MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

Federal State Budgetary Educational Institution of Higher Education

«SAINT-PETERSBURG STATE UNIVERSITY OF ECONOMICS» (UNECON)

APPROVED:
Vice-rector for study and methodical work
_____ Veronika.G. Shubaeva
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Цифровые инновации / Research project in digital innovations

Syllabus of the course

Specialty	*38.03.02 Management*
Specialization	*Business management and digital innovations*
Level of higher education	*Bachelor*
Form of training	*Full-time*
Year of enrolment	*2022*

Authored by:

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Total number of hours	180	**Form of final attestation:**
incl:		
contact work	64	Exam: term 7 Course paper: term 7
self-study	80	
practical training	0	
control hours	36	

Hours distribution:

Term:	7
Type of classes	Hours
Contact hours	36
Practical training	28
Laboratory work	0
Total contact hours	**64**
Self-study	80
Control hours	36
Total academic hours	**180**
Total credits	**5**

Saint-Petersburg
2022

CONTENTS

1. LEARNING OBJECTIVES

Objective:	Mastering knowledge and skills in the field of managing modern digital technologies in the development and implementation of innovations in business.

2. COURSE PLACE IN THE PROGRAMME STRUCTURE

The discipline B1.V Research project in digital innovations refers to the part formed by the participants in the educational relations of Block 1.

3. EXPECTED LEARNING OUTCOMES

Code and name of graduate competence	Code and name of the competence achievement indicator	Expected learning outcomes
PC-3 - Identification and analysis of risks in IT projects in accordance with the assignment received	PC-3.1 - Based on the analysis of input data and risk identification data, is able to compile and submit for approval a register of risks to project stakeholders	Know: tools for risk analysis of innovative projects. Be able to: analyze the risks of IT projects, propose ways to avoid and mitigate them. Possess: communication skills with project stakeholders regarding risk management.

4. COURSE STRUCTURE AND CONTENT

Code and name of the topics	Course content	Academic hours			
		Contact work			Self-study
		Lectures	Practices	Workshops	
Topic 1. Prerequisites for the formation of the digital economy.	Digital economy and digitalization of business. Dynamics of development of digital technologies. Digital economy of the Russian Federation. Concepts of end-to-end technologies, breakthrough technologies. The role of venture business in IT development. Traditional business models and their digital transformation. Digital and platform architecture of modern production. “Factory of the Future” and digital twins.	12	4		15
Topic 2. Areas of application of digital innovation.	Concept and scope of IoT. M2M technologies. Virtual and augmented reality in production. Robotization of industry. Additive technologies in industry. Smart home, smart mobility, smart city. Modern methods of paying for goods and services. Modern methods of human identification. AI development.	10	8		15
Topic 3. Experience in using digital innovations in	BIM technologies in construction. Computer-aided design systems. Big data in retail. AI in medicine. Smart contracts in labor relations. Practice of introducing digital technologies at enterprises.	8	10		25

industries and areas of activity.					
Topic 4. Promising directions for the development of digital technologies.	Development of Industry 4.0. Future markets of the Russian Federation: EnergyNet, FoodNet, SafeNet, HealthNet, AeroNet, MariNet, AutoNet, FinNet, NeuroNet.	6	6		25
Control hours:					**36**
Total hours:		**36**	**28**	**0**	**80**

5. TEACHING AND LEARNING TOOLS OF THE COURSE

5.1 Recommended literature

Bibliographic description of the publication (author, title, type, place and year of publication, number of pages)	**Digital resources**
Fundamentals of digital economics: textbook and workshop for universities / M. N. Konyagina [et al.]; executive editor M. N. Konyagina. - Moscow: Yurayt Publishing House, 2023.	https://urait.ru/bcode/519464
Weil P. Digital transformation of business: Changing the business model for a new generation organization / Weil P., Warner S. - Moscow: Alpina Publisher, 2019.	https://www.iprbookshop.ru/82656.html

5.2 List of software (including national production)

- 7-Zip
- LibreOffice
- ОС Альт образование 10

5.3 List of reference systems and modern professional databases

№	Name of reference systems and professional databases
1.	Digital library Grebennikon.ru – www.grebennikon.ru
2.	Science Digital Library eLIBRARRY – www.elibrary.ru
3.	Science Digital Library КиберЛеника – www.cyberleninka.ru
4.	Database ПОЛПРЕД Справочники – www.polpred.com
5.	Database OECD Books, Papers & Statistics on the platform OECD iLibrary www.oecd-ilibrary.org
6.	Legal reference system КонсультантПлюс (installed resource UNECON or www.consultant.ru)
7.	Legal reference system «ГАРАНТ» (installed resource UNECON or www.garant.ru)
8.	Information and referral system «Кодекс» (installed resource UNECON or www.kodeks.ru)
9.	Digital library system BOOK.ru - www.book.ru
10.	Digital library system ЭБС ЮРАЙТ – www.urait.ru
11.	Digital library system ЗНАНИУМ (ZNANIUM) – www.znanium.com

12.	Digital library UNECON – opac.unecon.ru

6. TECHNICAL FACILITIES

There are special rooms for lectures, seminars, coursework, group and individual consultations, current and interim assessments, as well as rooms for self-study.

The premises are equipped with equipment and teaching aids.

The rooms for students' independent work are equipped with computers with Internet connection and access to the university's electronic learning environment.

Name of classroom	Classroom location
3-4-5 Classroom (for conducting lecture-type classes and seminar-type classes, course design (completing coursework), group and individual consultations, ongoing monitoring and intermediate certification), equipped with a multimedia complex. Specialized furniture and equipment: Educational furniture on 40 seats, teacher's workplace, 1 pc. lectern, 1 pc. 3-section chalk board, 1 pc. chair, 1 pc. hanger stand. Portable multimedia kit: HP 250 G6 1WY58EA laptop, LG PF1500G multimedia projector. Sets of demonstration equipment and educational visual aids: multimedia applications for lecture courses and practical exercises, interactive educational visual aids.	191023, St. Petersburg, Griboedova canal, 30-32, lit. A, Б, P
3-4-7 Classroom (for conducting lecture-type classes and seminar-type classes, course design (completing coursework), group and individual consultations, ongoing monitoring and intermediate certification), equipped with a multimedia complex. Specialized furniture and equipment: Educational furniture on 25 seats, teacher's workplace - 2 pcs., marker board - 1 pc., hanger rack - 3 pcs., blinds - 2 pcs. Portable multimedia kit: HP 250 G6 1WY58EA laptop, LG PF1500G multimedia projector. Sets of demonstration equipment and educational visual aids: multimedia applications for lecture courses and practical exercises, interactive educational visual aids.	191023, St. Petersburg, Griboedova canal, 30-32, lit. A, Б, P

7. METHODOLOGICAL GUIDELINES FOR STUDENTS

The following documents should be made available to the trainee before the start of the course:

– training and methodological documentation;

– local normative acts regulating the main issues of the organisation and implementation of educational activities, including those regulating the procedure for current monitoring and interim assessment of students;

– the schedule of consultations of the teaching staff.

The level and depth of mastering the discipline is determined by the active and systematic work of students in lectures, seminars, independent work, including in terms of identifying the most significant and relevant problems for further study. A special condition for qualitative mastering of the discipline is an effective organisation of work, which allows distributing the academic workload evenly in accordance with the schedule of the educational process.

When preparing for classes, students have the opportunity to attend consultations with the staff of UNECON according to the timetable set out in the schedule of consultations.

The students' in- and out-of-classroom work should aim to form:

– the fundamentals of the learner's world view and scientific understanding;

– basic knowledge relevant to the training area and the declared professional field, forming the target and professional basis for training;

– professional competences oriented towards the needs of the labour market;

– an individual trajectory by mastering a unique set of professional competences that complement the learner's competence model, through a focus on specific professional specialised areas of knowledge defined by labour market representatives;

– metha-skills for learners, such as teamwork and leadership, data analysis, digital skills, project design and implementation, intercultural interaction.

8. SPECIFICATIONS FOR TEACHING DISABLED PERSONS

Students with disabilities, if necessary, are taught on the basis of an adapted work programme using special teaching methods and didactic materials that take into account the particularities of their psychophysical development, individual capacities and health status.

In order for disabled persons and persons with disabilities to master the curriculum, the University shall ensure that:

– for the visually impaired and visually impaired: availability of information on the timetable in accessible places and adapted forms for learners who are blind or visually impaired; presence of an assistant to assist the learner as needed; production of alternative formats of teaching materials (large print or audio files);

– for the hearing-impaired and hearing-impaired: adequate sound reproduction of information;

– for persons with disabilities and persons with mobility impairments: the possibility of unimpeded access for students to classrooms, restrooms and other areas of the department, as well as their stay in these areas.

Learners with disabilities and persons with disabilities are provided with printed and/or electronic educational resources in forms adapted to their disabilities. The education of students with disabilities may be organized with other students or in separate groups or organisations.

ASSESSMENT RESOURSES

1.1 Control tasks and assignments for interim attestation

1. Dynamics of development of digital technologies in modern society.
2. The main drivers of the formation of the digital economy.
3. Advantages and disadvantages of digitalization development.
4. Traditional and digital business models of the company.
5. Basic directions for the development of the digital economy in the Russian Federation.
6. Constraining factors for the development of the digital economy in the Russian Federation.
7. Life cycle of digital innovation.
8. Risk analysis by stages of the process of development and implementation of digital innovations.
9. The role of venture business in digital innovation.
10. Stages and models of the innovation process during digital transformation.
11. Innovation management during digital transformation of an enterprise.
12. Technology for choosing and implementing an innovation strategy in the digital economy.
13. Evaluating the effectiveness of a digital innovation implementation project.
14. Concept and practice of using QR technologies.
15. Development factors and areas of application of IoT in b2b and b2c markets.
16. Features and scope of application of M2M.
17. Advantages and areas of application of blockchain technology.
18. The concept of neural networks and their scope of application.
19. Elements of Industry 4.0.
20. Processing tools and areas of use of Big Data in enterprise activities.

1.2 Topics for written task

1. Prospects for using VR (virtual reality) technologies for commercial purposes.
2. Prospects for using AR (augmented reality) technologies for commercial purposes.
3. Prospects for using neural networks for commercial purposes.
4. Prospects for the use of unmanned aerial vehicles for commercial purposes.
5. Prospects for the use of pattern recognition technologies.
6. Digital innovation in the creation of smart clothes and smart shoes.
7. Digital innovations in creating a smart home.
8. Digital innovations in creating a smart city.
9. Digital innovation within the industrial IoT.
10. Digital innovations within the framework of agro-IoT
11. Digital innovations within the framework of IoT for retail.
12. Prospects for the implementation of smart search systems in specific markets.
13. Promising functions of social robots.
14. Digital solutions for the circular economy.
15. Directions for improving cybersecurity for a specific type of enterprise: economic, administrative and personnel aspects.
16. Artificial intelligence technologies for creating virtual assistants.
17. Conversational artificial intelligence for customer relationship management.
18. Promising technologies for digitalization of higher education.
19. Promising technologies for digitalization of secondary education.
20. Innovation in digital transformation of healthcare.

1.3 Interim checkpoints

Number	Type	Method of conduct	Topic number
1	Analytical work	Orally	1-3
2	Approbation of research results	Orally	3-4

3	Monitoring	By means of technical tools and information systems	1-4

1.4 Other assessment objects

Is not provided by the work programme of the discipline.

1.5 Self-study

Name of self-study	Topic number
Preparation for lectures and practical classes	1-4
Exam preparation	1-4
Working with analytical databases, regulatory documents, reference literature	4
Course project	1-4

1.6 Grading scale

Scales of assessment and procedures for assessing learning outcomes of the discipline are regulated by the Regulations on the current control of progress and interim attestation of students in higher education programmes and the Regulations on the scoring and rating system.

A grading and rating system is used to assess the learning outcomes of the discipline:

The final control of the discipline is an examination (or a differentiated test), the final grade being formed in accordance with the scale given in the table below:

Баллы	Оценка
<=54	fail
55-69	satisfactory
70-84	good
>=85	excellent

Grading scale

2 (points to 54)	Demonstrates a lack of understanding of the problem. Many of the requirements of the assignment are not met. An initial perception of the material is demonstrated. The work is incomplete and/or plagiarized.
3 (points 55-69)	Demonstrates a partial understanding of the problem. Most of the requirements of the task have been met. Mastery of the elements of the assigned material. The material is mostly clear and coherent.
4 (points 70-84)	Demonstrates considerable understanding of the issue by the discipline. All requirements of the assignment are fulfilled. The content of the completed tasks is disclosed and examined from different

	perspectives.
5 (points 85-100)	Demonstrates full understanding of the problem. All requirements of the assignment are fulfilled. Demonstrates proficiency in the discipline. The completed assignments are holistic, complete, structured, present different points of view and demonstrate creativity.