MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

"Moscow Polytechnic University"

APPROVE
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"_16_" _____02_____ 2023

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"_____" _____02_____ 2023

WORKING PROGRAM OF THE DISCIPLINE

"Digital literacy"

Field of study
38.03.02 Management

Educational program (profile)
"Business Process Management"

Qualification (degree)
Bachelor

Form of study
Half-time

Moscow 2023

Developer(s):

senior lecturer of the department
"Informatics and information technologies"  A.M. Demidova

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

Content

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

As part of the development of 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	Competency code	Name of competence	Competence achievement indicators
13.03.01 Thermal power engineering and heat engineering 13.03.02 Power industry and electrical engineering 13.03.03 Power Engineering	OPK-1	OPK-5 Capable of using when solving professional tasks modern information technology and software tools, including large array management data and their intellectual analysis	IOPK-5.1. Knows modern methods of use information technology and software, including the management of large datasets and their intellectual analysis. IOPK-5.2. Able to use when solving professional tasks modern information technology and software tools, including management of large arrays data and their intellectual analysis. IOPK-5.3. Has the skills to use solving professional problems of modern information technology and software, including the management of large datasets and their intellectual analysis. Capable of using when solving professional tasks modern
08.03.01 Construction	OPK-2		
01.03.02 Applied mathematics and informatics 11.03.01 Radio engineering 15.03.01 Mechanical engineering 15.03.03 applied mechanics 15.03.04 Automation of technological processes and production 20.03.01 Technosphere safety 23.03.03 Operation of transport and technological machines and complexes 29.03.03 Technology of printing and packaging production 29.03.04 Technology of artistic processing of materials	OPK-4		
15.03.05 Design and technological support of machine-building industries 38.03.01 Economy 38.03.02 Management 38.03.03 Personnel Management 42.03.01 Advertising and public relations 42.03.02 Journalism 42.03.03 Publishing	OPK-5. OPK-6	OPK-6 Able to understand the principles of operation of modern information technologies and use them to solve problems of professional activity	IOPK-6.1. Knows the basics of information technology IOPK-6.2. Able to perform practical work on setting up computer equipment IOPK-6.3. Proficient in application software

54.03.01 Design			
27.03.02 Quality management 27.03.05 Innovation	OPK-7		
22.03.01 Materials Science and Technology 22.03.02 Metallurgy	OPK-8		
27.03.01 Standardization and metrology	OPK-9		
27.03.04 Control in technical systems	OPK-11		
19.03.01 Biotechnology	OPK-2	Able to search, store, process and analyze professional information from various sources and databases, present it in the required format With using information, computer and network technologies, including calculations and modeling, taking into account the main information security requirements	

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

The academic discipline Digital Literacy refers to the mandatory part of cycle B.1 "Disciplines (modules)".

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

The total labor intensity (volume) of the discipline Digital literacy is 2 credit units.

The volume of discipline by type of training sessions (in hours) half-time education

Type of study work	Total hours	Semesters
		1
Classroom activities (total)	**14**	14
Including:	-	-
Lectures	4	4
Practical exercises (PZ)	10	10
Seminars (C)	-	-
Laboratory work (LR)	-	-
Independent work (total)	**58**	58
Including:		-
Preparation for practical exercises	36	36
Testing	22	22
Type of intermediate certification - pass	-	-
Total labor intensity hour / credit. units	**72**	72

4. The content of the discipline

4.1. Sections of the discipline and labor intensity by type of training sessions half-time education

No. p/p	Section / topic of discipline	General labor intensity	Types of training sessions, including independent work of students, hour		
			contact work		self-student work
		Total	lectures	practical lessons	
1.	History of information technology	4	-	1	3

No. p / p	Section / topic of discipline	General labor intensity	Types of training sessions, including independent work of students, hour		
			contact work		Independent work students
		Total	lectures	practical classes	
2.	Hardware component modern computer	8	1	1	8
3.	Peripheral devices	8		1	6
4.	Modern OS	8	1	1	6
5.	Web technologies in modern world	8		1	6
6.	Mobile systems	8	1	1	6
7.	Alternative office softwaresecurity	8		1	6
8.	Multimedia	8	1	1	6
9.	cyber security	8		1	6
10.	Future informationtechnol ogies	4	-	1	5
Total		**72**	**4**	**10**	**58**
offset		**-**	**-**	**-**	**-**
Total		**72**	**4**	**10**	**58**

4.2. The content of the sections of the discipline

Topic 1. History of information technology
- history of information technologies before computers;
- device and generation of computers;
- development of programming languages and technologies;
- the emergence and development of individual information technologies.

Topic 2. The hardware component of a modern computer
- components of a computer / laptop, their characteristics;
- connectors on the motherboard, their purpose;
- principles for choosing a hardware component;
- causes of overheating and malfunction, ways to eliminate them;
- additional resources to compare different characteristics.

Topic 3. Peripherals
- 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.
- an overview of the Windows operating system;
- an 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 of the principles of operation of modern sites, errors that occur and ways to eliminate them;
- cloud solutions as the basis of modern business;
- online tools for working with documents, photos and videos;
- concept of VPN and its purpose.

Topic 6. Mobile systems

- mobile operating systems, their features, advantages and disadvantages;
- main characteristics of smartphones;
- app stores for smartphones;
- smartphone setup;
- review of useful software for smartphones (office, audio, video).

Topic 7. Alternative office software

- review of free alternatives to Microsoft Office;
- familiarity with OnlyOffice;
- work with text documents in OnlyOffice;
- work with spreadsheet documents in OnlyOffice;
- working with presentations in OnlyOffice.

Topic 8. Multimedia

- familiarity with multimedia content, its types and purpose;
- free software for preparing multimedia content;
- the art of making presentations.

Topic 9. Cybersecurity

- the concept of viruses and the fight against them;
- social engineering and opposition to it;
- the practice of working with passwords and two-factor authorization;
- security on the Internet.

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-methodical and information support of the discipline

5.1. Main literature

1. Fundamentals of cybersecurity: standards, concepts, methods and means of support / A. I. Belous, V. A. Solodukha. - Moscow: Technosphere, 2021. - 482 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=617523
2. Operating systems, environments and shells: workshop: textbook / G. N. Isaeva, N. P. Sidorova; University of Technology. - Moscow: Direct-Media, 2022. - 51 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=693549
3. Informatics: settlement and graphic works: textbook / A. I. Kolokolnikova. - Moscow ; Berlin: Direct-Media, 2021. – 345 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=611664
4. Information security and information protection: theory and practice: textbook / Ishcheinov V. Ya. - Moscow, Berlin: Direct-Media, 2020 - 271 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book_red&id=571485

5.2. Additional literature

5. Informatics: textbook / E. N. Guseva, I. Yu. Efimova, R. I. Korobkov [and others]. – 5th ed., erased. - Moscow: FLINTA, 2021. - 260 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=83542
6. Art informatics: textbook / I. A. Nagaeva. - 2nd ed., corrected. and additional - Moscow ; Berlin: Direct-Media, 2021. – 370 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=601327
7. Management of Web technologies, services and content: textbook / A. V. Morgunov. - Novosibirsk: Siberian State University of Telecommunications and Informatics, 2021. - 88 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=694777
8. Information security systems in leading foreign countries: textbook / V. I. Averchenkov, M. Yu. Rytov, G. V. Kondrashin, M. V. Rudanovsky; scientific ed. V. I. AVERCHENKOV - 5th ed., Sr. - Moscow: FLINTA, 2021. - 224 p. – [Electronic resource] URL:https://biblioclub.ru/index.php?page=book&id=93351

5.3. Electronic educational resources

Electronic educational resource on the discipline is being developed.

5.4. Licensed and Free Software

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

5.5. 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 information http://pravo.gov.ru
3. Russian National Library http://www.nlr.ru
4. ELS "University Library Online" https://biblioclub.ru/index.php
5. Federal portal http://window.edu.ru
6. Scientific electronic library http://www.elibrary.ru
7. Russian State Library http://www.rsl.ru

6. Logistics of discipline

1. Computer classes with equipment: tables, chairs, classroom board, 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. Guidelines for organizing the study of the discipline

7.1. Methodological recommendations for the teacher

This section of this work program is intended for novice teachers and practitioners with no

previous teaching experience.

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

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

Variants of test tasks for current and intermediate control in the discipline are presented as part of the FOS for the discipline in clause 8 of this work program.

The list of basic and additional literature, databases and information reference systems necessary in the course of teaching the discipline Digital Literacy is given in clause 5 of this work program.

7.2. Methodological instructions for students

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

Intermediate attestation of students in the form of a test is carried out based on the results of the implementation of all types of educational work provided for by the curriculum for a given discipline (module), while taking into account the results of current monitoring of progress during the semester. The assessment of the degree of achievement by students of the planned learning outcomes in the discipline is carried out by the teacher conducting classes in the discipline by the method of expert assessment. Based on the results of the intermediate attestation in the discipline, the mark "passed" or "not passed" is set.

Only students who have completed all types of educational work provided for by the work program in the discipline Digital Literacy are allowed to interim certification.

8. Fund of evaluation funds by discipline

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

Code of direction of training	Competency code	Name of competence	Competence achievement indicators	form of control	Stages of formation niya (sections of the discipline)
13.03.01 13.03.02 13.03.03	OPK-1	Able to understand the principles of operation of modern information technologies and use them to solve problems of professional activity	IOPK-1. Knows basics information technologies IOPK-2. Can fulfill practical work on setting up a computer technology IOPK-3. owns work skills with applied programmatic	Intermediate ny control:of fset 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 03/29/03 03/29/04	OPK-4				
15.03.05 38.03.01 38.03.02 38.03.03 42.03.01	OPK-6				

42.03.02 42.03.03 54.03.01			providing		
27.03.02	OPK-7				
27.03.05			IOPK-5.1. Knows modern methods of use information technology and software, including the management of large datasets and their intellectual analysis. IOPK-5.2. Able to use when solving professional tasks modern information technology and software tools, including management of large arrays data and their intellectual analysis. IOPK-5.3. Has the skills to use solving professional problems of modern information technology and software, including the management of large datasets and their intellectual analysis Capable of using when solving professional tasks modern		
22.03.01 22.03.02	OPK-8				
27.03.01	OPK-9				
27.03.04	OPK-11				
38.03.02	OPK-5	Capable of using when solving professional tasks modern information technology and software tools, including large array management data and their intellectual analysis			

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

8.2.1. Criteria for evaluating the answer on the test

(formation of the competence of the OPK-5, OPK-6)

"read":

the student demonstrates systematic theoretical knowledge, practical skills, owns terms, draws reasoned conclusions and generalizations, gives examples, shows fluency in monologue speech and the ability to quickly respond to clarifying questions.

the student demonstrates strong theoretical knowledge, practical skills, owns terms, draws reasoned conclusions and generalizations, gives examples, shows fluency in monologue speech, but at the same time makes minor mistakes that he quickly corrects on his own or with minor correction by the teacher.

the student demonstrates shallow theoretical knowledge, shows poorly formed skills in analyzing phenomena and processes, lacks the ability to draw reasoned conclusions and give examples, shows insufficient fluency in monologue speech, terms, logic and consistency of

presentation, makes mistakes that can only be corrected by the teacher.

"not counted":

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

8.2.2. Criteria for evaluating the work of a student in practical classes

(formation of the competence of OPK-5, OPK-6)

"5" (excellent): all the practical tasks provided for by the practical exercises were completed, the student answered all the control questions clearly and without errors, actively worked in the practical classes.

"4" (good): all the practical tasks provided for by the practical exercises were completed, the student, with corrective remarks from the teacher, answered all the control questions, worked quite actively in the practical classes.

"3" (satisfactory): all the practical tasks provided for by the practical exercises were completed with the comments of the teacher; The student answered all control questions with comments.

"2" (unsatisfactory): the student has not completed or performed incorrectly the practical tasks provided for by the practical exercises; the student answered the control questions with errors or did not answer the control questions.

8.2.3. Test Evaluation Criteria

(formation of the competence of OPK-5, OPK-6)

Testing is evaluated according to the percentage of correct answers given by the student to the test questions.

The standard scale for the compliance of test results with the given score:

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

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

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

"3" (satisfactory): The test subject does not have systemic theoretical knowledge, he knows some terms and reacts rather slowly to the test questions.

"2" (unsatisfactory): The test subject does not have systemic theoretical knowledge, he does not know the terminology and reacts slowly to the test questions.

8.2.4. Final correspondence scoring scales ratings And levelsformation of competencies in the discipline:

Level maturity of competence	**Grade**	**Explanation**
High	credited	All types of educational work provided for educational plan. The student demonstrates the compliance of knowledge, skills and abilities with the declared indicators, free operates Acquired knowledge, skills, skills And applies their V situations increased complexity.

Average	credited	All types of educational work provided for educational plan. The student demonstrates the correspondence of knowledge, skills and abilities to the declared indicators, operates with the acquired knowledge, skills and abilities. In this case, minor errors, inaccuracies, difficulties in analytical operations, transferring knowledge and skills to new, unusual situations.
Satisfactory	credited	All types of educational work provided for educational plan. The student demonstrates the correspondence of knowledge, skills and abilities to the declared indicators, operates with the acquired knowledge, skills and abilities. At the same time, the student makes mistakes and experiences Difficulty applying skills to new situations.
Unsatisfactory	not credited	One or more types of educational work provided for by the curriculum have not been completed. The student demonstrates incomplete correspondence of knowledge, skills and abilities to the declared indicators and makes significant mistakes when operating with knowledge and skills and applying the acquired skills in standard situations

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

8.3.1. Current control (work in practical classes)

(formation of the competence of OPK-5, OPK-6)

8.3.2. An example of setting the current control:

1. A network card is required for...
   +: computer network connections
   -: processing of graphic objects
   -: information storage
   -: analog signal conversion
2. The first mainstream programming language is...
   -: C++
   -: Scala
   - Java
   -: Kotlin
   +: Fortran
3. it is a new format of communication with consumers
   +: multimedia content
   -: presentations
   -: website

-: speeches

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

-: Mechanical IT (from the end of the 19th century to our time)

+: Computer IT (from the 1980s to the 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 lifetimes

-: neurosensitive suits

-: games

8.3.3. Intermediate control (offset)

(formation of the competence of the OPK-5, OPK-6)

The test is carried out in the form of computer testing.

An example of a test task for offset:

1. _____ technologies - processes, using a set of means and methods for collecting, processing, accumulating and transmitting data

-: Software

+: Informational

-: Educational

-: Computer

2. The compiler is...

-: a set of instructions for a particular performer

+: "translators" programs, created on languages high level, on "low-level"

-: a set of instructions for all performers

-: "translators" of programs created in "low-level" languages into high-level languages

3. Invented a fully automated 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. _____- embossed or painted images on a stone base

-: Hieroglyphs

-: Geoglyphs

+: Petroglyphs

-: Phonoglyphs

6. Highlight the possible causes of the 503 Service Temporarily Unavailable error:

+: a large number of requests to the server

+: script hangs when transferring large static files via PHP

-: wrong instruction in .htaccess file

-: file requested by URL does not exist on the server

7. The benefits of using a VPN include:

+: online anonymity
+: data protection
-: protection from unverified sites
+: bypass ISP restrictions
-: reduce network latency (ping)
-: increase network bandwidth

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

9. What does the 404 Not Found error mean?
-: The server cannot fulfill the request due to a denial of access to the requested files
+: The server cannot find the data requested by the user
-: As a result of the request, an invalid response was received from the server
-: The server has an internal error

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