

Ministry of Science and Higher Education of the Russian Federation

Federal State Autonomous Educational Institution of Higher Education  
**Perm National Research Polytechnic University**



**APPROVED BY**

Pro-rector for Academic Affairs

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20 21

### ACADEMIC COURSE WORKING PROGRAM

**Academic course:** Innovative economy and techpreneurship  
(Name)

**Form of education:** Full-time  
(Full-time /full-time - correspondence/correspondence)

**Level of higher education:** Bachelor's program  
(Bachelor's program/specialist program/Master's program)

**Workload in hours (in credits):** 216 (6)  
(Hours (CU))

**Training program (degree):** 15.03.06 Mechatronics and Robotics  
(Code and denomination of degree)

**Direction:** Mechatronics and Robotics  
(Title of curriculum)

Perm 2021

# 1. General Provisions

## 1.1. Goals and Objectives of the Course

The goal of the course is to form students' theoretical knowledge and practical skills in the sphere of economy, technology entrepreneurship and innovative project management.

Objectives of the Course:

- studying the theoretical foundations of innovative economy and entrepreneurship, including the key concepts of entrepreneurship, motivation, organization, and support of entrepreneurial activity, including commercialization of innovations and high-tech business development;

- acquiring the ability to identify market opportunities, analyze and model projects in the field of technological entrepreneurship; organize teamwork to achieve the set goals;

- acquiring skills in the market of high-tech commercialization, independent development of elements of entrepreneurial projects and presentation of their results.

## 1.2. Studied Objects of the Course

processes of innovation, commercialization and entrepreneurship; processes for setting up a new business; business process modeling; market and product research in the process of commercialization and entrepreneurship; elements of business planning.

## 1.3. Starting Conditions

Unstipulated

## 2. Planned Results of the Course Training

Competence	Indicator's Index	Planned Results of the Course Training (to know, to know how, to master)	Indicator of Attaining Competence which the planned results of training are correlated with	Means of Assessment
UC-1	IA-1. UC-1	<b>To know</b> how to search, to make critical analysis and synthesis of information aimed at solution of the given professional tasks.	<b>Knows</b> principles of organization, management and evaluation innovative-entrepreneurial activities; basics commercialization innovation and development highly technological business's	Case study task
	IA-2. UC-1	<b>To be able to</b> apply systemic approach on the basis of search, critical analysis and synthesis of	<b>Is able to</b> form and take part in the work project team; conduct market analysis, use	Case study task

		information aimed at solution of science-oriented problems of professional field	behaviors and competitive environment	
	<b>IA-3.UC-1</b>	<b>To master</b> of search, synthesis and critical analysis of information in his professional field; is a master of systemic approach aimed at solution of the given tasks	<b>Masters the</b> methods of working on commercialization market high technology	Case study task
<b>UC-2</b>	<b>IA-1.UC-2</b>	<b>To know</b> the approaches to the problems statement aimed at the achievement of the given target, possesses knowledge in choice of optimal ways of their solution; realizes the basic principles of economy operation as well as the economic development, the aims and forms of the state interest in the economy	<b>Knows</b> key theories of functioning innovative economy and technological entrepreneurship; key element innovative ecosystems and measures support for innovative economic development, activities	Case study task
<b>UC-2</b>	<b>IA-2.UC-2</b>	<b>To be able to</b> choose optimal ways of solution of science-oriented tasks in professional field aimed at achievement of the given target; uses the methods of individual economic and financial planning aimed at achievement of the current and long-term financial goals	<b>Is able to</b> plan and design commercialization results intellectual activities in the form of start-ups; appraise efficiencies innovative activities	Case study task
<b>UC-2</b>	<b>IA-3.UC-2</b>	<b>To master the skills</b> of determining the scope of professional tasks in the frames of the given target; the skills of the choice of optimal ways of their solution considering the current legal regulations and available resources; uses financial instruments for managing personal finances (personal budget), controls personal economic financial risks.	<b>Masters the</b> tools development business-models and business plans	Case study task

### 3. Full time and forms of academic work

Form of academic work	Hours in all	Distribution in hours according to semesters		
		Number of semester		
		5	6	
1. Holding classes (including results monitoring) in the form: 1.1.Contact classwork, including:	72	36	36	

- lectures (L)				
- laboratory work (LW)				
- practice, seminars and/or other seminar-type work (PW)	64	32	32	
- control of self-work (CSW)	8	4	4	
- test				
1.2. Students' self-work (SSW)	144	72	72	
2. Intermediate attestation				
Exam				
Grading test	9		9	
Test (Credit)	9	9		
Course Project (CP)				
Course Work (CW)				
<b>Workload in hours</b>	<b>216</b>	<b>108</b>	<b>108</b>	

#### 4. Course outline

Name of the units with the course outline	Full time of classroom activity in hours according to the forms			Full time of extracurricular work in hours according to the forms
	L	LW	PW	SSW
3rd semester				
Fundamentals of innovative economy and entrepreneurship	0	0	16	36
Introduction to the innovative economy and entrepreneurship Objectives and competencies of the business activities Technological and economic trends Team creation and development				
Market research and analysis	0	0	16	36
Consumer research Market analysis and evaluation				
TOTAL for the 3rd term	0	0	32	72
4th term				
Commercialization of technological developments	0	0	12	27
Creating and developing a startup Product development Launching a product into the market Investment planning	0	0	12	27
Innovative ecosystem and support of innovative activity Fund raising Assessment of project investment attractiveness				
Presentation of innovative projects	0	0	7	18
Innovative projects and products presentation characteristics and products				
TOTAL for the 4th term	0	0	32	72
Total for the course	0	0	64	144

#### Topics of exemplary practical work

Sl. No	Topic of practical (seminar) work
1	Introduction to the innovative economy and
2	Objectives and competencies of the business
3	Technological and economic trends
4	Team creation and development
5	Consumer research
6	Market analysis and evaluation
7	Commercialization strategies
8	Creating and developing a startup
9	Product development
10	Launching a new technological product
11	Innovative ecosystem and supporting innovations
12	Fund raising
13	Assessment of project investment attractiveness
14	Project presentation to various stakeholders

#### Topics of exemplary laboratory practice

Sl. No	Topic of laboratory work

## 5. Organizational and Pedagogical Conditions

### 5.1. Educational Technologies Used for Competences Formation

Practical lessons are held by realization of the method based on active training: problem areas are determined, groups are formed. The following aims are pursued in the process of practical education: use of definite disciplines knowledge and creative methods in solving problems and decision-making; students' skill-building of teamwork, interpersonal communication and development of leadership skills; consolidation of the basic theoretical knowledge.

### 5.2. Students' Manual for the Course Study

Learning the course students are recommended to fulfill the following positions:

1. Learning of the discipline should be done systematically.
2. After learning one of the course unit with the help of the text-book or lecture notes it is recommended to reproduce in memory the basic terms, definitions, notions of the unit.
3. Special attention should be paid to the reports on practical studies, laboratory works and individual complex tasks for self-work.
4. The topic of questions studied individually is given by the teacher at the lectures. Also the teacher refers to the literary resources (first of all, to the newly published in periodicals) in order the students understand the problems touched on the lectures in detail.

## 6. List of Teaching Materials and Information Supply for Students' Self work in the Discipline

### 6.1. Paper-based courseware

Sl.№	Bibliographic entry (author, title, mode of publication, place, publishing house, year of publication, number of pages )	Number of copies in the library
<b>1. Basic literature</b>		
1	Johnson C. Intelligent Business Harlow : Pearsons Education Ltd, 2007	31
<b>2. Additional literature</b>		
<b>2.1. Educational and scientific literature</b>		
1	Pile L. Intelligent Business Harlow : Pearson Education Ltd, 2005	2
2	Proceedings of the 37th International IGIP Symposium "Engineering Competencies - Traditions and Innovations", Moskow, Russia, 7-10 September 2008 / . Moskow : IGIP : MADI (STU), 2008. 296 p.	1
<b>2.2. Standardized and Technical literature</b>		
<b>3. Students' manual in mastering discipline</b>		
<b>4. Teaching and learning materials for students' self-work</b>		

### 6.2. Electronic Courseware

Kind of literature	Name of training tool	Reference to information resource	Accessibility of EBN (Internet/local net; authorized free assess )
Additional literature	Henry O. Strictly Business. SPb: Lan, 2013.	URL: <a href="https://elib.pstu.ru/Record/lan31760">https://elib.pstu.ru/Record/lan31760</a>	authorized free assess
Additional literature	In Focus: Berger's Business : Perm: PSTU, 2008.	URL: <a href="https://elib.pstu.ru/Record/RUPSTUbooks133444">https://elib.pstu.ru/Record/RUPSTUbooks133444</a>	authorized free assess
Additional literature	Agile Data Warehousing Project Management. Business Intelligence Systems Using Scrum / . New York : Elsevier, 2013.	URL: <a href="https://elib.pstu.ru/Record/RUPNRPUelib4229">https://elib.pstu.ru/Record/RUPNRPUelib4229</a>	authorized free assess
Additional literature	Business Intelligence : The Savvy Manager's Guide / . New York : Elsevier, 2013.	URL: <a href="https://elib.pstu.ru/Record/RUPNRPUelib4249">https://elib.pstu.ru/Record/RUPNRPUelib4249</a>	authorized free assess

### 6.3. License and Free Distributed Software used in the Course Educational Process

Type of Software	Software branding
Operating systems	MS Windows 8.1 (subs.) Azure Dev Tools for Teaching)
Operating systems	Windows 10 (subs. Azure Dev Tools for Teaching)
Office applications	Microsoft Office Professional 2007. Licensed 42661567
General-purpose software	Dr.Web Enterprise Security Suite, 3000 licensed, PNRPU, RCNIT (Regional Center for New IT) 2017

### 6.4. Modern Professional Databases and Inquiry Systems Used in the Course Educational Process

Branding	Reference to information resource
Scientific library of the Perm National Research Polytechnic University	<a href="http://lib.pstu.ru/">http://lib.pstu.ru/</a>
Electronic library system Lan'	<a href="https://e.lanbook.com/">https://e.lanbook.com/</a>
Electronic library system IPRbooks	<a href="http://www.iprbookshop.ru/">http://www.iprbookshop.ru/</a>
Informational resources of the ConsultantPlus Network	<a href="http://www.consultant.ru/">http://www.consultant.ru/</a>

### 7. Logistics of the Course Educational Process

Type of classes	Name of the necessary basic equipment	Number of units
Practical class	Classroom equipped for showing presentations (projector, screen, computer)	1

### 8. Fund of the Course Evaluating Tools

Described in a separate document
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