Federal State Autonomous Educational Institution of Higher Education
«Peoples' Friendship University of Russia named after Patrice Lumumba»
(RUDN University)

Higher School of Management

(name of the main educational unit-developer of the basic higher education programme)

COURSE SYLLABUS

Digital Technologies in the Control System

(name of discipline/module)

Recommended by the Didactic Council for the Education Field of:

38.04.01 «ECONOMICS»

(code and name of the area of training/specialty)

The study of the discipline is conducted as part of the professional programme of higher education:

«Compliance control in the activities of organizations»

(name (track/specialization) of professional programme of higher education)

2026

1. COURSE GOAL(S)

The purpose of studying the discipline "Digital Technologies in the Control System" is to form fundamental ideas about the laws, principles and mechanisms for the construction and development of information systems and digital technologies in management.

The objectives of the discipline are:

- determination of the role and modern digital technologies used in the professional activities of managers, the formation of a knowledge system in the field of application of information technologies in the control system;
- study of basic theoretical issues and consideration of existing Russian and foreign practical experience in the creation, operation and development of information systems and digital technologies used in the control system;
- determining the role of information and digital technologies in the control system.

2. REQUIREMENTS FOR LEARNING OUTCOMES

Mastering the discipline "Digital Technologies in the Control System" is aimed at developing in students the following competencies (part of the competencies):

Table 2.1. The list of competencies acquired by students in the course of the discipline (outcomes of the discipline)

Competence Code	**Competence Descriptor**	**Competence Formation Indicators** (within this discipline)
GC-1	Able to search, critically analyze problem situations based on a systematic approach, and develop an action strategy	GC-1.1. Analyzes the task, highlighting its basic components; GC-1.2. Identifies and ranks the information required to solve a given problem; GC-1.3. Searches for information to solve a given problem using various types of requests; GC-1.4. Offers options for solving a problem, analyzes the possible consequences of their use; GC-1.5. Analyzes ways to solve problems of ideological, moral and personal nature based on the use of basic philosophical ideas and categories in their historical development and socio-cultural context.
GC-6	Able to determine and implement priorities of own activities and ways to improve them based on self-assessment	GC-6.1. Controls the amount of time spent on specific activities; GC-6.2. Develops tools and methods of time management when performing specific tasks, projects, goals; GC-6.3. Analyzes his resources and their limits (personal, situational, temporary, etc.) to successfully complete the task;

Competence Code	Competence Descriptor	Competence Formation Indicators (within this discipline)
		GC-6.4. Distributes tasks into long-, medium- and short-term ones with justification of relevance and analysis of resources for their implementation.
GPC-1	Able to apply knowledge (at an advanced level) of fundamental economic science in solving practical and/or research problems	GPC-1.1. Has fundamental knowledge in the field of economic science; GPC-1.2. Able to use fundamental knowledge to solve applied and/or research problems; GPC-1.3. Has the skills to select methods for solving practical and research problems based on fundamental economic knowledge;
GPC-2	Able to apply advanced instrumental methods of economic analysis in applied and/or basic research	GPC-2.1. Has knowledge of advanced instrumental methods of economic analysis; GPC-2.2. Able to apply knowledge of advanced instrumental methods of economic and financial analysis when conducting applied and/or fundamental research;
GPC-3	Able to summarize and critically evaluate scientific research in economics	GPC-3.1 Develops a programme of applied and/or fundamental research in the field of economics based on the evaluation and synthesis of the results of scientific research conducted by other authors. GPC-3.2 Prepares an analytical note based on the results of applied and/or fundamental research in the field of economics. GPC-3.3 Summarizes findings, prepares conclusions and formulates recommendations based on the results of applied and/or fundamental research in the field of economics.
GPC-4	Able to make economically and financially sound organizational and management decisions in professional activities and bear responsibility for them	GPC-4.1 Develops organizational and management decisions in professional activities; GPC-4.2 Possesses the skills of reasoned persuasion in support of proposed financial, economic, organizational and managerial decisions; GPC-4.3 Monitors the results of the implementation of financial, economic, organizational and managerial decisions
PC-2	Able to develop a strategy and determine current tasks for the development of the internal control system of an economic entity.	PC-2.2. Able to select and prioritize work under limited resources and organize the work of the audit team to complete it on time. Apply a systematic approach to analyzing results and evaluating the work of audit team members;
PC-5	Capable of monitoring and coordinating the activities	PC-5.1 Able to analyze and interpret the norms and requirements of regulatory legal acts on

Competence Code	Competence Descriptor	Competence Formation Indicators (within this discipline)
	of internal control systems at all levels of management of an economic entity	internal control of the organization's activities, regulating issues of independence and principles of ethics

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline "Digital Technologies in the Control System" refers to the compulsory part formed by participants in educational relations of block B1 of the basic higher education programme.

Table No. 3.1 shows the previous and subsequent disciplines aimed at developing the competencies of the discipline in accordance with the matrix of competencies of the basic higher education programme (EP HE).

As part of the EP HE, students also master other disciplines and/or practices that contribute to achieving the planned results of mastering the discipline "Compliance in the field of tendering and procurement activities".

Table 3.1. The list of the higher education programme components that contribute to the achievement of the expected learning outcomes as the disciplines results

Competence Code	Competence Descriptor	Previous Disciplines/Modules, Practices*	Subsequent Disciplines/Modules, Practices*
GC-1	Able to search, critically analyze problem situations based on a systematic approach, and develop an action strategy	Microeconomics (advanced course), Internal control, International and Russian standards in the field of internal control and audit, Managing the effectiveness of compliance control of a business entity	Macroeconomics (advanced course), Risk management and compliance, Design of a compliance control system and organization of its implementation in the activities of an economic entity, Legal regulation and methodology of modern compliance control, foreign practice of applying compliance control in the activities of an economic entity
GC-6	Able to determine and implement priorities of own activities and ways to improve them based on self-assessment	Microeconomics (advanced course), Econometrics (advanced course), Internal control, International and Russian standards in the field of internal control and audit, Methods for comprehensive analysis of the activities of a business entity, Managing the effectiveness of compliance	Legal regulation and methodology of modern compliance control, foreign practice of applying compliance control in the activities of a business entity, Ensuring the cybersecurity of a business entity, Combating corporate fraud, Regulatory support of compliance control in the activities of an organization,

Competence Code	Competence Descriptor	Previous Disciplines/Modules, Practices*	Subsequent Disciplines/Modules, Practices*
		control of a business entity, Antimonopoly compliance	Risk management and compliance, Assessment of corruption risks of a business entity subject, Tax compliance,
GPC-1	Able to apply knowledge (at an advanced level) of fundamental economic science in solving practical and/or research problems	Microeconomics (advanced course), Econometrics (advanced course), Internal control, Managing the effectiveness of compliance control of a business entity,	Legal regulation and methodology of modern compliance control, Ensuring the cybersecurity of a business entity, Assessing the corruption risks of a business entity
GPC-2	Able to apply advanced instrumental methods of economic analysis in applied and/or basic research	Microeconomics (advanced course), Econometrics (advanced course), Internal control, Managing the effectiveness of compliance control of a business entity	Legal regulation and methodology of modern compliance control, Ensuring the cybersecurity of a business entity, Assessing the corruption risks of a business entity
GPC-3	Able to summarize and critically evaluate scientific research in economics	Microeconomics (advanced course), Econometrics (advanced course), Internal control, Managing the effectiveness of compliance control of a business entity	Legal regulation and methodology of modern compliance control, Ensuring the cybersecurity of a business entity, Assessing the corruption risks of a business entity
GPC-4	Able to make economically and financially sound organizational and management decisions in professional activities and bear responsibility for them	Microeconomics (advanced course), Econometrics (advanced course), Internal control, Managing the effectiveness of compliance control of a business entity	Legal regulation and methodology of modern compliance control, Ensuring the cybersecurity of a business entity, Assessing the corruption risks of a business entity
PC-2	Able to develop a strategy and determine current tasks for the development of the internal control system of an economic entity.	Microeconomics (advanced course), Econometrics (advanced course), Internal control, Managing the effectiveness of compliance control of a business entity	Risk management and compliance, Anti-corporate fraud, Tax compliance
PC-5	Capable of monitoring and coordinating the activities of internal control systems at all levels of management of an economic entity	Microeconomics (advanced course), Econometrics (advanced course), Internal control, Managing the effectiveness of compliance control of a business entity	Macroeconomics (advanced course), Ensuring cybersecurity of a business entity

4. COURSE WORKLOAD AND ACADEMIC ACTIVITIES

The total workload of the discipline "Digital Technologies in the Control System" is 5 credit units.

*Table 4.1. Types of educational work by periods of mastering BP HE for **full-time** education*

Type of educational work		Total hours	Semester	
			5	6
1.	*Contact work, academic hours*	43	27	16
	Including:			
1.1.	Lectures (L)	17	9	8
1.2.	Other activities			
	Including:			
1.2.1.	Seminars (S)			
	Practical exercises (PE))	26	18	8
	Of these in interactive form (IF)			
2.	*Independent work of students, academic hours*	104	72	32
	Including:			
2.1.	Calculation and graphic works			
2.2.	Course paper			
	Other types of independent work			
3.	*Control (exam/test with assessment), academic hours*	33	9	24
4.	**Total workload (academic hours)**	5	3	2
	Total workload (credit units)	180	108	72

5. COURSE CONTENTS

Table 5.1. The content of the discipline (module) by type of academic work

Name of the sections (subjects) of the discipline	**Summary of the sections (subjects) of the discipline:**	**Type of educational work***
Section 1. Digital and information technologies in the control system	Topic 1.1. Advanced digital technologies	L, S
	Topic 1.2. Expert systems in control	L, S
Section 2. Principles of management in conditions of intensive development of information technologies	Topic 2.1. Information systems security	L, S
	Topic 2.2. Concepts of new information technology	L, S
Section 3. Digital control tools and methods of their application	Topic 3.1. Protection of personal data, proprietary and confidential information of enterprises	L, S
	Topic 3.2. Securitization	L, S

L- lectures

S-seminar classes

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Equipment and technological support of the discipline

Classroom Type	Equipment of the Classroom	Specialized educational/laboratory equipment, software and materials for mastering the discipline (if necessary)
Lecture Hall	An auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; board (screen) and technical means of multimedia presentations.	21 workstations: system unit P4 C2D/3160 MHz MB/ 320 GB/DVD±RW/ LCD monitor 19"+ 1 projector
Laboratory	An auditorium for conducting laboratory work, individual consultations, ongoing monitoring and intermediate certification, equipped with a set of specialized furniture and equipment.	21 workstations: Celeron system unit /2600 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17"+ 1 projector + WiFi access point
Colloquium	An auditorium for conducting seminar-type classes, group and individual consultations, ongoing monitoring and intermediate certification, equipped with a set of specialized furniture and technical means for multimedia presentations.	21 workstations: system unit P4 C2D/3160 MHz MB/ 320 GB/DVD±RW/ LCD monitor 19"+ 1 projector
Computer class	Computer class for conducting classes, group and individual consultations, ongoing monitoring and intermediate certification, equipped with personal computers (in the amount of ____pcs.), a whiteboard (screen) and technical means for multimedia presentations.	21 workstations: Celeron system unit /2600 MHz/1280 MB/ 40 GB/DVD ROM/ LCD monitor 17"+ 1 projector + WiFi access point
Autonomous Work of Students	An auditorium for independent work by students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to the electronic information and educational system.	Classroom No. 420

7. RESOURCES RECOMMENDED FOR COURSE STUDY

Main Readings:

Digital Control Systems (Oxford Electrical and Computer Engineering Series), 2nd Edition Benjamin K. Kuo (author)

Additional Readings:

Analysis and Design of Digital Control Systems, 4th Edition, Charles Phillips (Author), H. Nagle (Author), Aranya Chakraborty (Author).

Resources of the information and telecommunications network "Internet":

1. Electronic library systems of RUDN and third-party electronic library systems, to which university students have access based on concluded agreements:

- Electronic library systems of RUDN http://lib.rudn.ru/MegaPro/Web
- Electronic library system «Университетская библиотека онлайн» http://www.biblioclub.ru
- Electronic library system Юрайт http://www.biblio-online.ru
- Electronic library system «Консультант студента» www.studentlibrary.ru
- Electronic library system «Лань» http://e.lanbook.com/
- Electronic library system «Троицкий мост»

2. Databases, information, reference and search systems:

- electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex search engine https://www.yandex.ru/
- Google search engine https://www.google.ru/
- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

Additionally:

1. RUDN Library website – Access mode: http://lib.rudn.ru/ - from RUDN desktop computers
2. University Library ONLINE – Access mode: http://www.biblioclub.ru/
3. LexisNexis. – Access mode: http://www.lexisnexis.com/hottopics/lnacademic/?
4. Book collections of the SPRINGER publishing house. – Access mode: www.springerlink.com
5. RUDN University Bulletin – Access mode: http://www.elibrary.ru/defaultx.asp
6. Columbia International Affairs Online (CIAO) – Access mode: http://www.ciaonet.org/
7. Universal Databases East View. - Access mode: http://online.ebiblioteka.ru/
8. Full-text collection of Russian scientific journals –eLibrary.ru – Access mode: http://elibrary.ru/defaultx.asp?
9. Electronic library of the Grebennikov Publishing House». Grebennikon. – Access mode: http://grebennikon.ru/
10. International portal of electronic newspapers on socio-political topics. Library PressDisplay – Access mode: http://library.pressdisplay.com
11. Directories - sectoral and regional databases. Polpred.com. – Access mode: http://www.polpred.com/
12. On-line access to magazines. Information database on all branches of science and electronic delivery of documents. SwetsWise. – Access mode: https://www.swetswise.com
13. University of Chicago Press Journals: American Journal of Education. Comparative Education Review. – Access mode: http://www.journals.uchicago.edu/action/showJournals?type=byAlphabet
14. Books from Alpina Publishers. Current business literature. – Access mode: http://www.alpinabook.ru/books/online_biblioteka.php
15. Electronic library of literature on Russian history BIBLIOPHIKA – Access mode: http://www.bibliophika.ru/
16. Electronic library of dissertations of the RSL – Access mode: http://diss.rsl.ru/

electronic sources:

- www.kommersant.ru – сайт КоммерсантЪ
- www.rbc.ru – сайт РосБизнесКонсалтинг
- www.vedomosti.ru – сайт Ведомости
- www.Int-comp.org/careers/a-career-in–compliaence/ – сайт Международной ассоциации комплаенса

Educational and methodological materials for independent work of students when mastering a discipline/module:*

1. A course of lectures on the discipline “Digital Technologies in the Control System.”

2. Educational and methodological materials for students’ independent work are posted in accordance with the current procedure on the discipline page in the Telecommunication Educational Information System

8. ASSESSMENT TOOLKIT AND GRADING SYSTEM FOR COMPETENCES LEVEL EVALUATION

Digital Technologies in the Control System

Evaluation materials and a point-rating system* for assessing the level of development of competencies (part of competencies) based on the results of mastering the discipline "Digital Technologies in the Control System" are presented in the Appendix to this Work Programme of the discipline.

The implementation of the course includes interactive lectures, practical classes (seminars) using multimedia equipment, preparation of independent creative works and their subsequent presentations, testing, group discussions on the topics of the course, and modern knowledge control technologies.

While studying the discipline, the student must listen to a course of lectures, complete the number of seminars provided for in the work programme, independently study some of the course topics and confirm his knowledge during control events.

The student's job at the lecture is to understand the fundamentals of the discipline, briefly take notes on the material, and clarify issues that cause difficulties. Lecture notes are the basic teaching material along with the textbooks recommended in the main reading list.

The main part of the lecture material is taught using multimedia, which facilitates the perception and memorization of the material. Presentations are available for downloading from the RUDN website and can be freely used by students for educational purposes.

The student is required to master all the topics provided for in the curriculum of the discipline. Certain topics and training issues are submitted for independent study. The student studies the recommended literature and briefly outlines the material, and clarifies the most complex issues that require clarification during consultations. The same should be done with sections of the course that were skipped due to various circumstances.

For an in-depth study of the issue, the student must familiarize himself with the literature from the additional list and specialized websites on the Internet. It is also recommended that students communicate on professional community forums.

Students independently study educational, scientific and periodical literature. They have the opportunity to discuss what they have read with teachers of the discipline during scheduled consultations, with other students at seminars, as well as at lectures, asking clarifying questions to the lecturer.

The independent work of masters is monitored by the leading teacher. Depending on the teaching methodology, the following forms of ongoing monitoring can be used: a short oral or written survey before the start of classes, written homework, essays, etc.

8.1 List of competencies indicating the stages of their formation

№	***List of competencies formed by the discipline***	
1.	GC-1; GC-6; GPC-1; GPC-2; GPC-3; GPC-4; PC-2 PC-5	
2.	***Stages of developing competencies***	
	Name and content of the stage	*Code(s) of competencies generated at the stage*
	Stage 1: Formation of a knowledge base - lectures - practical classes on theoretical topics - independent work of students on topics of theoretical content	GC-1, GC-6,

	Stage 2: Formation of skills for the practical use of knowledge- practical tasks on collecting, grouping and summarizing information about the activities of an economic entity - seminars, practical classes - oral surveys - testing	GPC-1; GPC-2; GPC-3; GPC-4
	Stage 3: Checking your understanding of the material- анализ и assessment of the correctness of oral answers - analysis of activity at seminars and practical classes - testing current knowledge	PC-2, PC-5

8.2 Description of indicators and criteria for assessing competencies at various stages of their formation

3.	***Competency assessment indicators***	
	Stage 1: Formation of a knowledge base	- attending lectures and practical classes - taking lecture notes - completed independent assignments on theoretical issues
	Stage 2: Formation of skills for the practical use of knowledge	- correct and timely implementation of practical tasks for collecting, grouping and summarizing information about the activities of an economic entity
	Stage 3: Checking your understanding of the material	- the degree of activity and effectiveness of student participation based on the results of each practical lesson - successful completion of testing - correctness of oral answers - test
4.	***Criteria for evaluation***	
	Stage 1: Formation of a knowledge base	- attendance of at least 90% of lectures and practical classes - availability of lecture notes on all topics included in the lecture discussion - active participation in the discussion of theoretical issues during seminars - timely completion of tasks for independent work
	Stage 2: Formation of skills for the practical use of knowledge	- solved problems independently - the student is able to justify the solution presented to him for a practical task - the student is able to justify his point of view, relying on argumentation and logical arguments
	Stage 3: Checking your understanding of the material	- the student correctly selects arguments when answering oral questions - the student is able to justify his point of view, based on the results of the analysis during the seminar - test tasks are solved independently, within the allotted time, the result is above the threshold values

8.3 Description of rating scales

Certification of students in the Antitrust Compliance course is carried out using a point-rating system:
The maximum number of points is 100.
Number of credits – 4.
The maximum number of points for completing each type of work:
1. survey – 20 points
2. fulfillment of homework – 20 points
3. work in class – 20 points
4. report – 10 points
5. intermediate CD – 10 points
6. final CD – 20 points;

An ***unsatisfactory*** grade is given on the form F(2); FX(2+).

The F(2) grade is given if the student scores less than 30 points, the FX(2+) grade is 31-50 points. The FX(2+) grade provides an opportunity to retake the exam or test.

A ***satisfactory*** grade is given on Form E(3); D(3+). A grade of E(3) is given if the student scores between 51 and 60 points. Grade D(3+) – subject to 61-68 points.

The grade «***good***» is given in Form C(4) provided that the student scores 69-85 points.

The ***excellent*** grade is on Form B(5); A(5+). A grade of B(5) is assigned if the student scores 86-94 points and indicates that all required course requirements have been met. Grade A(5+) - 95-100 points is given not only if all requirements are met, but also with the obligatory manifestation of a creative attitude to the subject, the ability to find original answers not contained in textbooks, the ability to work with sources contained in additional literature course, the ability to combine the knowledge gained in this course with knowledge of other disciplines.

Point-rating system	Traditional assessments of the Russian Federation	Ratings ECTS
95 – 100	Excellent – 5	A (5+)
86 – 94		B (5)
69 – 85	Good – 4	C (4)
61 – 68	Satisfactory – 3	D (3+)
51 – 60		E (3)
31 – 50	Unsatisfactory – 2	FX (2+)
0 – 30		F (2)
51 - 100	Test	Passed

Practical classes in the discipline “Digital Technologies in the Control System” serve to consolidate and assimilate the theoretical material of lectures and independent work of students with educational literature, as well as for ongoing monitoring of students’ knowledge in the discipline. Practical classes include topics and tasks that require deep theoretical mastery of the material and its practical application. A group discussion of these topics by students together with the teacher should lead to an understanding of the systemic relationships between the analyzed processes and phenomena in strategic management. Reinforcement of theoretical material is carried out through economic and mathematical modeling of situational problems in microeconomics.

The main forms of conducting practical classes in the discipline “Digital Technologies in the Control System” should be considered:

- verbal survey;
- scientific discussion;
- report;
- written solutions to problems;
- written solutions to tests;
- independent work (flight);
- written test (during the study period).

Due to the limited time for conducting seminar classes, it is advisable to combine different forms of training and control during the seminar.

The implementation of the course includes interactive lectures, practical classes (seminars) using multimedia equipment, preparation of independent creative works and their subsequent presentations, testing, group discussions on the topics of the course, and modern knowledge control technologies.

While studying the discipline, the student must listen to a course of lectures, complete the

number of seminars provided for in the work programme, independently study some of the course topics and confirm his knowledge during control events.

The student's job at the lecture is to understand the fundamentals of the discipline, briefly take notes on the material, and clarify issues that cause difficulties. Lecture notes are the basic teaching material along with the textbooks recommended in the main reading list.

The main part of the lecture material is taught using multimedia, which facilitates the perception and memorization of the material. Presentations are available for downloading from the RUDN website and can be freely used by students for educational purposes.

The student is required to master all the topics provided for in the curriculum of the discipline. Certain topics and training issues are submitted for independent study. The student studies the recommended literature and briefly outlines the material, and clarifies the most complex issues that require clarification during consultations. The same should be done with sections of the course that were skipped due to various circumstances.

For an in-depth study of the issue, the student must familiarize himself with the literature from the additional list and specialized websites on the Internet. It is also recommended that students communicate on professional community forums.

Students independently study educational, scientific and periodical literature. They have the opportunity to discuss what they have read with teachers of the discipline during scheduled consultations, with other students at seminars, as well as at lectures, asking clarifying questions to the lecturer.

The independent work of masters is monitored by the leading teacher. Depending on the teaching methodology, the following forms of ongoing monitoring can be used: a short oral or written survey before the start of classes, written homework, essays, etc.

Approximate structure of a typical practical lesson:

1. Mass test of knowledge of definitions and formulas based on the material covered (last 1-2 lectures) using a written quiz for 5-10 minutes. on separate sheets.

(ensures 100% coverage of students in the group; stimulates the systematic development of formulas and definitions)

2. Checking written homework (problems and tests) with analysis on the board of the tasks that caused the greatest difficulty for 5-10 minutes. depending on the complexity. Grading.

(ensures students' interest in completing written homework and gaining practical problem-solving skills)

3. Oral survey on current material or 1 report within 10-20 minutes.

(in order to discuss the most complex theoretical issues and develop speaking skills)

4. Explanation of the methodology for solving problems and tests on a new topic by the teacher for 5-10 minutes.

(provides students with a new perspective on theoretical models of microeconomics, strengthens practical skills)

5. Independent solving of problems and tests on a new topic during the remaining time with analysis of the solution at the board.

(100% coverage of group students; mastering theoretical material while solving practical tasks; development of practical economic analysis skills; element of competition - who can solve it faster)

6. Summing up the seminar lesson: grading and handing out homework within 2-3 minutes.

Typical test tasks or other materials necessary for assessing knowledge, abilities, skills and (or) experience that characterize the stages of developing competencies in the process of mastering the educational programme

Sample questions on discipline topics

1. What are the general provisions of the “Digital Economy of the Russian Federation” programme?
2. What factors hinder the development of big data technologies?
3. Name the industries that are leaders in the use of industrial Internet technologies.
4. What, in your opinion, are the prospects for using neurotechnologies and artificial intelligence technologies to solve economic problems?
5. What indicators characterize the level of development of end-to-end digital technologies in a given subject area?
6. In which sectors of the economy is the implementation of blockchain technology effective?
7. How can virtual and augmented reality technologies be used in information systems of the digital economy?
8. What areas of development of digital technologies in a given subject area do you consider promising?

An approximate version of test tasks for the discipline

1. File is …
   1) data stored in external memory, occupying a named area;
   2) a logically connected set of data stored in external memory;
   3) a logically connected collection of data and programmes, for placement of which a named area is allocated in external memory.

1. Information systems... assignments solve the problems of information services for the administrative management apparatus and operate in all regions of the country.
   1) federal
   2) local
   3) global
   4) territorial
   5) municipal

3. The classification of information systems into systems of industry and agriculture, transport, communications, banking systems, etc. is a classification according to …:
   1) areas of operation of the economic entity
   2) type of management process
   3) the method of building an information system
   4) degree of automation of information processes
   5) level in the public administration system

4. Organizational management information systems are designed for automation …:
   1) functions of management personnel
   2) operational control and regulation
   3) sales management and planning
   4) various technological processes
   5) training of specialists
   6) corporate management functions

5. The corporate computer network of the enterprise provides …:
   1) resource administration
   2) organizing access to information on-line
   3) interaction with business systems of other organizations
   4) varied user interface
   5) decentralized management

6. What does the concept Information include?

1) information about objects and environmental phenomena, their parameters, properties, and condition.
2) information about the forms of presentation of information.
3) a set of actions for the production of a material product.
4) a set of actions aimed at achieving the goal.

7. What is the concept of Information Technology (IT)?

1) a system of methods and methods for collecting, transmitting, accumulating, processing, presenting and using information.
2) decision support system.
3) the method of presenting information to the client.
4) a system based on the use of artificial intelligence.

8. The purpose of information technology?

1) production of information for human analysis and decision-making based on it.
2) release of a material product that meets certain requirements.
3) accumulation of necessary information.
4) identify the causes of deviation without assessing the state of the control object

9. What is a digital technology toolkit?

1) one or more interrelated software products for a specific type of computer.
2) machines, equipment, tools, etc.
3) an integral technological system.
4) a system using computer information technology.

10. _____ technologies - the transformation of information into digital form, which in most cases leads to lower costs, the emergence of new opportunities, etc.

Tasks

Task 1

Solve the problems and report the resulting optimal solutions in a MS Word document: Determine the value of the net present value of the investment if the initial investment amount is 500,000, the investment period is 6 years, and the interest rate is 12, balance payments are 500,000 annually.

Task 2

Create a database (DB) to record payroll payments to the company's employees. The company's staff consists of 5 people: director, chief accountant, secretary, managers - 2 people. The payment system is time-based

Case meters

Case 1

The purpose of the information complex is to identify deviations from specified parameters, which will serve as risk indicators and the basis for conducting both scheduled and unscheduled inspections or other forms of control.

This system is an interactive map with color indication of zones depending on compliance with regulatory indicators at the facilities. For example, if the system detects violations, the problematic building is displayed in red; an agency specialist can go to the object’s page and immediately understand what regulations regulate these indicators - temperature in the apartment, electricity supply, air pollution. All violations are recorded and compiled into a special journal, where supervisory authorities can obtain the necessary information.

Think about how such a system can be used in the internal control of an enterprise. Justify your answer

Case 2

Informatization in the enterprise management system involves:

• creation of legal, economic, technological, social conditions so that the information necessary for solving management problems is available in the shortest possible time, at any point, to any potential user;

• creation of hardware and software, telecommunication systems that provide the formation of information resources and access to them, including storage, processing, transformation and transfer of information and knowledge;

• ensuring the priority development of structures that ensure the production and reproduction of information and knowledge;

• development and implementation of organizational and methodological foundations and programmes for the consistent, targeted and effective implementation of information technologies in the organization's management system.

Evaluate the advantages of using information (digital) technologies at the present stage. What role do they play in management, control, business? Justify your answer.

12.5 Methodological materials that define the procedures for assessing knowledge, abilities, skills and (or) operational experience that characterize the stages of competencies formation)

Assessment of knowledge, skills and abilities in an academic discipline is carried out through the use of the following types of assessment tools:

List of assessment tools

№	Name of the assessment tool	Brief description of the assessment tool	Presentation of the assessment tool in the fund
Classroom work			
1.	Survey	A means of control, organized as a special conversation between a teacher and a student on topics related to the discipline being studied, and designed to determine the amount of knowledge of the student in a certain section, topic, problem, etc.	Questions on discipline sections
2.	Test	A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills of a student	Database of test tasks
3.	Verification work	A tool for testing the ability to apply acquired knowledge to solve problems of a certain type on a topic or section. This is a written task completed within a given time (in classroom conditions - from 30 minutes to 2 hours).	A set of multi-level tasks and assignments, grouped by options
4.	Business game	The joint activity of a group of students under the guidance of a teacher in order to solve educational and professionally oriented problems through game modeling of a real problem situation. An assessment tool that allows you to evaluate the ability to analyze and solve typical professional problems.	Description of business games by topic

5.	Case meters	The use of problem-based tasks in which students are asked to comprehend a real, professionally oriented situation that contains the necessary but incomplete information to solve a given problem.	Base of tasks in the form of cases by topic
6.	Exam/Test	A procedure carried out according to established rules to assess the knowledge, skills, competencies of students in the Programme in any academic subject, module, etc.	A set of multi-level questions grouped by ticket options
Independent work			
7.	Doing homework	There are tasks and assignments: a) reproductive level, allowing to evaluate and diagnose knowledge of factual material (basic concepts, algorithms, facts) and the ability to correctly use special terms and concepts, recognition of objects of study within a certain section of the discipline; b) reconstructive level, allowing to evaluate and diagnose the ability to synthesize, analyze, generalize factual and theoretical material with the formulation of specific conclusions, establishing cause-and-effect relationships; c) creative level, allowing to evaluate and diagnose skills, integrate knowledge of various fields, and argue one's own point of view.	A set of multi-level tasks and assignments

Assessment criteria for the discipline

Ticket tasks	Contents of the answer	Points
Question 1/ Question 2	detailed, comprehensive correct answer to the question posed is given. Definitions, examples, graphs, formulas are provided. Comprehensive answers to additional questions regarding the content of the answer are given.	9-10 points/for answer to 1 question
	A concise correct answer to the question is given. Definitions, examples, graphs, formulas are not given in full.	5-8 points/for answering 1 question
	The answer is given at the level of definitions and general reasoning. The economic essence of the categories is not disclosed.	3-4 points/for answer to 1 question
	Definitions are given	1-2 points/for answer to 1 question

Question 3: practical task	The problem was solved correctly (the correct answer was received), a detailed solution was provided	9-10 points
	The problem was solved incorrectly (an error in the calculations, there is no correct answer), but the solution is correct	7-8 points
	The problem was solved correctly (the correct answer was given), but the solution process was incompletely described	4-6 points
	The correct answer is given without describing the solution process	1-3 points

Evaluating the results of oral surveys in practical classes, seminars and exams

The level of knowledge is determined by the grades "***excellent***", "***good***", "***satisfactory***", "***unsatisfactory***".

"**Excellen**t" rating - the student demonstrates complete and deep knowledge of the programme material, logically and reasonably answers the question posed, as well as additional questions, shows a high level of theoretical knowledge.

Rating "**good**" - the student demonstrates deep knowledge of the programme material, presents it competently, answers the question posed and additional questions quite fully, and skillfully formulates conclusions. At the same time, when answering, he allows minor errors.

Rating "**satisfactory**" - the student shows sufficient, but not deep knowledge of the programme material; When answering, he does not make gross mistakes or contradictions, but in formulating the answer there is no proper connection between analysis, argumentation and conclusions. To get the correct answer, clarifying questions are required.

Rating "**unsatisfactory**" - the student shows insufficient knowledge of the programme material, is not able to present it in a reasoned and consistent manner, makes gross mistakes in answers, incorrectly answers the question posed or finds it difficult to answer.

Evaluation of testing results during ongoing monitoring

"**excellen**t" - 76-100% correct answers;

"**good**" - 51-75% of correct answers;

"**satisfactory**" - 35-50% of correct answers;

"**unsatisfactory**" - 34% or less correct answers.

Approximate list of questions for testing with assessment

1. Basic concepts and definitions of information technologies.
2. Classification of information technologies according to the degree of coverage of management tasks.
3. The need to standardize technological processes for processing economic information.
4. Describe the operations that are included in the basic technological process.
5. Calculation of the economic effect from the introduction of information technologies.
6. Direct and indirect economic effect from the introduction of information technology in an organization.
7. List and briefly describe the complex of technical support for the IS.

8. Purpose of database management systems (DBMS).
9. Creating a database table structure.
10. Types of relationships between tables. Working with multiple tables.
11. The concept of “information”. Relationship between information and document. The role of information in social and economic processes.
12. Describe the “file-server” and “client-server” concepts of distributed data processing.
13. Information technologies in control: analog and digital.
14. Digital provision of information.
15. Advanced digital technologies.
16. Advantages of digital technologies.
17. Risks to which information systems are exposed.
18. New possibilities of information systems in management.
19. Responsibility of employees.
20. Security of information systems. The basis of new information technology.
21. Concepts of new information technology.
22. Automation of risk assessment procedures in information systems.
23. Practice of using modern technological solutions in enterprise management.
24. Automation of control and monitoring of business processes and financial data.
25. Protection of personal data, proprietary and confidential information of enterprises.
26. Qualification requirements for personnel.
27. Methods of financial protection.
28. Securitization.

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