-tech production projects, developing programs for the development of high-tech industries and calculating their effectiveness.

4.

### **5. Admissions criteria**

For admission to the program, entrance tests are passed in the form of a written inter-disciplinary exam according to the rules of admission to the University for the direction 27.04.05 "Innovation Studies", approved by the relevant local regulatory act and placed in open access on the official website of the RUDN.

The minimum educational level required for the development of the program: Professional education with the degree of "Bachelour" or "Specialist".

### **6. Core information**

6.1. The educational program "Innovation management" includes elements of e-learning / distance learning technologies (Microsoft Teams, Zoom, TUIS RUDN).

6.2. The Master program is taught in English

6.3. The program is adapted for teaching the disabled and people with disabilities.

6.4. The Master programme is implemented by RUDN University

<https://eng.rudn.ru/>.

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

Potential partners: JSC "Scientific Research Institute" Polyus "named after. M.F. Stelmakh" (<https://niipolyus.ru/>), SHVABE (<https://shvabe.com/en/>) Federal State Unitary Enterprise "Research Institute Scientific and Production Association "LUCH" (<http://sialuch.com/>), UNIDO Centre for International Industrial Cooperation in the Russian Federation (<http://www.unido.ru/>) and etc.

## 7. Overview of professional activity of a graduate

7.1. The area of professional activity of graduates who have mastered the program, includes:

40 Cross-cutting types of professional activity in the field of innovative production management (in the areas of: management of innovative development of an enterprise; project management).

7.2. Type(s) of professional tasks, to the solution of which a graduate is being prepared as part of the development of EP HE - organizational and managerial.

7.3. List of common job functions and job description functions, related to the professional activities of a graduate of the EP HE, to which the program was developed.

Code and name of the professional standard	Common job functions			Job function		
	Code	Name	Qualification level	Code	Name	Qualification level
40.033 Specialist in strategic and tactical planning and setting up of production	B	Strategic management of planning and setting up production processes at the level of an industrial organization	7	B/01.7	Strategic management of production resource and capacity planning processes	7
			7	B/02.7	Strategic management of the processes of organizational and technological modernization of production	7
	C	Strategic management of projects and programs for the	7	C/01.7	Initiation of research and development of promising methods, models and	7

		introduction of new methods and models of organization and planning of production at the level of an industrial organization			mechanisms for organizing and planning production	
			7	C/02.7	Project management of reengineering of business processes of an industrial organization using modern information technologies	7

## 8. Requirements to the learning outcomes EP HE

8.1. A graduate student of the Master program must have the following universal competencies (UC):

Code and name of competence	Code and name of indicators of achievement of competence
UC-1 Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	UC-1.1. Analyzes the problem situation and decomposes it into separate tasks. UC-1.2. Offers possible solutions to problems
UC-2 Able to manage a 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 a team, developing a team strategy to achieve the set goal	UC-3.1. Demonstrates knowledge of teamwork principles. UC-3.2. RUC leads 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 understanding of the characteristics 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 it based on self-assessment	UC-6.1. Evaluates his resources and their limits (personal, situational, temporary), uses them optimally for the successful completion of the assigned task. UC-6.2. Determines priorities for personal growth and ways to improve their own performance based on self-assessment

8.2. A graduate student of the Master program must have the following general professional competencies (GPC):

Code and name of competence	Code and name of indicators of achievement of competence
GPC-1 Able to analyze and identify the natural scientific essence of control problems in technical systems based on the provisions, laws and methods in the field of mathematics, natural and technical sciences	GPC-1.1. Analyzes control tasks in technical systems, highlighting the basic components, performs task decomposition GPC-1.2. Competently, logically, reasonably forms own judgments and assessments
GPC -2 Able to formulate control problems in technical systems and justify methods for their solution	GPC-2.1. Selects the optimal methods for solving control problems in technical systems GPC-2.2. Competently formulates control tasks in technical systems
GPC-3 Able to independently solve control problems in technical systems based on the latest achievements in science and technology	GPC-3.1. Independently finds sources of information for solving control problems in technical systems GPC-3.2. Demonstrates the basic principles of solving control problems in technical systems
GPC-4 Able to develop criteria for evaluating management systems in the field of innovation based on modern mathematical methods, develop and implement management decisions to improve their effectiveness	GPC-4.1. Formulates criteria for evaluating the effectiveness of innovation management GPC-4.2. Demonstrates knowledge of mathematical methods necessary for making managerial decisions
GPC-5 Able to conduct patent research, determine the forms and methods of legal protection and protection of rights to the result of intellectual activity, dispose of the rights to them to solve problems in the field of development of science, engineering and technology	GPC-5.1. Solves problems related to the use of intellectual activity to create innovative products and services GPC-5.2. Demonstrates knowledge of the forms of methods of legal protection and protection of rights to the result of intellectual activity
GPC-6 Able to collect and analyze scientific and technical information, summarize domestic and foreign experience in the field of innovation management and building innovation ecosystems	GPC-6.1. Independently finds reliable sources of scientific and technical information GPC-6.2. Demonstrates knowledge of methods for summarizing information in the field of innovation management
GPC-7 Able to reasonably select and justify structural, algorithmic, technological and software solutions for managing innovative processes and projects, implement them in practice in relation to enterprise innovative systems, industry and regional innovative systems	GPC-7.1. Demonstrates knowledge of technological and software solutions for managing innovation processes  GPC-7.2. Demonstrates knowledge of the features of industry and regional innovation systems
GPC-8 Able to perform experiments at operating facilities according to specified methods and process the results using modern information technologies and technical means	GPC-8.1. Performs the experiment according to the given methods  GPC-8.2. Demonstrates knowledge of modern information technologies necessary to generalize the results of the experiment
GPC-9 Able to solve professional problems based on the history and philosophy of innovation, mathematical methods and models for managing innovation, knowledge of the features of emerging technological modes and the fourth industrial revolution in the	GPC-9.1. Demonstrates knowledge of the history and philosophy of innovation and uses it to solve problems  GPC-9.2 Demonstrates knowledge of technological patterns and uses them to solve

innovation field	problems
GPC-10 Able to develop, combine and adapt algorithms and software applications suitable for solving practical problems of digitalization in the field of professional activity	GPC-10.1 Develops the algorithms and software applications needed to solve the given digitalization challenge  GPC-10.2. Demonstrates knowledge of key digitalization trends
GPC-11 Able to develop educational and methodological materials and participate in the implementation of educational programs in the field of education	GPC-11.1. Develops educational and methodological materials for its educational program  GPC-11.2. Demonstrates knowledge of educational methods necessary for effective teaching

8.3. A graduate student of the Master program must have the following professional competencies (PC):

Code and name of competence	Code and name of indicators of achievement of competence	PC code and name
PC-1 The ability to organize the work of a creative team to achieve the set scientific goal, find and make managerial decisions, evaluate the quality and effectiveness of work, costs and results of the research and production team	PC-1.1 Demonstrates knowledge of the key principles of managing a creative team PC-1.2. Uses tools for assessing the quality and effectiveness of labor	40.033 Specialist in strategic and tactical planning and setting up a production
PC-2 The ability to find (choose) the best solutions when creating new high-tech products, taking into account the requirements of quality, cost, deadlines, competitiveness and environmental safety	PC-2.1. Demonstrates knowledge of assessing the quality, cost and competitiveness of an innovative product or service PC-2.2. Uses environmental safety assessment methods	
PC-3 The ability to develop a plan and program for the organization of innovative activities of the research and production unit, to carry out a feasibility study of innovative projects and programs	PC-3.1. Uses methods of technical and economic design of innovative industries  PC-3.2 Develops a plan and program for organizing innovation activities	

**9. The Matrix of Competencies** formed in students during the development of the EP HE "Innovation Management", in the field of study 27.04.05 Innovation Studies

		<b>Universal competencies</b>					
Name of disciplines (modules) in accordance with the curriculum		UC-1: Able to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	UC-2 Able to manage a project at all stages of its life cycle	UC-3: Able to organize and lead the work of a team, developing a team strategy to achieve the set 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 it based on self-assessment
Block	Mandatory part						
	<b>Basic component</b>	+	+	+	+	+	
	Contemporary problems of control theory/ Современные проблемы теории управления	+	+	+			
	Foreign language/ Russian language (as foreign) in master's professional activity Иностранный язык / Русский язык (как иностранный) в профессиональной деятельности магистра				+	+	
	Design of automated control systems/ Проектирование автоматизированных систем управления		+				
	<b>Variable component</b>	+		+	+		+
	Big data mining/ Обработка больших данных						
	Applied problems of mathematical modeling/ Прикладные задачи	+					
	Numerical methods for solving mathematical modeling problems/ Численные методы	+					+
	Management of business operations of hi-tech industries / Управление операционной деятельностью						



Technologies of programming for innovation production / Технологии программирования для инновационных производств							
Innovation technologies of personnel management / Инновационные технологии управления персоналом			+	+			
Digital technologies of innovative production / Цифровые технологии инновационного производства					+		
Applications of GIS / Практикум применения геоинформационных систем	+						
Strategic controlling at innovative enterprise / Стратегический контроллинг на инновационном предприятии							
Economy of hi-tech production branches / Экономика высокотехнологичных отраслей промышленности							
Marketing of innovative products / Маркетинг инновационных продуктов							
Management of supply chains at innovative enterprise / Управление цепями поставок на инновационном предприятии							
Run-time controlling at innovative enterprise / Оперативный контроллинг на инновационном предприятии							
Part formed by participants in educational relations							

	Ecological management at innovative enterprise/ Экологический менеджмент на инновационных предприятиях						
	Innovative technologies of ecological management in industries/ Иновационные технологии природопользования в отраслях промышленности						
	Assessment of innovative-investment projects effectiveness/ Оценка эффективности инновационных			+			
	International sci-tech cooperation/ Международное научно-техническое сотрудничество			+			
	Game theory/ Теория игр	+					
	Analytical support of decision making/ Аналитическое обеспечение поддержки принятия решения	+					
Блок	Mandatory part						
	<b>Variable component</b>						
	Introductory training/ Ознакомительная						
	Organisation and managerial training/ Организационно-управленческая практика						
	Organisation and managerial training/ Организационно-управленческая практика						
	Predegree training /Педагогическая практика						
	Part formed by participants in educational relations						

		<b>General professional competencies</b>					
	Name of disciplines (modules) in accordance with the curriculum	GPC-1: Able to analyze and identify the natural scientific essence of control problems in technical systems based on the provisions, laws and methods in the field of mathematics,	GPC-2: Able to formulate control problems in technical systems and justify methods for their solution	GPC-3 Able to independently solve control problems in technical systems based on the latest achievements in science and technology	evaluating management systems in the field of innovation based on modern mathematical methods, develop and implement management decisions to improve their	determine the forms and methods of legal protection and protection of rights to the result of intellectual activity, dispose of the rights to them to solve problems in the field of development of science, engineering and	GPC-6: Able to collect and analyze scientific and technical information, summarize domestic and foreign experience in the field of innovation management and building innovation ecosystems
Блок	Mandatory part						
	<b>Basic component</b>	+			+	+	+
	Contemporary problems of control theory/ Современные проблемы	+				+	
	Foreign language/ Russian language (as foreign) in master's professional activity Иностранный язык / Русский язык (как иностранный) в профессиональной						
	Design of automated control systems/ Проектирование автоматизированных систем управления				+		+
	<b>Variable component</b>		+	+	+		+
	Big data mining/ Обработка больших данных				+		
	Applied problems of mathematical modeling/ Прикладные задачи				+		
	Numerical methods for solving mathematical modeling problems/ Численные методы				+		
	Management of business operations of hi-tech industries / Управление операционной				+		
	Technologies of programming for innovation production / Технологии программирования для						

Innovation technologies of personnel management Инновационные			+			+
Digital technologies of innovative production Цифровые						
Applications of GIS/ Практикум применения геоинформационных систем						
Strategic controlling at innovative enterprise/ Стратегический контроллинг на инновационном предприятии						
Economy of hi-tech production branches/ Экономика высокотехнологичных отраслей промышленности			+			
Marketing of innovative products/ Маркетинг инновационных продуктов		+				
Management of supply chains at innovative enterprise/ Управление цепями поставок на предприятии		+				
Run-time controlling at innovative enterprise Оперативный		+				
Part formed by participants in educational relations						
Ecological management at innovative enterprise/ Экологический менеджмент на предприятии						
Innovative technologies of ecological management in industries/ Инновационные технологии природопользования в отраслях						
Assessment of innovative-investment projects effectiveness/ Оценка эффективности инновационных						

	International sci-tech cooperation/ Международное научно-						
	Game theory/ Теория игр						
	Analytical support of decision making/ Аналитическое обеспечение поддержки						
Блок	Mandatory part						
	<b>Variable component</b>						
	Introductory training/ Ознакомительная					+	+
	Organisation and managerial training/ Организационно-		+		+		
	Organisation and managerial training/ Организационно-						
	Predegree training /Педагогическая практика						
	Part formed by participants in educational relations						

		General professional competencies				
Name of disciplines (modules) in accordance with the curriculum		justify structural, algorithmic, technological and software solutions for managing innovative processes and projects, implement them in practice in relation to enterprise innovative systems	GFC-8: Able to perform experiments at operating facilities according to specified methods and process the results using modern information technologies and problems based on the history and philosophy of innovation, mathematical methods and models for managing innovation, knowledge of the features of emerging technological modes and the	adapt algorithms and software applications suitable for solving practical problems of digitalization in the field of	able to develop educational and methodological materials and participate in the implementation of educational	
Блок	Mandatory part					
	<b>Basic component</b>	+	+		+	+
	Contemporary problems of control theory/ Современные				+	
	Foreign language/ Russian language (as foreign) in master's professional activity Иностранный язык / Русский язык (как иностранный) в профессиональной					+
	Design of automated control systems/Проектирование автоматизированных систем управления	+	+			
	<b>Variable component</b>	+	+	+		
	Big data mining/Обработка больших данных		+			
	Applied problems of mathematical modeling/ Прикладные задачи					
	Numerical methods for solving mathematical modeling problems/ Численные методы решения задач математического моделирования					
	Management of business operations of hi-tech industries /Управление операционной деятельностью наUCоемких производств	+				
	Technologies of programming for innovation production / Технологии программирования для инновационных производств	+				

Innovation technologies of personnel management Инновационные технологии управления персоналом						
Digital technologies of innovative production/Цифровые технологии инновационного производства	+					
Applications of GIS/ Практикум применения геоинформационных систем	+					
Strategic controlling at innovative enterprise/ Стратегический контроллинг				+		
Economy of hi-tech production branches/ Экономика						
Marketing of innovative products/ Маркетинг инновационных продуктов						
Management of supply chains at innovative enterprise/Управление цепями поставок на инновационном предприятии						
Run-time controlling at innovative enterprise/Оперативный контроллинг на инновационном предприятии						
Part formed by participants in educational relations						
Ecological management at innovative enterprise/ Экологический менеджмент на инновационных предприятиях						
Innovative technologies of ecological management in industries/ Инновационные технологии природопользования в отраслях промышленности						
Assessment of innovative-investment projects effectiveness/ Оценка эффективности инновационно-инвестиционных проектов						

	International sci-tech cooperation/ Международное научно-техническое сотрудничество					
	Game theory/ Теория игр					
	Analytical support of decision making/ Аналитическое обеспечение поддержки принятия решения					
Блок	Mandatory part					
	<b>Variable component</b>	+				
	Introductory training/ Ознакомительная практика					
	Organisation and managerial training/ Организационно-					
	Organisation and managerial training/ Организационно-управленческая практика	+				
	Predegree training /Педагогическая практика					
	Part formed by participants in educational relations					

		<b>Professional competences</b>			
Name of disciplines (modules) in accordance with the curriculum		of a creative team to achieve the set scientific goal, find and make managerial decisions, evaluate the quality and effectiveness of work, costs and results of the research and	best solutions when creating new high-tech products, taking into account the requirements of quality, cost, deadlines, competitiveness and environmental	program for the organization of innovative activities of the research and production unit, to carry out a feasibility study of innovative projects	
Блок	Mandatory part				
	<b>Basic component</b>				
	Contemporary problems of control theory/ Современные проблемы теории управления				
	Foreign language/ Russian language (as foreign) in master's professional activity Иностранный язык / Русский язык (как иностранный) в профессиональной деятельности магистра				



Design of automated control systems/Проектирование автоматизированных систем управления			
<b>Variable component</b>	+	+	+
Big data mining/Обработка больших данных			+
Applied problems of mathematical modeling/ Прикладные задачи математического моделирования			
Numerical methods for solving mathematical modeling problems/ Численные методы решения задач математического моделирования			
Management of business operations of hi-tech industries /Управление операционной деятельностью наУСоемких		+	+
Technologies of programming for innovation production / Технологии программирования для инновационных производств			+
Innovation technologies of personnel managemet Инновационные технологии управления персоналом	+		
Digital technologies of innovative production/Цифровые технологии инновационного производства			+
Applications of GIS/ Практикум применения геоинформационных систем		+	
Strategic controlling at innovative enterprise/ Стратегический контроллинг на инновационном предприятии		+	+
Economy of hi-tech production branches/ Экономика высокотехнологичных отраслей промышленности		+	
Marketing of innovative products/ Маркетинг инновационных продУстов		+	

	Management of supply chains at innovative enterprise/Управление цепями поставок на инновационном предприятии		+	
	Run-time controlling at innovative enterpriseОперативный контроллинг на инновационном			+
	Part formed by participants in educational relations			
	Ecological management at innovative enterprise/ Экологический менеджмент на инновационных		+	
	Innovative technologies of ecological management in industries/ Инновационные технологии природопользования в		+	
	Assessment of innovative-investment projects effectiveness/ Оценка эффективности инновационно-инвестиционных проектов		+	
	International sci-tech cooperation/ Международное научно-техническое сотрудничество		+	
	Game theory/ Теория игр			
	Analytical support of decision making/ Аналитическое обеспечение поддержки принятия решения			
Блок	Mandatory part			
	<b>Variable component</b>	+	+	+
	Introductory training/ Ознакомительная практика	+	+	+
	Organisation and managerial training/ Организационно-управленческая практика	+	+	+
	Organisation and managerial training/ Организационно-управленческая практика	+	+	+
	Predegree training /Педагогическая практика	+	+	+
	Part formed by participants in educational relations			