KSPEU

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Budgetary Educational Institution of Higher Education
**«KAZAN STATE POWER ENGINEERING UNIVERSITY»**
**(FSBEI HE «KSPEU»)**

APPROVED
Director of the Institute of Digital Technologies and Economics
_____Zainullin R.R.
«24»_____February_____2026

**WORKING PROGRAM OF THE DISCIPLINE**

# B1.V.07 Digital Ecosystem Management

Field of training — 38.03.02 Management

Qualification — Bachelor'Degree

Kazan, 2026

The program was developed by:

| Department name | Position, academic degree, academic title | FCs Developer's full name |
|---|---|---|
| Management | Candidate of Economic Sciences, Associate Professor | Timofeev R. A. |

| Approval | Division name | Date | № Protocol No | Signature |
|---|---|---|---|---|
| Approved | Management | 10.02.2026 | Protocol №5 | Head of Department, Doctor of Social Sciences, Professor Makhiyanova A.V. |
| Agreed | Management | 10.02.2026 | Protocol №5 | Head of the Department., Doctor of Social Sciences, prof.Makhiyanova A.V. |
| Agreed | Educational and Methodological Council of IDTE | 24.02.2026 | Protocol №6 | Director, Ph.D., Associate Professor, Zainullin R.R.. |
| Approved | Scientific Council of IDTE | 24.02.2026 | Protocol №6 | Director, Ph.D., Associate Professor, Zainullin R.R. |

## 1. Purpose, objectives and planned results of training in the discipline

The purpose of the discipline "Digital Ecosystem Management" is to form knowledge about the organization and management of digital ecosystems, to develop skills and professional competencies in the study of progressive areas of professional development in the field of ecosystem management, to develop strategic and tactical solutions for the organization and management of ecosystems in the modern economy.

Objectives of the discipline: acquisition of knowledge of strategic analysis of problems of functioning of digital ecosystems − - mastering and developing skills in monitoring the effectiveness of strategies and tactics in ecosystems; - acquiring practical skills in using modern research tools in conducting theoretical and / or practical studies on the management of Russian ecosystems.

Competencies and indicators formed by students:

| Competence code and name | Indicator code and name |
|---|---|
| PC-2<br>Able to develop strategies for the organization with the aim of adapting its production and economic activities to changing external and internal market conditions in order to ensure investment attractiveness and competitiveness in the modern global economy. | PC-2.3<br>Based on big data analysis and using modern digital tools, develops analytical materials to monitor and analyze the implementation of the organization's strategy in the changing external and internal conditions of the global market to ensure investment attractiveness and competitiveness. |

## 2. Place of the discipline in the structure of the OP

Previous disciplines (modules), practices, research and development: Information Management systems, Algorithmization and programming, Digital ecosystems.

Subsequent disciplines (modules), practices, research and development: Менеджмент Digital ecosystem management, System analysis in management, Investment management of the organization.

## 3. Structure and content of the discipline

### 3.1. Structure of the discipline

For full-time education

| Type of academic work | Total ZE | Total hours | Semester |
|---|---|---|---|
| | | | 6 |
| TOTAL LABOR INTENSITY OF THE DISCIPLINE | 3 | 108 | 108 |
| CONTACT WORK* | 2 | 52 | 52 |
| CLASSROOM WORK | 1,3 | 46 | 46 |
| Lectures | 0.44 | 16 | 16 |
| Practical (seminar) classes | 0.83 | 30 | 30 |
| STUDENT's INDEPENDENT WORK | 1.72 | 62 | 62 |
| Study material development | 0.17 | 6 | 6 |
| Intermediate certification: | | | T |

For full-time and part-time education

| Type of academic work | Total ZE | Total hours | Semester |
|---|---|---|---|
| | | | S |
| TOTAL LABOR INTENSITY OF THE DISCIPLINE | 3 | 108 | 108 |
| CONTACT WORK* | 1.5 | 54 | 54 |
| CLASSROOM WORK | 1.3 | 48 | 48 |
| Lectures | 0.4 | 16 | 16 |
| Practical (seminar) classes | 0.9 | 32 | 32 |
| STUDENT'S INDEPENDENT WORK | 1.6 | 56 | 56 |
| Study material development | 0.2 | 6 | 6 |
| Control | 0.1 | 4 | 4 |
| Intermediate certification: | | | T |

### 3.2. Content of the discipline, structured by sections and types of classes

| Discipline sections | Total hours | Distribution of labor intensity by type of academic work | | | | Forms and type of control | Indexes of indicators of formed competencies |
|---|---|---|---|---|---|---|---|
| | | lectures | lab.work | pr. ex. | Individ. work | | |
| Section 1. Industry 4.0. Management 4.0.54 | 54 | 8 | | 15 | 31 | TC1 | PC -2.3 Z; PC-2.3 Y: PC-2.3 B |
| Section 2. Digital Ecosystem Management based on based on Management 4.0 | 54 | 8 | | 15 | 31 | TC2 | PC -2.3 Z; PC-2.3 Y: PC-2.3B |
| Test | | | | | | **OM 3** | PC -2.3 Z; PC-2.3 Y: PC-2.3B |
| **SUBTOTAL** | **108** | **16** | | **30** | **62** | | |

### 3.3. Content of the discipline

*Section 1. Industry 4.0. Management 4.0.*

Topic 1.1. Industry 4.0: Know-how of the German School of Economics for the development of the digital economy.

Topic 1.2. Implementation of Industry 4.0 in организациях digital economy organizations

Topic 1.3. Development of competencies in analog and digitized production processes.

*Section 2. Management of digital ecosystems based on Management 4.0*

Topic 2.1. Digital transformation in the Russian economic space

Topic 2.2. Development of competencies for the Russian digital economy

Topic 2.3. Development of the scientific and practical direction of management digital economy.

### 3.4. Thematic plan of practical exercises

*Section 1. Industry 4.0. Management 4.0.*

Topic 1.1. The Fourth Industrial Revolution Industry 4.0.

Topic 1.2. Digital transformation.

Topic 1.3. Change management.

Topic 1.4. Analysis of the potential for disrupting digital ecosystems in multilateral markets.

*Section 2. Management of digital ecosystems based on Management4.0*

Topic 2.1. Analysis of the main directions of digital transformation in Russia the Russian economic space.

Topic 2.2. Analysis of the development of key competencies for modern digital ecosystems.

Topic 2.3. Prospective research for the development of digital ecosystems based on Management 4.0

### 3.5. Thematic plan of laboratory work

This type of work is not provided for in the curriculum.

### 3.6. Course project /course work

This type of work is not provided for in the curriculum.

## 4. Evaluating learning outcomes

Assessment of the results of training in the discipline is carried out within the framework of current control and intermediate certification, conducted according to the point-rating system (BRS).

Scale of assessment of learning outcomes in the discipline:

| Code Competence | code | Code of the competence indicator Planned results of training in the discipline | Level of formation of the competence indicator | | | |
|---|---|---|---|---|---|---|
| | | | High | Average | Below average | Low |
| | | | from 85 to 100 | from 70 to 84 | from 55 to 69 | from 0 to 54 |
| | | | Assessment scale | | | |
| | | | excellent | good | satisfactory | unsatisfactory but |
| | | | credited | | | not credited |
| PC-2<br>Able to develop strategies for the organization with the aim of adapting its production and economic activities to changing external and internal market conditions in order to ensure investment attractiveness and competitiveness in the modern global economy. | PC-2.3<br>Based on big data analysis and using modern digital tools, develops analytical materials to monitor and analyze the implementation of the organization's strategy in the changing external and internal conditions of the global market to ensure investment attractiveness and competitiveness. | know: | | | | |
| | | Fundamentals of big data and modern digital tools | Level of knowledge in the volume corresponding to the training program, without errors | Level of knowledge in the volume corresponding to the program, there are several non-rough errors | Minimum permissible level of knowledge, there are not many non-rough errors | Level of know ledge below the minimum requirements, there are gross errors |
| | | be able to: | | | | |
| | | Develop analytical materials to monitor and analyze the implementation of the organization's strategy | Demonstrate all basic skills, solve all basic tasks with some minor shortcomings, complete all tasks in full | Demonstrate all basic skills, solve all basic tasks with minor errors, complete all tasks in full, but some with shortcomings | Demonstrate all basic skills, complete all tasks with minor errors, complete all tasks in full, but some with basic skills are demonstrated, typical tasks with minor errors are solved | When solving standard tasks , do not ovany orchestra , basic skills are not demonstrated, and gross errors occur |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | ,all tasks are completed, but not in full | |
| | | own: | | | | |
| | | Tools for ensuring the investment attractiveness and competitiveness of the organization in the changing external and internal conditions global market | of the global market Demonstrated skills in solving nonstandard tasks without errors and shortcomings | Demonstrated basic skills in solving standard tasks with some shortcomings | There is a minimum set of skills for solving standard tasks with some shortcomings | In solving standard Tasks there are no issues basic skills are not demonstrated, there are some serious mistakes |

Evaluation materials for conducting current control and interim certification are given in the Appendix to the discipline's work program.

The complete set of tasks and materials required for evaluating the results of training in the discipline is stored at the developer's department.

**5.1. Educational and methodical support**

5.1.1. Basic literature

1. Sheve G., Khusig S., Gumerova G. I., Shaimieva E. Sh . Management of digital economy organizations: a textbook.

- Moscow: KnoRus, 2022. - 300 p. - ISBN 978-5-406-10005-9. — URL:

https://book.ru/book/944596 — Text: electronic.

2. Fundamentals of the Digital economy and business transformation: textbook

Kostyukhin, G. V. Timokhova, O. T. Shipkova [et al.]; ed. by E. Yu. Sidorova. - Moscow: KnoRus, 2023. - 258 p — - ISBN 978-5-406-10523-

8. - URL: https://book.ru/book/947610 — - Text: electronic.

3. Sheve G., Khusig S., Gumerova G. I., Shaimieva E. S. Innovative management of the digital economy: a textbook.

- Moscow: KnoRus, 2023. - 307 p. - ISBN 978-5-406-10238-1. - URL:

https://book.ru/book/946240 — - Text: electronic.

5.1.2. Additional literature

1. Anshina M. L., Slavin B. B., and Terry U. Tsifrovaya transformatsiya biznesa: uchebnoe posobie [Digital transformation of business: a textbook]. Moscow: KnoRus Publ., 2022. - 270 p. - ISBN 978-5-406-09851-6. — URL:

https://book.ru/book/943886 — - Text : electronic.

2. Digital transformation of Russian business : a monograph / I. E. Gergiev, N. A. Mardeyan, Z. P. Gassieva [et al.]; edited by A. I. Pozmogov. - Moscow: Rusains, 2019. - 455 p — - ISBN 978-5-4365-3798-

6. - URL: https://book.ru/book/933886 — - Text : electronic.

**5.2. Information support**

5.2.1. Electronic and online resources

| n / | Name of electronic and Internet resources | Link |
|---|---|---|
| 1 | Official website of the University | http:www.kgeu.ru |
| 2 | Official website of the Federal State Statistics Service | http:www.g.gks.ru |
| 3 | Unified portal of state and municipal Servicesrussia | http:www.gosuslugi.ruwww.gosuslugi.ru |
| 4. | Electronic library system "Book" | http:book.ru |

5.2.2. Professional databases / Information and Reference systems

| n / | a Name of professional databases | Address | Access mode |
|---|---|---|---|
| 1 | Federal Educational Portal "Economics, Sociology, Management" | http://ecsocman.hse.ru | /http:// ecsocman.hse.ru/ |

| | | | |
|---|---|---|---|
| 2 | Ministry of Economic Development of the Russian Federation | https://economy.gov.ru | /https://economy.gov.ru |
| 3 | Business navigator for SMEs | https://smbn.ru/ | https://smbn.ru/ |

5.2.3. Licensed and freely distributed software of the discipline

| | | | |
|---|---|---|---|
| 1 | 1C: Enterprise 8 | software is designed for automation of accounting and management accounting, economic and organizational | IP Valishina No. VZS-0000641-L 22.05.2013 Neiskl. right. Perpetual |
| 2 | Windows Server Standartd 2012R2 Russian OLP NL AcademicEdition 2Proc | Server operating system from Microsoft. | 3AO SoftLineTrade CJSC No. 2014.0310 dated 15.11.2014 Not applicable. right. Indefinitely |
| 3 | Office Professional Plus 2007 Windous32 Russian DiskKit MVL CD | Пакет Software package containing the necessary office programs | 3AO of SoftLineTrade CJSC No. 225/10 28.01.2010 Neiskl. right. Unlimited |
| 4 | Windows Professional 7 (FSTEC certified) | User operating system | "CJSC "TaksNet- Service" No. PO-PERSONS 0000/2014 dated 27.05.2014 Not applicable. right. Unlimited |
| 5 | Chrome browser | Система<br><br>Internet search engine | Free Unlimited license Neiskl. right. |
| 6 | OpenOffice | Suite of office applications | Free Perpetual license Neiskl.right. |
| 7 | Adobe Acrobat | Software package for creating and viewing PDF files | Free Perpetual license Neiskl.right. |
| 8 | LMS Moodle | software for effective online interaction between teachers and students | Free license Neiskl. right. Unlimited |
| 9 | Alt-Invest Sums | Software for preparation, analysis and optimization of investment projects of various industries, scales | OOO Alt-Invest LLC No. 1-17-125 02.10.2017 Neiskl. right. Indefinitely |

## 6. Material and technical support of the discipline

| Name of the type of educational work | Name of the educational audience, specialized laboratory | List of necessary equipment and technical means of teaching |
|---|---|---|
| Lectures | Educational audience for conducting lecture-type | classes Specialized educational furniture, technical means of teaching that serve to present educational information to a large audience (multimedia projector, computer (laptop), |

| | | |
|---|---|---|
| | | screen), demonstration equipment, educational and visual aids |
| Practical classes | Training room for conducting seminar - type classes, group and Individual consultations, ongoing monitoring and intermediate certification | Specialized educational furniture, technical training tools (multimedia projector, computer (laptop), screen), etc.<br>Classroom whiteboard, portable equipment-multimedia projector (2 pcs.), screen, laptop (3 pcs.) |
| Coursework | Classroom for conducting coursework and individual consultations, current control and intermediate certification | Classroom board, portable equipment-multimedia projector (2 pcs.), screen, laptop (3 pcs.) |
| Independent work | Computer class with Internet access B-600a | Specialized educational furniture for 30 seats, 30 computers, technical training equipment (multimedia projector,<br>computer (laptop), screen), video cameras, software |
| | Library Reading room | Specialized furniture, computer equipment with Internet access and access<br>to the Internet in the EIE, screen, multimedia projector, software |
| | Classroom for completing a course project (term paper) (indicated if there is a CR/KP and such an audience) D 708 | Specialized furniture, computer equipment with the ability to access the Internet and provide access to the EIE, software<br>Classroom board, portable equipment-multimedia projector (2 pcs.), screen, laptop (3 pcs.) |

## 7. Features of the organization of educational activities for persons with disabilities and disabled people

Persons with disabilities and persons with disabilities have the opportunity to move freely from one educational and laboratory building to another, to climb all floors of educational and laboratory buildings, to study in educational and other premises, taking into account the peculiarities of psychophysical development and health status.

Conditions of unhindered access to all educational facilities are provided for the training of persons with disabilities and disabled people with musculoskeletal disorders. Information about special conditions created for students with disabilities and disabilities is available on the university's website <url>.www//kgeu.ru There is a possibility to provide technical assistance by an assistant, as well as sign language interpreters and tiflosurd interpreters.

To adapt to the perception of reference and educational material on the discipline by persons with disabilities and hearing impairments, the following conditions are provided:

- for better orientation in the classroom, use alerts about the beginning and end of the lesson (the word "call" is written on the blackboard).
- the teacher draws the attention of a hard-of-hearing student with a gesture (a hand is placed on the shoulder; a soft pat is performed).
- when talking to a student, the teacher looks at them, speaks clearly, in short sentences, providing the ability to read lips.

Compensation for difficulties in speech and intellectual development of hard-of-hearing students is carried out by:

- use diagrams, diagrams, drawings, and computer presentations with hyperlinks that comment on individual image components.
- regular use of exercises for graphic selection of essential features of objects and phenomena;
- providing an opportunity for the student to receive targeted advice by e-mail as needed.

The following conditions are provided for adaptation to the perception of reference, educational, and educational materials provided by the educational program for the chosen field of study by persons with disabilities and visually impaired people:

- The official website on the Internet is being adapted to meet the special needs of visually impaired people, and large-scale reference information on the schedule of training sessions is being provided.
- the teacher and his interlocutor (if necessary) who are present at the lesson are introduced to the students, and each time the person to whom the teacher addresses is called;
- actions, gestures, and movements of the teacher are briefly and clearly commented on.
- printed information is provided in large font (starting from 18 points) and is fully voiced.
- provides the necessary level of illumination of the premises;
- it is possible to use computers during classes and the right to record explanations on a voice recorder (at the request of students).

The form of conducting current and intermediate certification for students with

disabilities and disabilities is determined by the teacher in accordance with the curriculum. If necessary, students with disabilities, taking into account their individual psychophysical characteristics, are given the opportunity to pass an interim certification orally, in writing on paper, in writing on a computer, in the form of testing, etc., or are given additional time to prepare an answer.

**8. Methodological recommendations for teachers on the organization of educational work with students.**

Methodological support of the process of educating students is one of the determining factors of high quality of education. A university teacher, demonstrating high professionalism, erudition, a clear civic position, self-discipline, and a creative approach to solving professional problems, contributes to the formation of a harmonious personality during the educational process.

When implementing the discipline, the teacher can use the following methods of educational work:

- methods of forming a person's consciousness (conversation, dispute, suggestion, instruction, control, explanation, example, self-control, story, advice, persuasion, etc.);
- methods of organizing activities and forming behavioral experience (task, public opinion, pedagogical requirement, assignment, training, creating educational situations, training, exercise, etc.);
- methods of motivating activity and behavior (approval, encouragement of social activity, censure, creating success situations, creating situations for emotional and moral experiences, competition, etc.)

When implementing the discipline, the teacher should take into account the following areas of educational activity:

*Civic and patriotic education:*

- formation of students ' holistic worldview, Russian identity, respect for their family, society, state, spiritual, moral and socio-cultural values accepted in the family and society, national, cultural and historical heritage, formation of the desire for its preservation and development;
- formation of students ' active citizenship based on traditional cultural, spiritual and moral values of Russian society, in order to increase their ability to responsibly exercise their constitutional rights and obligations;
- development of legal and political culture of students, expansion of constructive participation in decision-making affecting their rights and interests, including in various forms of self-organization, self-government, socially significant activities;
- formation of motives, moral and semantic attitudes of the individual, allowing to resist extremism, xenophobia, discrimination on social, religious, racial, national grounds, interethnic and interfaith intolerance, and other negative social phenomena.

*Spiritual and moral education:*

- education of a sense of dignity, honor and honesty, conscientiousness, respect for parents, teachers, and older people;
- formation of the principles of collectivism and solidarity, the spirit of mercy and compassion, the habit of caring for people in difficult life situations;

- forming solidarity and a sense of social responsibility towards people with disabilities, overcoming psychological barriers towards people with disabilities;
- formation of an emotionally rich and spiritually elevated attitude to the world, the ability and ability to pass on your aesthetic experience to others.

*Cultural and educational education:*

- forming an aesthetic picture of the world;

- formation of respect for the cultural values of the native city, region, or country;
- improving students ' cognitive activity.

*Scientific and educational education:*

- formation of students ' scientific worldview;
- formation of the ability to acquire knowledge;
- formation of skills in analyzing and synthesizing information, including in the professional field.

**Current changes and approvals for the new academic year**

| n / | No. of the section for making changes | Date of making changes | Content of changes | "Agreed" Head of the department implementing the discipline | " Agreed " Chairman of the Department of Management of the Institute (faculty), which includes the graduate |
|---|---|---|---|---|---|
| 1 | a 2 | 3 | 4 | 5 | 6 |
| 1 | | | | | |
| 2 | | | | | |
| 3 | | | | | |

*Appendix k*
*working*
*program of the*
*discipline*

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# EVALUATION MATERIALS
## by discipline

## B1.V.07 Digital Ecosystem Management

Kazan, 2026

Assessment materials on the discipline, designed to assess the results of training for compliance with indicators of achievement of competencies. Assessment of the results of training in the discipline is carried out within the framework of current control (TC) and intermediate certification, conducted according to the point rating system (BRS).

## 1. Technological map

Semester 6

| Section name | Forms and type of control | Rating indicators | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | I current control | Additional points to TC1 | II current control | Additional points to TC2 | III current control | Additional points to TC3 | Total | Interim certification |
| **Section 1.** Industry 4.0. Management 4.0. | **TK1** | **0-25** | | | | | | **0-25** | **0-20** |
| Test | | 0-15 | | | | | | | |
| Survey by sections (topics) | | 0-10 | | | | | | | |
| **Section 2**. Digital Ecosystem Management based on Management 4.0 | **TC2** | | | **0-30** | | | | **0-30** | **0-25** |
| Survey by sections (topics) | | | | 0-10 | | | | | |
| Abstract | | | | 0-20 | | | | | |
| Total | | | | | | | | **0-55** | |
| **Intermediate certification (credit)** | **OM** | | | | | | | | **0-45** |
| In the interview form | | | | | | | | | 0-45 |
| Total | | | | | | | | **100** | |

Scale of assessment of learning outcomes in the discipline:

| Code Competence | code | Code of the competence indicator Planned results of training in the discipline | Level of formation of the competence indicator | | | |
|---|---|---|---|---|---|---|
| | | | High | Average | Below average | Low |
| | | | from 85 to 100 | from 70 to 84 | from 55 to 69 | from 0 to 54 |
| | | | Assessment scale | | | |
| | | | excellent | good | satisfactory | unsatisfactory |
| | | | credited | | | not credited |
| PC-2. Able to develop strategies for the organization with the aim of adapting its production and economic activities to changing external and internal market conditions in order to ensure investment attractiveness and competitiveness in the modern global economy. | PC-2.3 Based on big data analysis and using modern digital tools, develops analytical materials to monitor and analyze the implementation of the organization's strategy in the changing external and internal conditions of the global market to ensure investment attractiveness and competitiveness. | safety: | | | | |
| | | Fundamentals of big data and modern digital tools | Level of knowledge in the volume corresponding to the training program, without errors | Level of knowledge in the volume corresponding to the program, there are several minor errors | Minimum permissible level of knowledge, there are not many minor errors | Level of knowledge below the minimum requirements, there are gross errors |
| | | be able to: | | | | |
| | | Develop analytical materials to monitor and analyze the implementation of the organization | Demonstrate all basic skills, solve all basic tasks with some minor shortcomings, complete all tasks in full | Demonstrate all basic skills, solve all basic tasks with minor errors, complete all tasks in full, but some with shortcomings | Demonstrate all basic skills, complete all tasks with minor errors, complete all tasks in full, but some with basic skills are demonstrated, typical tasks with minor errors are solved, all tasks are completed, but Not in full | When solving standard tasks , basic skills are not demonstrated, and there are gross mistakes |
| | | to master: | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Tools and ensuring the investment attractiveness and competitiveness of the organization in the changing external and internal conditions global market | Demonstrated skills in solving nonstandard tasks without errors and of the global market | shortcomings Demonstrated basic skills in solving standard tasks with some shortcomings | There is a minimum set of skills for solving standard tasks with some shortcomings | In solving standard tasks not demonstrated basic skills in solving standard tasks skills, there are place some serious mistakes |

## 3. List of evaluation tools

Brief description of the assessment tools used in the current monitoring of academic performance and intermediate certification of a student in the discipline:

| Name of the evaluation tool | Brief description of the evaluation tool | Description of the evaluation tool |
|---|---|---|
| Survey by sections (topics) | Knowledge of the main concepts of the topic section / discipline | List of definitions of the main concepts of the topic / discipline |
| Test (Test) | A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills of a student | A set of test tasks |
| Interview (Sbs) | A control tool organized as a special conversation between the teacher and the student on topics related to the discipline being studied, and designed to find out the amount of knowledge of the student on a certain section, topic, problem, etc. | Questions on the sections of the discipline |
| Abstract | is a product of independent work of a student, which is a written summary of the results of theoretical analysis of a certain scientific (educational and research) topic, where the author reveals the essence of the problem under study, gives various points of view, as well as his own views on it | Topics of abstracts |

## 4. A list of control tasks or other materials necessary for assessing knowledge, skills and abilities that characterize the stages of competence formation in the course of mastering the discipline

*Task example*

**For the current control of TC1:**PC-2. Is able to develop strategies of the organization in order to adapt its production and economic activities to changing external and internal market conditions, to ensure investment attractiveness and competitiveness in the modern world economy

Name of competence, indicator: PC-2.3 On the basis of big data analysis, taking into account the use of modern digital tools, develops analytical materials in order to control and analyze the implementation of the organization's strategy in changing external and internal conditions of the global market to ensure investment attractiveness and competitiveness.

**Tests.**

1) What advantages do digital technologies offer in comparison with traditional formats of conducting economic activities?

a) the possibility of almost infinite reproduction of information without compromising on quality;

b) a wide range of types of information that digital technologies work with (text, media, etc.);

c) high speed of information transfer;

d) high security of technological and organizational innovations.

2) What feature allows you to identify the digital economy?

a) informatization of the management sphere;

b) integration of physical and digital objects in the sphere of production and consumption;

c) formation of a network model of economic activity;

d) development of Internet communications as a means of information exchange.

3) What changes in the organization of economic activity are less required by digital technologies?

a) changing business models;

b) change of organizational structures;

c) formation of digital culture;

d) transformation of ethical standards.

4) For which area of economic activity can the Internet of Things (IoT) technologies be least applicable in solving the main production tasks?

a) housing and communal services;

b) transport;

c) public administration;

d) healthcare.

5) Which of the structural elements does not belong to the drivers of industrial Internet technology ("Industry 4.0"), which, in turn, forms the fourth industrial revolution with the corresponding economic structure?

a) smart sensors;

b) wireless networks;

c) augmented reality;

d) cloud services.

6) What is the place of the material production sector in the digital economy?

a) the material production sector and digital platforms exist independently in the economy;

b) the material sector of production will be replaced by digital platforms;

c) the material sector of production needs digital platforms to ensure the quality of its products.

communications with counterparties;

d) the material sector of production will ensure the demise of digital platform solutions.

7 What element of platforms as business models is not related to management as a specific activity?

a) communications;

b) behavioral patterns;

c) technological solution;

d) strategies.

8) What element of the business ecosystem is a platform solution in the digital economy?

a) the agent;

b) the kerne;

c) restrictions;

d) the operator.

9) Which of the application areas is not explicitly indicated in the Digital Economy of the Russian Federation program as a platform for testing technological solutions?

a) healthcare;

b) communications;

c) "smart city";

d) public administration.

10) What document will you refer to to indicate the regulatory definition of the concept of "digital economy" in the Russian Federation?

a) Federal Target Program " Electronic Russia (2002-2010)";

b) State Enterprise " Information Society (2011-2020)";

c) Decree of the President of the Russian Federation No. 203 of 09.05.2017 "On the Information Society Development Strategy in the Russian Federation for 2017-2030";

d) The Constitution of the Russian Federation.

11) Which of the areas of the Digital Economy of the Russian Federation program should be implemented as a priority due to the fact that it forms the basis for the development of other areas?

a) "Personnel and education";

b) "Regulatory regulation";

c) "Information infrastructure"; d)"Information Security".

12) Which of the digital economy technologies is focused on the formation of decentralized data warehouses?

a) "big data";

b) wireless communication;

c) blockchain technology;

d) sensors.

13) What fact about blockchain is incorrect?

a) once the operation is completed, the records are irreversible.

b) blockchain participants communicate through a central node;

c) each member of the community has access to all information and history;

d) each user is assigned an address consisting of more than 30 characters.

14). What are the economic benefits of the digital economy?

a) quality control of cleaning of public areas

b) broad growth prospects for companies, industries

c) increasing the availability of services

15). How long is the implementation of the Digital Economy program designed for:

a) until 2050 2050

b) until 2035 2035

c) until 2024

Tests are tasks that are completed within 20 minutes after completing the study of sections 1 and 2 (based on the materials of sections). The student is given a task consisting of 15 tests. 1 point is awarded for each correctly completed task.

**Questions for the survey by topic (section 1) of TC1**

1. What is meant by a digital ecosystem?

2. What are the features of the transition to the digital economy?

3. What is the concept of "Industry 4.0"?

4. What do digital ecosystem technologies and services include?
5. Features of the post-industrial economy. What changes does it entail?
6. How is the role of employees changing in digital ecosystems?
7. Features of the information society.
8. Justify your demand for project managers.
9. How are the types of projects expanding in the digital economy?
10. Justify the provision of projects by its participants.

**Questions for the survey by topic (section 2) of TC2**

1. Digital transformation in the Russian economic space.
2. "The concept of formation and development of the unified information space of Russia and relevant state information resources".
3. Four-stage Federal Target Program (FTP) "Electronic Russia".
4. Digital Economy of the Russian Federation Program
5. "Strategy for the Development of the Information Society in the Russian Federation for 2017-2030".
6. Five basic directions of digital economy development as a basis for the development of the second and third levels of the digital economy "Programs of the digital economy of the Russian Federation": platforms and technologies, environment.
7. The WorldSkills movement as ensuring the digital future in the form of developing professional digital competencies of working professions in six areas: industrial production, construction, information and communication technologies, creativity and design, services, and civil transport services.
8. Development of 68 topics (directions) underlying the Industry 4.0 Initiative (Germany) as basic directions in the development of the digital economy program for the Russian economic space.
9. Strengths and weaknesses of the informatization program in Russia?
10. Do the core management functions of a traditional organization still apply to digital ecosystems?

The survey is conducted at the end of studying sections 1 and 2 (based on the materials of sections). Answers to questions should be accurate and concise. When evaluating a completed task, the following criteria are taken into account:

1. Knowledge of the material

- the content of the material is fully disclosed in accordance with the discipline program – 5 points;
- the content of the material is not fully disclosed, and the general understanding of the issue is shown, which is sufficient for further study of the program material – 3 points.
- the main content of the training material is not disclosed – 0 points.

2. Sequence of presentation

- the content of the material is disclosed consistently, quite well thought out – 3 points;
- the sequence of presentation of the material is not well thought out – 2 points.
- confusion in the presentation of the material – 0 points.

3. Proficiency in speech and terminology

- the material is presented in a competent language, with accurate use of

terminology-3 points;

- there were difficulties in the presentation of the material and mistakes were made in the definition of concepts and in the use of terminology – 2 points;
- mistakes made in defining concepts – 0 points.

4. Applying specific examples

- the ability to illustrate the material with concrete examples is shown-3 points;
- giving examples is difficult – 2 points.
- inability to give examples when explaining the material – 0 points.

5. Level of theoretical analysis

- the ability to make generalizations, conclusions, and comparisons is shown-3 points.
- generalization, conclusions, and comparison are made with the help of a teacher – 2 points.
- complete inability to make generalizations, conclusions, and comparisons – 0 points.

**Number of points: maximum-10**

**An approximate list of topics for abstracts for TC2.**

1. Digital transformation of the Russian economy
2. Digitalization of work processes
3. Digitalization of Russian business
4. Digitalization of consumption
5. Development of digital ecosystems in the world and Russia
6. Trends in the development of digital ecosystems in the world
7. Regional distribution of digital ecosystems in the world
8. Impact of digital ecosystems on national markets
9. Classification of platforms underlying Russian and international ecosystems
10. Distribution of ecosystems by stages of evolutionary growth and development strategies

**The criteria for evaluating the task performance, according to the level achieved in 2 TC, are:**

the content of the abstract topic is fully disclosed, the material is presented in a competent language with precise use of terminology, the information is built logically and concisely-16-20 points.

*Intermediate level:*

the abstract shows a general understanding of the issue, sufficient for further study of the material, the sequence of presentation. The article is well thought out, the material is presented in a competent language, some mistakes were made in the use of terminology – 15-12 points.

*Below average level:*

the content of the abstract topic is not fully disclosed, the material is presented correctly, however, inconsistency in the presentation of the material was noted, there were difficulties in the presentation of the material and mistakes were made in the definition of concepts and in the use of terminology – 11-5 points.

*Low level:*

the abstract does not disclose the main content of the educational material, confusion in the presentation of the material, errors in the definition of concepts, complete inability to generalize, conclusions, comparisons – less than 5 points.

**Number of points for completing the presentation: minimum-1 point.**

**Number of points for completing a presentation: maximum-20 points.**

**For intermediate certification:**

**Credit in the form of an interview.** A control tool in the form of a conversation between a teacher and a student/students with each other on the topic being studied in order to determine the level of student's knowledge of the volume of knowledge on the topic being studied, their level of proficiency in dialogic speech.

*Examples of questions:*

1. Development and scale of activity of Russian ecosystems.
2. Impact of Russian platforms/ecosystems on economic indicators.
3. Competition between digital ecosystems.
4. Factors that determine the form of competition between digital platforms.
5. Types of competition between digital platforms.
6. Digitalization as a form of manifestation of systemic transformations of the economy and society.
7. Features of a risk-based approach to the introduction and application of digital economy technologies
8. Systemic factors of banking risks in the digital transformation of the bank's business model.
9. Threats and risks of introducing new financial technologies in the banking sector.
10. Cybersecurity. The problem of ensuring cybersecurity.

The criteria for evaluating the task performance, according to the achieved level, are:

*High level:*

The answer to the question is complete, detailed, presented in a competent language with precise use of terminology, the student responds to questions and is able to maintain a dialogue – 30-45 points

*Intermediate level:*

the answer to the question shows a general understanding of the question, sufficient for further study of the program material, the answer is presented in competent language, some errors in the use of terminology are made – 15-29 points.

*Below average level:*

The answer to the question is incomplete, inconsistency in the presentation of the material is noted, there were difficulties and mistakes in the definition of concepts and in the use of terminology when answering the question, there are not rough lexical and grammatical errors in the presentation of the material-0-14 points.

***The minimum number of points for the test is 0 points The maximum number of points for the test is 45 points***