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ФИО: Максимов Алексей Борисович
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MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

FEDERAL STATE AUTONOMOUS EDUCATIONAL INSTITUTION OF HIGHER EDUCATION

"MOSCOW POLYTECHNIC UNIVERSITY"
(MOSCOW POLYTECHNIC UNIVERSITY)

Faculty of Economics and Management

APPROVED BY
FEU Dean
/A. V. Nazarenko/
«27» February 2025

WORKING PROGRAM OF THE DISCIPLINE

«Digital literacy»

Direction of training/specialty
38.03.01 Economy

Profile/specialization
International business and foreign economic

Qualification
bachelor

Forms of study
full-time

Moscow, 2025

Developer(s):

Senior Lecturer of the Department
"Informatics and information technology"  A.M. Demidova

Agreed:
Head of Department
"Informatics and information technology",
Ph.D.  E.V. Bulatnikov

1. List of planned results of studying the discipline, correlated with the planned results of mastering educational program

As part of mastering the main professional educational program of the bachelor's degree, the student must master the following learning outcomes in the discipline Digital Literacy:

Direction of training	Code computer-Tensions	Name of competence	Achievement indicators competencies
13.03.01 Thermal power engineering and heat engineering 13.03.02 Electric power and electrical engineering 13.03.03 Power engineering	OPK-1	Able to understand the principles of operation of modern information technologies and use them to solve problems professional activities	IOPK-1. Knows the basics informational technologies IOPK-2. Able to perform practical work on setting up a computer techniques IOPK-3. Owns skills to work with application software provision
08.03.01 Construction	OPK-2		
01.03.02 Applied Mathematics and Computer Science 11.03.01 Radio Engineering 15.03.01 Mechanical engineering 03/15/03 Applied Mechanics 03/15/04 Automation of technological processes and production 20.03.01 Technosphere safety 23.03.03 Operation of transport and technological machines and complexes 03.29.03 Technology of printing and packaging production 03.29.04 Technology of artistic processing of materials	OPK-4		
03/16/03 Refrigeration, cryogenic equipment and life support systems	OPK-5		
15.03.05 Design and technological support for mechanical engineering production 38.03.01 Economics 38.03.02 Management 38.03.03 Personnel Management 42.03.01 Advertising and Public Relations	OPK-6		

42.03.02 Journalism 42.03.03 Publishing 54.03.01 Design			
27.03.02 Quality Management 03/27/05 Innovation	OPK-7		
22.03.01 Materials Science and Materials Technology 22.03.02 Metallurgy	OPK-8		
03.27.01 Standardization and metrology	OPK-9		
03/27/04 Management in technical systems	OPK-11		
03/19/01 Biotechnology	OPK-2	Capable of searching, storing, processing and analyzing professional information from various sources and databases, presenting it in the required format using information, computer and network technologies, including calculations and modeling, taking into account the basic requirements of information security	

2. The place of the discipline in the structure of the OPEP

The academic discipline Digital Literacy is a mandatory part of cycle B.1 “Disciplines (modules)”.

3. The volume of the discipline in credit units indicating the number of academic hours allocated for contact work of students with the teacher (by type classes) and for independent work of students

The total workload (volume) of the Digital Literacy discipline is 2 credit units.

Volume of discipline by types of classes (in hours)
full-time education

Type of academic work	Total hours	Semesters 1
Classroom lessons (total)	**32**	32
Including:	-	-
Lectures	16	16
Practical classes (PZ)	16	16
Seminars (C)	-	-
Laboratory work (LW)	-	-
Independent work (total)	**40**	40
Including:		
Preparation for practical classes	20	20
Testing	20	20
Type of intermediate assessment – credit	**-**	-
Total labor intensity hours / credit unit	**72/2**	72/2

part-time education

Type of academic work	Total hours	Semesters 1
Classroom lessons (total)	**14**	14
Including:	-	-
Lectures	6	6
Practical classes (PZ)	8	8
Seminars (C)	-	-
Laboratory work (LW)	-	-
Independent work (total)	**58**	58
Including:		
Preparation for practical classes	38	38
Testing	20	20
Type of intermediate assessment – credit	**-**	-
Total labor intensity hours / credit unit	**72/2**	72/2

4. Contents of the discipline

4.1. Sections of the discipline and labor intensity by types of classes

full-time education

No. p/p	Section/Topic disciplines	General labor intensity	Types of educational activities, including independent work of students, hours	
			Contact work	

		Total	lectures	practical classes	Independent-work students
1.	Story informational technologies	4	1	1	2
2.	Hardware components of a modern computer	8	1	1	6
3.	Peripheral devices	8	1	1	6
4.	Modern operating systems	8	2	2	4
5.	Web technologies in in the modern world	8	2	2	4
6.	Mobile systems	8	2	2	4
7.	Alternative office software	8	2	2	4
8.	Multimedia	8	2	2	4
9.	Cybersecurity	8	2	2	4
10.	Future informational technologies	4	1	1	2
Total		**72**	**16**	**16**	**40**
Credit		**-**	**-**	**-**	**-**
Total		**72**	**16**	**16**	**40**

part-time education

No. p/p	Section/Topic disciplines	General labor intensity	Types of educational activities, including independent work of students, hours		
			Contact work		Independent-work students
		Total	lectures	practical classes	
1.	Story informational technologies	6	-	-	6

No. p/p	Section/Topic disciplines	General labor intensity	Types of educational activities, including independent work of students, hours		
			Contact work		Independent-work students
		Total	lectures	practical classes	
2.	Hardware components of a modern computer	8	1	1	6
3.	Peripheral devices	7	-	1	6
4.	Modern operating systems	8	1	1	6
5.	Web technologies in in the modern world	8	1	1	6

6.	Mobile systems	8	1	1	6
7.	Alternative office software	8	1	1	6
8.	Multimedia	8	1	1	6
9.	Cybersecurity	7	-	1	6
10.	Future informational technologies	4	-	-	4
Total		**72**	**6**	**8**	**58**
Credit		**-**	**-**	**-**	**-**
Total		**72**	**6**	**8**	**58**

4.2. Contents of discipline sections

Topic 1. History of information technology

• history of information technology before computers;
• the structure and generations of computers;
• development of programming languages and technologies;
• the emergence and development of individual information technologies.

Topic 2. Hardware components of a modern computer

• components of a computer/laptop, their characteristics;
• connectors on the motherboard, their purpose;
• principles of selecting hardware components;
• reasons for overheating and malfunction, ways to eliminate them;
• additional resources for comparing different characteristics.

Topic 3. Peripheral devices

• monitors, keyboard, mouse, their characteristics;
• devices for scanning and printing, their characteristics;
• the concept of drivers, their purpose and installation;
• network equipment, basic principles of installation and configuration;
• USB hubs.

Topic 4. Modern operating systems.

• overview of the Windows operating system;
• overview of the MacOS operating system;
• general information about the Linux family;
• installation and configuration of AstraLinux;
• general principles of working with AstraLinux.

Topic 5. Web technologies in the modern world

• understanding the principles of operation of modern websites, errors that arise and ways to eliminate them;
• cloud solutions as the basis of modern business;
• online tools for working with documents, photos and videos;
• the concept of VPN and its purpose.

Topic 6. Mobile systems

• mobile operating systems, their features, advantages and disadvantages;

• main characteristics of smartphones;
• smartphone app stores;
• smartphone setup;
• review of useful software for smartphones (office, audio, video).

Topic 7. Alternative office software
• review of free alternatives to Microsoft Office;
• introduction to OnlyOffice;
• working with text documents in OnlyOffice;
• working with spreadsheet documents in OnlyOffice;
• working with presentations in OnlyOffice.

Topic 8. Multimedia
• familiarization with multimedia content, its types and purposes;
• free software for preparing multimedia content;
• the art of creating presentations.

Topic 9. Cybersecurity
• the concept of viruses and the fight against them;
• social engineering and counteraction to it;
• practice of working with passwords and two-factor authentication;
• Internet security.

Topic 10. The Future of Information Technology
• stages of development of information technologies;
• classification of information technologies;
• the most promising areas of information technology:
- IT in the social sphere, medicine; machine
- learning, robotics; augmented and virtual reality
- technologies; cloud technologies.
-

4.3. Topics of practical/laboratory classes

Practical lesson 1. Testing on the topic "History of information technology". Practical lesson 2. Testing on the topic "Hardware component of a modern computer".

Practical lesson 3. Testing on the topic "Peripheral devices". Practical lesson 4. Testing on the topic "Modern operating systems". Practical lesson 5. Testing on the topic "Web technologies in the modern world". Practical lesson 6. Testing on the topic "Mobile systems".
Practical lesson 7. Testing on the topic “Alternative office software”.

Practical lesson 8. Testing on the topic "Multimedia". Practical lesson 9. Testing on the topic "Cybersecurity".
Practical lesson 10. Testing on the topic “The Future of Information Technology”.

5. Educational, methodological and informational support of the discipline

5.1. Primary literature

1. Fundamentals of cybersecurity. Standards, concepts, methods and means of ensuring / A. I. Belous, V. A. Solodukha. - Moscow: Tekhnosfera, 2021. - 482 p. - ISBN 978-5-94836-612-8. - Text: electronic // Digital educational resource IPR SMART: [site]. - URL: https://www.iprbookshop.ru/108023.html

2. Modern operating systems [Electronic resource]: a tutorial / Nazarov S.V., Shirokov A.I. - Electronic text data. - M .: Internet University of Information Technologies (INTUIT), IPR Media, 2024. - 351 p. - Access mode: https://ipr-smart.ru/133980. - IPR SMART

3. Application software. MS Word and Excel: a tutorial / S. V. Samoylova, S. V. Samoylova. - Moscow: IPR Media, 2023. - 95 p. - ISBN 978-5-4497-1992-8. - Text: electronic // Digital educational resource IPR SMART: [site]. - URL: https://www.iprbookshop.ru/126618.html
4. Information security and information protection: a textbook / A. P. Martynov, I. A. Martynova, A. A. Rusakov. - 2nd ed. - Moscow: IPR Media, 2024. - 130 p. — ISBN 978-5-4497-2349-9. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: https://www.iprbookshop.ru/134185.html

5.2. Further reading

5. Basics of working in Photoshop: a tutorial / . - 3rd ed. - Moscow: Internet University of Information Technologies (INTUIT), IP R Media, 2021. - 1380 p. — ISBN 978-5-4497-0896-0. — Text: electronic // Digital educational resource IPR SMART: [site]. — URL: https://www.iprbookshop.ru/102034.html
6. Morgunov, A. V. Management of Web Technologies, Services and Content: a tutorial / A. V. Morgunov. - Novosibirsk: Siberian State University of Telecommunications and Informatics, 2021. - 88 p. - Text: electronic // Digital educational resource IPR SMART: [site]. - URL: https://www.iprbookshop.ru/125280.html

7. Fundamentals of information security in modern information systems: a tutorial / N. Yu. Babanov, A. A. Evstifeev, A. P. Martynov [et al.]. - Sarov: Russian Federal Nuclear Center - VNIIEF, 2022. - 175 p. - ISBN 978-5-9515-0491-3. - Text: electronic // Digital educational resource IPR SMART: [site]. - URL: https://www.iprbookshop.ru/132622.html

5.3. Licensed and freely distributed software

1. Licensed software: Microsoft Windows 11, Microsoft Office (under the free access program Microsoft Imagine).

5.4. Modern professional databases and information reference systems

1. Reference and legal system "ConsultantPlus: Non-commercial Internet version" https://www.consultant.ru/online/
2. Official Internet portal of legal informationhttp://pravo.gov.ru
3. Russian National Library http://www.nlr.ru
4. EBS “IPR” https://www.iprbookshop.ru/
5. Onewindow of access to educational resources Federal portal http://window.edu.ru
6. Scientific electronic libraryhttp://www.elibrary.ru
7. Russian State Libraryhttp://www.rsl.ru

5.5. Electronic educational resources https://online.mospolytech.ru/course/view.php?id=10358

6. Material and technical support of discipline

1. Computer classrooms with equipment: tables, chairs, whiteboard, use of a portable multimedia complex (portable projector, personal laptop). Personal computers, monitors, mice, keyboards. Teacher's workplace: table, chair.

2. Audience for independent work.
3. Library, reading room.

7. Methodological recommendations for organizing the study of the discipline

7.1. Methodological recommendations for the teacher

This section of this work program is intended for beginning teachers and practicing specialists who do not have teaching experience.

The methodology for teaching the Digital Literacy discipline and the implementation of a competency-based approach to the presentation and perception of material involves the use of an online course in the University's distance learning system, group and individual consultations with students in order to form and develop general professional skills.

The detailed content of individual sections of the Digital Literacy discipline is discussed in paragraph 4.2 of the work program.

Variants of test assignments for current and intermediate control in the discipline are presented in the composition of the FOS for the discipline in paragraph 8 of this work program.

The list of primary and secondary literature, databases and information reference systems required during the teaching of the Digital Literacy discipline is given in paragraph 5 of this work program.

7.2. Methodological instructions for students

Acquiring in-depth knowledge of the discipline is achieved through active independent work of students. It is advisable to use the allocated hours to get acquainted with educational and scientific literature on the problems of the discipline, and to analyze scientific concepts.

Midterm assessment of students in the form of a credit is carried out based on the results of completing all types of academic work provided for by the curriculum for a given discipline (module), taking into account the results of current monitoring of academic performance during the semester. The assessment of the degree of achievement of planned learning outcomes by students in a discipline is carried out by the teacher conducting classes in the discipline using the expert assessment method. Based on the results of midterm assessment in a discipline, a grade of "passed" or "not passed" is given.

Only students who have completed all types of academic work stipulated by the work program for the Digital Literacy discipline are admitted to the midterm assessment.

8. Fund of assessment tools for the discipline

8.1. List of competencies indicating the stages of their formation in the process mastering the discipline. Forms of control over the formation of competencies

Code directions preparations	Code computer-Tensions	Name competencies	Indicators achievements competencies	Form control	Stages formed nia (sections disciplines)
13.03.01 13.03.02 13.03.03	OPK-1	Able to understand principles of operation modern informational technologies and use them for problem solving professional activities	IOPK-1. Knows Basics informational technologies IOPK-2. Can do it fulfill practical work on setting up computer techniques IOPK-3. Owns work skills	Intermediate ny control: credit Current control: testing	Topics 1-10
08.03.01	OPK-2				
01.03.02 11.03.01 15.03.01 15.03.03 15.03.04 20.03.01 23.03.03 29.03.03 29.03.04	OPK-4				
16.03.03	OPK-5				

15.03.05 38.03.01 38.03.02 38.03.03 42.03.01 42.03.02 42.03.03 54.03.01	OPK-6		with applied software provision		
27.03.02 27.03.05	OPK-7				
22.03.01 22.03.02	OPK-8				
27.03.01	OPK-9				
27.03.04	OPK-11				
19.03.01	OPK-2	Capable realize search, storage, processing and analysis professional information from various sources and bases data, represent her in required format with using informational, computer and network technologies, including carrying out calculations and modeling, with taking into account the main requirements informational security			

8.2. Indicators and criteria for assessing competencies in the study of the discipline, description of rating scales

8.2.1. Criteria for assessing the answer during the test

(development of competence, indicators of IOPK-1, IOPK-2, IOPK-3)

"passed":

the student demonstrates systematic theoretical knowledge, practical skills, is familiar with the terms, makes reasoned conclusions and generalizations, gives examples, demonstrates fluency in monologue speech and the ability to quickly respond to clarifying questions.

the student demonstrates solid theoretical knowledge, practical skills, is familiar with the terms, makes reasoned conclusions and generalizations, gives examples,

demonstrates fluency in monologue speech, but at the same time makes minor mistakes, which he quickly corrects independently or with minor correction from the teacher.

the student demonstrates shallow theoretical knowledge, displays poorly developed skills in analyzing phenomena and processes, insufficient ability to draw reasoned conclusions and give examples, demonstrates insufficient fluency in monologue speech, terminology, logic and consistency of presentation, makes mistakes that can only be corrected with correction by the teacher.

"not credited":

the student demonstrates ignorance of the theoretical foundations of the subject, lack of practical skills, is unable to make reasoned conclusions and give examples, demonstrates poor command of monologue speech, does not know the terms, demonstrates a lack of logic and consistency in presentation, makes mistakes that cannot be corrected even with correction by the teacher, refuses to answer additional questions.

8.2.2. Criteria for assessing the student's work in practical classes

(development of competence, indicators of IOPK-1, IOPK-2, IOPK-3)

"5" (excellent):all practical tasks provided have been completed practical classes, the student answered all test questions clearly and without errors, and worked actively during practical classes.

"4" (good):all practical tasks provided for by the practical classes, the student answered all the test questions with corrective comments from the teacher, and worked quite actively in practical classes.

"3" (satisfactory):all practical tasks provided have been completed practical classes with comments from the teacher; the student answered all test questions with comments.

"2" (unsatisfactory):the student did not complete it or completed it incorrectly practical tasks provided for by practical classes; the student answered the test questions with errors or did not answer the test questions.

8.2.3. Testing evaluation criteria

(development of competence, indicators IOPK-1, IOPK-2, IOPK-3) Testing is assessed in accordance with the percentage of correct answers given by the student to the test questions.

Standard scale of compliance of test results with the assigned score:

- "excellent" - over 85% correct answers; "good" - from
- 70.1% to 85% correct answers; "satisfactory" - from 55.1%
- to 70% correct answers; from 0 to 55% correct answers -
- "unsatisfactory"

"5" (excellent):the test taker demonstrates systematic theoretical knowledge, possesses terms and has the ability to quickly respond to test questions.

"4" (good):the test taker generally demonstrates systematic theoretical knowledge, has a command of most of the terms and has the ability to respond quickly to test questions.

"3" (satisfactory):the test taker has systemic theoretical knowledge are absent, he knows some terms and responds to test questions rather slowly.

"2" (unsatisfactory):the test taker has systemic theoretical knowledge are absent, he does not know the terminology and responds slowly to test questions.

8.2.4. Final compliance of the rating scale and levels development of competencies in the discipline:

Level formation competencies	Grade	Explanation
High	passed	All types of educational work provided for have been completed educational plan. The student demonstrates correspondence knowledge, skills, and abilities declared to indicators, free operates acquired knowledge, skills, skills and applies them in situations of increased complexity.
Average	passed	All types of educational work provided for have been completed educational plan. The student demonstrates knowledge, skills, correspondence abilities to indicators, operates with the acquired knowledge, skills, abilities. At the same time, minor errors, inaccuracies, difficulties in analytical operations, transfer of knowledge and skills to new, non-standard situations may be allowed.
Satisfy-telny	passed	All types of educational work provided for have been completed educational plan. The learner demonstrates knowledge, skills, correspondence abilities indicators, operates the acquired declared knowledge, skills, abilities. At the same time, the learner makes mistakes and experiences difficulties when applying skills in new situations.
Dissatisfied telny	not credited	One or more types of educational work provided for by the curriculum have not been completed. The student demonstrates incomplete compliance of knowledge, skills, abilities with the declared indicators and makes significant errors in operating knowledge and skills and applying acquired skills in standard situations

8.3. Methodological materials (standard control tasks) defining learning outcomes in the discipline, correlated with achievement indicators

8.3.1. Current control (work in practical classes) (development of competence, indicators IOPK-1, IOPK-2, IOPK-3) Example of a current control assignment:

1. A network card is needed for...

+ : connections to a computer network
- : processing of graphic objects
- : storing information
- : analog signal conversion

2. The first mass programming language is ...

- : C++
- : Scala
- : Java
- : Kotlin
+ : Fortran

3.....this is a new format of communication with consumers

+ : multimedia content
- : presentations
- : website
- : performances

4. The main tool of this technology is a personal computer (PC) with a set of software for performing tasks of various purposes

- : Mechanical IT (from the end of the 19th century to the present day)
+ : Computer IT (1980s to present)
- : Manual IT (from ancient times to the second half of the 19th century)
- : Electrical IT (1940s to 1960s)

5. In 2014, Facebook acquired Oculus VR for $2 billion, and this year it also launched a social network with .... and VR interaction capabilities

+ : 3D avatars
- : the ability to simulate entire lives
- : neurosensitive suits
- : games

8.3.3. Intermediate control (credit)

(development of competence, indicators IOPK-1, IOPK-2, IOPK-3) The test is conducted in the form of computer testing.

Example of a test task for credit:

1. _____technologies – processes that use a set of means and methods of collection, processing, accumulation and transmission of data

- : Software
+ : Information
- : Educational
- : Computer

2. A compiler is...

- : a set of instructions for a specific performer
+ : "translators" of programs created in high-level languages into "low-level" ones
- : a set of instructions for all performers
- : "translators" of programs created in "low-level" languages into high-level languages

3. Invented a fully automated weaving loom, which in 1804 was capable of reproducing the most complex patterns.

- : Leibniz
- : Pascal
- : da Vinci
+ : Jacquard

4. The company... created the first microprocessor.

- : Asus
- : DFI
- : MSI
- : IBM
+ : Intel

5---------- images embossed or painted on a stone base

- : Hieroglyphs
- : Geoglyphs
+ : Petroglyphs
- : Phonoglyphs

6. Select the possible reasons for the 503 Service Temporarily Unavailable error:
+ : large number of requests to the server
+ : scripts hang when transferring large static files via PHP
- : Incorrect instruction in .htaccess file
- : The file requested by the URL is not present on the server

7. The advantages of using a VPN include:
+ : anonymity on the network
+ : data protection
- : protection from unverified sites
+ : bypass internet provider restrictions
- : Reduce network latency (ping)
- : increase network throughput

8. Code type 5xx (xx is a combination of any numbers) indicates that:
- : request successfully forwarded
- : request completed successfully
- : A critical error occurred on the client side
+ : A critical error occurred on the server side

9. What does 404 Not Found error mean?
- : The server cannot fulfill the request because access to the requested files is denied.
+ : The server cannot find the data requested by the user.
- : The request resulted in an invalid response from the server.
- : The server has an internal error.

10. Select the possible IP address of the computer from the listed options:
- : 772813
- : cl.do.bs.a
+ : 77.28.1.3
- : vedomir.info