



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education

"Far Eastern Federal University"

(FEFU)

Institute of Mathematics and Computer Technologies (School)

COLLECTION OF WORKING PROGRAMS OF PRACTICES

DIRECTION OF PREPARATION

09.03.02 Information systems and technologies

Undergraduate program

Digital footprint analytics

Graduate Qualification - Bachelor

Full-time form of education

Normative period for mastering the program

(full-time education) 4 years

Starting year of preparation: 2023

The collection of practice work programs is compiled in accordance with the requirements of the Federal State Educational Standard for the direction of training 09.03.02 Information systems and technologies, approved by order of the Ministry of Education and Science of the Russian Federation of September 19, 2017 No. 926 (as amended and supplemented).

The collection of work programs for practices was discussed at a meeting of the Department of Information and Computer Systems (Minutes No. 4 dated February 03, 2023).

Director of the Department of Information and Computer Systems Fedorets A.N.

Compiled by: Ralin A.Yu., Pustovalov E.V., Shichalina V.A.

Vladivostok

2023

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WORKING INTERNSHIP PROGRAM

Technological (design and technological) practice
for the direction of training

09.03.02 Information systems and technologies

Undergraduate program

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1. OBJECTIVES OF LEARNING PRACTICE

The objectives of the training practice is to obtain primary professional skills and abilities, including the primary skills of production and technological, design, organizational and managerial activities, as well as to consolidate the theoretical knowledge gained in the study of basic disciplines.

2. OBJECTIVES OF LEARNING PRACTICE

The tasks of educational practice are:

1. obtaining primary professional skills in solving standard problems of professional activity;
2. obtaining primary professional skills related to the application of information technology knowledge in practice;
3. acquisition of primary skills in practical activities related to the use of information technology to solve educational problems.

3. THE PLACE OF LEARNING PRACTICE IN THE STRUCTURE OF THE BET

Educational practice is an integral part of the main professional educational program, included in block 2 "Practice" of the curriculum (index B2.V.01 (U)).

The total labor intensity of the practice (2 semester, 1 course) is 2 weeks, 3 credits, 108 hours.

The practice is based on the disciplines "Fundamentals of Algorithmization and Programming", "Discrete Mathematics", "Fundamentals of Project Activities", "Fundamentals of Digital Literacy".

To master this practice, students must:

- know the methods of developing programs for solving standard problems;
- know the basics of computer science;
- know the algorithmic programming language;
- know the information technologies used in the preparation of documents;
- be able to develop algorithms for solving problems using a computer;
- know how to check the correctness of the program.

4. TYPES, METHODS, PLACE AND TIME OF LEARNING PRACTICE

Type of practice: educational practice.

Type of practice: technological (design and technological) practice.

Practice method: stationary.

Form of practice: concentrated.

Time of educational practice: in accordance with the curriculum for two weeks in the second semester of study at the 1st year.

Places of training practice:

Department of information and computer systems IMIKT FEFU.

5. STUDENT COMPETENCES FORMED AS A RESULT OF TRAINING PRACTICE

Professional competencies and indicators of their achievement:

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
design	PC-2 Able to work in an international project team in the field of information systems and technologies, analyze, plan project work	PC-2.1 Analyzes methods and tools for designing information systems and technologies PC-2.2 Organizes the execution of projects in the field of information technology based on project plans PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans
organizational and managerial	PC-3 Able to provide organizational support for the project in the field of information systems and technologies	PC-3.1 Organizes interaction with the customer and other stakeholders of the project PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
production and technological	PC-4 Capable of developing software using programming languages, defining and manipulating data	<p>PC-4.1 Able to describe requirements for integrated software in terms of architecture</p> <p>PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces</p> <p>PC-4.3 Develops integrated software, interaction interfaces</p>

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-2.1 Analyzes methods and tools for designing information systems and technologies	Knows the basic methods of designing information systems and technologies
	Can identify and analyze design methods
	Proficient in analyzing methods and tools for designing information systems and technologies
PC-2.2 Organizes the execution of projects in the field of information technology based on project plans	Knows the basic methods of organizing the execution of project work
	Able to organize the execution of projects in the field of information technology
	Has the skills to organize the execution of projects in the field of information technology
PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans	Knows the methods and means of monitoring the implementation of projects
	Able to estimate the time required to complete project milestones
	Has the skills to control the implementation of projects
PC-3.1 Organizes interaction with the customer and other stakeholders of the project	Knows the basic principles of organizing interaction with the customer
	Able to analyze information from the customer and other stakeholders of the project
	Has the skills to organize interaction with the customer and other stakeholders of the project
PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies	Knows the main stages of the organization of the contractual process
	Able to monitor the implementation of contracts
	Has the skills to conclude contracts and monitor their implementation
PC-3.3 Manages the coordination and distribution of documentation in	Knows the basic principles of document management
	Able to ensure the coordination and distribution of

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
accordance with established regulations	documentation
	Has the skills to manage the approval and distribution of documentation in accordance with established regulations
PC-4.1 Able to describe requirements for integrated software in terms of architecture	Knows the architecture, structure and functioning of modern information systems
	Able to analyze the architecture, structure and functioning of modern information systems
	Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system
PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces	Knows the basic methods and tools for software design
	Able to apply methods and tools for designing software, data structures, databases, programming interfaces
	Has skills in applying methods and tools for designing software, data structures, databases, program interfaces
PC-4.3 Develops integrated software, interaction interfaces	Knows the tools and techniques for developing integrated software
	Able to design and create integrated software, interaction interfaces
	Has the skills to develop integrated software, interaction interfaces

6. STRUCTURE AND CONTENT OF PRACTICE INCLUDING PRACTICAL TRAINING

No. p/p	Stages of practice	Types of work in practice, including practical training and independent work of students	Labor intensity (in hours)	Forms of current control
1	Preparatory	Safety briefing Introductory classes	4	Interview
2	Theoretical	Analysis of the tasks set at the enterprise	40	Individual task
3	Practical	Completion of assigned tasks	50	Demonstration to the head of the enterprise
4	Final	Registration of results, preparation of a report, presentations	8	Report
5	final	Report protection	6	Performance
TOTAL			108	

7. TRAINING AND METHODOLOGICAL SUPPORT FOR SELF-STANDING STUDENTS' WORK AT LEARNING PRACTICE

Student independent work (SIW) is one of the forms of practice and is organized with the aim of:

- systematization and consolidation of the received theoretical knowledge and practical skills of students;
- deepening and expanding theoretical knowledge;
- formation of the ability to work with various types of information, the ability to use normative, legal, reference documentation and special literature;
- development of cognitive abilities of students;
- the formation of such personality traits as responsibility and organization, independence of thinking, the ability to self-development, self-improvement and self-realization.

Educational and methodological support for independent work of students in educational practice are:

- educational literature on previously mastered profile disciplines;
- normative documents regulating the activities of the enterprise (organization) in which the student has an internship;
- methodological developments for students that determine the order of passage and the content of educational practice;
- reporting forms and instructions for completing them.

Independent work of a student (according to an individual task) includes:

- 1) research of the subject area;
- 2) performance of an individual task;
- 3) analysis of the obtained results, their interpretation and adjustment of work plans.

Planned results of independent work - mastery of skills:

- identifying problems that arise when using the necessary tools;
- preparation of recommendations to eliminate or minimize the identified problems;
- testing of developed projects.

The final part is the preparation of a report on the work done with an analysis of the results and conclusions.

8. FORMS OF CERTIFICATION (BY THE RESULTS OF THE PRACTICE), including a list of forms of assessment used at various stages of the formation of competencies in the course of completing assignments for the educational practice "Technological (design-technological) practice"

No. p / p	Controlled sections of educational practice	Code and name of achievement indicator	Learning Outcomes	Evaluation tools *	
				current control	intermediate certification

Individual task for educational practice	PC-2.1 Analyzes methods and tools for designing information systems and technologies	Knows the basic methods of designing information systems and technologies Can identify and analyze design methods Proficient in analyzing methods and tools for designing information systems and technologies	PR-9	-
	PC-2.2 Organizes the execution of projects in the field of information technology based on project plans	Knows the basic methods of organizing the execution of project work Able to organize the execution of projects in the field of information technology Has the skills to organize the execution of projects in the field of information technology	PR-9	-
	PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans	Knows the methods and means of monitoring the implementation of projects Able to estimate the time required to complete project milestones Has the skills to control the implementation of projects	PR-9	
	PC-3.1 Organizes interaction with the customer and other stakeholders of the project	Knows the basic principles of organizing interaction with the customer Able to analyze information from the customer and other stakeholders of the project Has the skills to organize interaction with the customer and other stakeholders of the project	PR-9	
	PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of	Knows the main stages of the organization of the contractual process Able to monitor the implementation of contracts Has the skills to conclude contracts and monitor	PR-9	

		information systems and technologies	their implementation		
		PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management Able to ensure the coordination and distribution of documentation Has the skills to manage the approval and distribution of documentation in accordance with established regulations	PR-9	
		PC-4.1 Able to describe requirements for integrated software in terms of architecture	Knows the architecture, structure and functioning of modern information systems Able to analyze the architecture, structure and functioning of modern information systems Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system	PR-9	
		PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces	Knows the basic methods and tools for software design Able to apply methods and tools for designing software, data structures, databases, programming interfaces Has skills in applying methods and tools for designing software, data structures, databases, program interfaces	PR-9	
		PC-4.3 Develops integrated software, interaction interfaces	Knows the tools and techniques for developing integrated software Able to design and create integrated software, interaction interfaces Has the skills to develop integrated software,	PR-9	

			interaction interfaces		
	Execution of the study practice report	PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management Able to ensure the coordination and distribution of documentation Has the skills to manage the approval and distribution of documentation in accordance with established regulations	PR-16	-
	Protection of the practice report			-	UO-1

* Forms of evaluation tools:

1. Interview (UO-1),
2. draft (PR-9),
3. practice report (PR-16).

Current control over the work of students is carried out during interviews, verification of interim reporting on completed individual tasks.

The form of attestation based on the results of practice is a test with an assessment.

To receive a credit with an assessment based on the results of the internship, the student must complete the internship program in full, complete and submit all necessary reporting documents in a timely manner. The results of the work done should be reflected in the practice report. The report is checked and signed by the head of practice from the enterprise, then it is submitted to the head of practice from the university during the last week of practice on time. If the place of internship is a subdivision of FEFU, the report is drawn up by the student and submitted to the head of the internship from the university.

The final grade for the practice is set on the basis of all submitted documents, through which the regularity of visiting the place of practice, the thoroughness of the report, the student's initiative shown in the process of practice and the ability for independent professional activity are revealed.

A student who has not completed the practice program for a good reason is sent to practice again in his free time from classroom studies. A student who fails to complete an internship program without a valid reason or receives an unsatisfactory grade is considered to have an academic debt. The liquidation of this debt is carried out in accordance with the FEFU regulations.

9. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF TRAINING PRACTICE

Main literature

(printed and electronic editions)

1. Gvozdeva, V. A. Basic and applied information technologies[Electronic resource]: textbook / V. A. Gvozdeva. – M.: FORUM: INFRA-M, 2020. – 384 p. - Access mode:<https://znanium.com/catalog/product/1053944>
2. Gvozdeva, V. A. Informatics, automated information technologies and systems[Electronic resource]: textbook / V. A. Gvozdeva. — M.: FORUM: INFRA-M, 2020. — 542 p. - Access mode:<https://znanium.com/catalog/product/1066785>
3. Gvozdeva, V.A. Fundamentals of building automated information systems[Electronic resource]: textbook / V.A. Gvozdev, I.Yu. Lavrentiev. - M. : Publishing House "FORUM" : INFRA-M, 2019. - 318 p. - Access mode:<http://znanium.com/catalog/product/989678>
4. Zatonsky, A. V. Information technologies: development of information models and systems[Electronic resource]: textbook / A. V. Zatonsky. – M. : RIOR : INFRA-M, 2020. – 344 p. - Access mode:<https://znanium.com/catalog/product/1043096>
5. Information systems and digital technologies. Part 1[Electronic resource]: textbook / V.V. Trofimov, M.I. Barabanova, V.I. Kiyayev, E.V. Trofimova; under total ed. prof. V.V. Trofimov and V.I. Kiyayev. — M.: INFRA-M, 2021. — 253 p. —Access mode:<https://znanium.com/catalog/product/1370826>
6. Information systems and digital technologies. Part 2[Electronic resource]: tutorial. / under total ed. prof. V.V. Trofimov and V.I. Kiyayev. - Moscow: INFRA-M, 2021. - 270 p. -Access mode:<https://znanium.com/catalog/product/1786660>
7. Morozova, E. I. Tools of information systems[Electronic resource]: textbook / E. I. Morozova. - Novosibirsk: Siberian State University of Telecommunications and Informatics, 2018. - 91 p. —Access mode: <https://www.iprbookshop.ru/90585.html>
8. Fedotova, E. L. Information technologies and systems[Electronic resource]: textbook / E. L. Fedotova. - M. : FORUM : INFRA-M, 2020. - 352 p. - Access mode:<https://znanium.com/catalog/product/1043098>
9. Fedotova, E. L. Applied Information Technologies[Electronic resource]: textbook / E. L. Fedotova, E. M. Portnov. - M. : FORUM : INFRA-M, 2020. - 336 p. - Access mode:<https://znanium.com/catalog/product/1043092>

1. Shishov, O. V. Modern technologies and technical means of informatization[Electronic resource]: textbook / O.V. Shishov. — M.: INFRA-M, 2021. — 462 p. -Access mode:<https://znanium.com/catalog/product/1215864>

additional literature

(printed and electronic editions)

1. Gagarina, L.G. Introduction to Software Architecture[Electronic resource]: textbook. allowance / L.G. Gagarina, A.R. Fedorov, P.A. Fedorov. - M. : FORUM : INFRA-M, 2020. - 320 p. - Access mode:<https://znanium.com/catalog/document?id=395721>

2. Gagarina, L.G. Modern problems of informatics and computer technology[Electronic resource]: textbook / L.G. Gagarina, A.A. Petrov. - M.: ID FORUM: INFRA-M, 2019. - 368 p. - Access mode:<https://znanium.com/catalog/document?id=354525>

3. Markova, V.D. Digital economy[Electronic resource]: textbook / V.D. Markov. - M. : INFRA-M, 2019. - 186 p. - Access mode:<http://znanium.com/catalog/product/982132>

4. Sukhomlinov, A.I. Analysis and design of information systems: textbook for universities / AI Sukhomlinov. - Vladivostok: Publishing House of the Far Eastern Federal University, 2016. - 359 p.<http://lib.dvfu.ru:8080/lib/item?id=chamo:846083&theme=FEFU>

5. Yasenev, V.N. Information systems and technologies in economics[Electronic resource]: textbook. allowance / V.N. Yasenev. – M.: UNITI-DANA, 2017. - 560 p. - Access mode:<http://znanium.com/catalog/product/1028481>

List of information and telecommunication resources networks "Internet"

1. Official website of the Ministry of Science and Higher Education of the Russian Federation.<https://minobrnauki.gov.ru/>
2. Federal portal "Russian education"<http://www.edu.ru>
3. National Open Education Platform<https://openedu.ru/>
4. Legal information system<http://www.consultant.ru/>
5. Scientific electronic library eLIBRARY RFBR projectwww.elibrary.ru

List of information technologies and software

The location of the computer equipment on which the software is installed, the number of	Software List
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jobs	
Vladivostok, about. Russian, p. Ajaxd.10,building D, aud. D734 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security
Vladivostok, about. Russian, p. Ajaxd.10,building L, room. L450 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security

10. LOGISTICS AND TECHNICAL SUPPORT OF TRAINING PRACTICE

The following laboratory equipment and specialized rooms are available for students to conduct research related to the implementation of the practice task, as well as to organize independent work, which comply with the current sanitary and fire safety standards, as well as safety requirements for educational and scientific production work:

Name of equipped premises and premises for independent work	List of main equipment
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D 734 classroom for conducting seminar-type classes, practical classes: computer class	Monoblock HPP-B0G08ES#ACB/8200E AIO i52400S 500G 4.0G 28 PC - 15 pcs Multimedia equipment: Projection screen ScreenLine Trim White Ice50 cmblack border on top, working area size 236x147 cm Document camera Avervision CP355AF LCD panel 47", Full HD, LG M4716 CCBA Mitsubishi EW330U multimedia projector, 3000 ANSI Lumen, 1280x800 Network video camera Multipix MP-HD718
Reading rooms of the FEFU Scientific Library with open access to the fund (building A - level 10) Auditorium for independent work	HP ProOpe 400 All-in-One 19.5 (1600x900), Core i3- 4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/- RW,GigEth,Wi-Fi,BT,usb kbd/ mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Internet access speed 500 Mbps. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-print texts, scanning and reading machines, a video enlarger with the ability to regulate color spectra; magnifying electronic loupes and ultrasonic markers
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D821 15 places specialized laboratory DI&KS: Information systems administration laboratory	15 computers (system unit model - 30AGCT01WW RZ + monitor AOC 28" LI2868POU)

In order to provide special conditions for the education of people with disabilities and people with disabilities in FEFU, all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilets, information and navigation support signs.

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Research work
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09.03.02 Information systems and technologies

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2023

1. OBJECTIVES OF LEARNING PRACTICE

The goals of educational practice are to consolidate and deepen the theoretical training of students, as well as to obtain primary skills and competencies of research activities.

2. OBJECTIVES OF LEARNING PRACTICE

Practice objectives:

- implementation of research tasks in the field of information technology;
- systematization, expansion and consolidation of skills of independent research work.

3. THE PLACE OF LEARNING PRACTICE IN THE STRUCTURE OF THE BET

Educational practice. Research work (obtaining primary skills in research work) is an integral part of the main professional educational program, included in block 2 "Practice" of the curriculum (index B2.V.02 (U)).

General labor intensity of practice (5th semester, 3rd year) 3 credits, 108 hours. The practice is carried out in parallel with the study of the disciplines of the curriculum.

The practice is based on the disciplines "Fundamentals of algorithmization and programming", "Fundamentals of project activities", "Tools of information systems", "Architecture of information systems", "Security of information systems and protection of information in networks", "Fundamentals of system analysis".

4. TYPES, METHODS, PLACE AND TIME OF LEARNING PRACTICE

Type of practice: educational practice.

Practice type: research work (obtaining primary skills in research work).

Method of conducting the practice: stationary or traveling.

Form of practice: distributed.

Time of research work: in accordance with the curriculum during the fifth semester of study at the 3rd year.

Places of training practice:

Laboratories on the basis of the Department of Information and Computer Systems of IMiKT.

The practice can also take place at enterprises of any profile, providing a base for the types of professional activities of graduates. The main third-party objects are organizations for which targeted training of specialists is carried out,

enterprises and organizations with which FEFU has contractual relations in conducting research, design and other work. Other objects are mainly enterprises and organizations proposed on a personal initiative by the students themselves to carry out research work.

5. STUDENT COMPETENCES FORMED AS A RESULT OF TRAINING PRACTICE

Universal competencies and indicators of their achievement:

Name of the category (group) of universal competencies	Code and name of the universal competence (the result of mastering)	Code and name of the indicator of achievement of competence
Systems and critical thinking	UK-1. Able to search, critically analyze and synthesize information, apply a systematic approach to solve tasks	UK-1.1. Determines the role and importance of information, informatization of society, information technology, uses the theoretical foundations of information processes of information transformation UK-1.2. Chooses modern technical and software tools and methods for searching, summarizing, processing and transmitting information when creating documents of various types, modern software tools for creating and editing documents, website pages, databases
Teamwork and Leadership	UK-3. Able to carry out social interaction and realize their role in the team	UK-3.1. Determines his role in social interaction and teamwork, based on the strategy of cooperation to achieve the set goal UK-3.2. Sharing information, knowledge and experience with team members

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
UK-1.1 Determines the role and importance of information, informatization of society, information technology, uses the theoretical foundations of information processes of information transformation	Knows the meaning of information, informatization of society, information technology, basic concepts and definitions of information theory
	Able to systematize information, apply information transformation methods embedded in modern software tools
	Possesses the skills of creating, accumulating and processing information
UK-1.2 Selects modern methods of information technology and software tools for searching,	Knows the main modern technical and software tools for obtaining, processing, storing and transmitting information and methods for solving standard problems in professional

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
collecting, processing and transmitting information to solve standard problems	activities
	Ability to properly use modern software tools to solve tasks
	Has the skills to correctly apply modern methods of information technology and software tools for searching, analyzing, organizing and transmitting information to solve standard problems
UK-3.1 Determines their role in social interaction and teamwork, based on the strategy of cooperation to achieve the set goal	Knows the role in social interaction and teamwork, based on the strategy of cooperation to achieve the goal
	Able to organize activities within the framework of a role in social interaction and teamwork, based on a cooperation strategy to achieve the set goal
	Possesses the skills to implement a role in social interaction and teamwork, based on a cooperation strategy to achieve the goal
UK-3.2 Sharing information, knowledge and experience with team members	Knows the structure of the process of sharing information, knowledge and experience with team members
	Able to share information, knowledge and experience with team members
	Has the skills to share information, knowledge and experience with team members

Professional competencies and indicators of their achievement:

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
research	PC-1 Able to conduct research on information systems and technologies, analyze scientific and technical information and experimental results	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies
	Able to summarize the results of experiments and research

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
the field of information systems and technologies	in the field of information systems and technologies
	Has the skills to analyze domestic and foreign experience in the field of information systems and technologies
PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies
	Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems
	Possesses the skills to substantiate the choice of applied research methods
PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies
	Able to develop research programs in the field of information systems and technologies
	Has the skills to develop draft schedules and programs for conducting individual elements of research and development work
	Has the skills to develop software and hardware modules of complexes based on smart technologies

6. STRUCTURE AND CONTENT OF PRACTICE INCLUDING PRACTICAL TRAINING

No. p/p	Stages of practice	Types of work in practice, including practical training and independent work of students	Labor intensity (in hours)	Current control form
1	Preparatory	Safety briefing Introductory classes	4	Interview
2	Theoretical	Analysis of the tasks set for research	40	Individual task
3	Practical	Completion of assigned tasks	50	Demonstration to the head of research
4	Final	Registration of results, preparation of a report, presentations	8	Report
5	final	Report protection	6	Performance
TOTAL			108	

7. TRAINING AND METHODOLOGICAL SUPPORT FOR SELF-STANDING STUDENTS' WORK AT LEARNING PRACTICE

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- systematization and consolidation of the received theoretical knowledge and practical skills of students;
- deepening and expanding theoretical knowledge;
- formation of the ability to work with various types of information, the ability to use normative, legal, reference documentation and special literature;
- development of cognitive abilities of students;
- the formation of such personality traits as responsibility and organization, independence of thinking, the ability to self-development, self-improvement and self-realization.

Educational and methodological support for independent work of students in practice are:

- educational literature on previously mastered profile disciplines;
- regulatory documents regulating the activities of the enterprise (organization) where the student is practicing;
- methodological developments for students that determine the order of passing and the content of the practice;
- reporting forms and instructions for completing them.

Independent work of a student (according to an individual task) includes:

- 1) research of the subject area;
- 2) performance of an individual task;
- 3) analysis of the obtained results, their interpretation and adjustment of work plans.

Planned results of independent work - mastering the skills of research work.

The final part is the preparation of a report on the work done with an analysis of the results and conclusions.

8. FORMS OF CERTIFICATION (BY THE RESULTS OF PRACTICE), including a list of forms of assessment used at various stages of the formation of competencies in the course of completing assignments for educational practice "Research work (obtaining primary skills of research work)"

No. p/p	Controlled sections of educational practice	Code and name of achievement indicator	Learning Outcomes	Evaluation tools *	
				current control	intermediate certification
	Individual task for educational (industrial)	UK-1.1 Determines the role and importance of	Knows the meaning of information, informatization of society, information	PR-9	-

practice	information, informatization of society, information technology, uses the theoretical foundations of information processes of information transformation	technology, basic concepts and definitions of information theory Able to systematize information, apply information transformation methods embedded in modern software tools Possesses the skills of creating, accumulating and processing information		
	UK-1.2 Selects modern methods of information technology and software tools for searching, collecting, processing and transmitting information to solve standard problems	Knows the main modern technical and software tools for obtaining, processing, storing and transmitting information and methods for solving standard problems in professional activities Ability to properly use modern software tools to solve tasks Has the skills to correctly apply modern methods of information technology and software tools for searching, analyzing, organizing and transmitting information to solve standard problems	PR-9	-
	UK-3.1 Determines their role in social interaction and teamwork, based on the strategy of cooperation to achieve the set goal	Knows the role in social interaction and teamwork, based on the strategy of cooperation to achieve the goal Able to organize activities within the framework of a role in social interaction and teamwork, based on a cooperation strategy to achieve the set goal Possesses the skills to implement a role in social interaction and teamwork, based on a cooperation strategy to achieve the goal	PR-9	
	UK-3.2 Sharing information,	Knows the structure of the process of sharing	PR-9	

		knowledge and experience with team members	information, knowledge and experience with team members Able to share information, knowledge and experience with team members Has the skills to share information, knowledge and experience with team members		
		PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-9	
		PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems Possesses the skills to substantiate the choice of applied research methods	PR-9	
		PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies Able to develop research programs in the field of information systems and technologies Has the skills to develop draft schedules and programs for conducting	PR-9	

			individual elements of research and development work		
	Execution of the study practice report	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-16	-
	Protection of the practice report			-	UO-1

* Forms of evaluation tools:

Interview (WP-1), draft (WP-9), practice report (WP-16).

Current control over the work of students is carried out during interviews, verification of interim reporting on completed individual tasks.

The form of attestation based on the results of practice is a test with an assessment.

To receive a credit with an assessment based on the results of the internship, the student must complete the internship program in full, complete and submit all necessary reporting documents in a timely manner. The results of the work done should be reflected in the practice report. The report is checked and signed by the head of practice from the enterprise, then it is submitted to the head of practice from the university during the last week of practice on time. If the place of internship is a subdivision of FEFU, the report is drawn up by the student and submitted to the head of the internship from the university.

The final grade for the practice is set on the basis of all submitted documents, through which the regularity of visiting the place of practice, the thoroughness of the report, the student's initiative shown in the process of practice and the ability for independent professional activity are revealed.

A student who has not completed the practice program for a good reason is sent to practice again in his free time from classroom studies. A student who fails to complete an internship program without a valid reason or receives an

unsatisfactory grade is considered to have an academic debt. The liquidation of this debt is carried out in accordance with the FEFU regulations.

9. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF TRAINING PRACTICE

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4. Zabolina, N. N. Design of information systems[Electronic resource]: textbook / N. N. Zabolina. - M. : INFRA-M, 2022. - 331 p. - Access mode:<https://znanium.com/catalog/document?id=414276>
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13. Pizhurin, A. A. Methods and means of scientific research[Electronic resource]: textbook / A.A. Pizhurin, A.A. Pizhurin (Jr.), V.E. Pyatkov. — M.: INFRA-M, 2021. — 264 p. —Access mode:<https://znanium.com/catalog/product/1140661>

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List of resources of the information and telecommunications network

"Internet"

1. Library of publications on the site "To help graduate students. Section "Science and scientific methodology":<http://dis.finansy.ru/publ/yarsk/002.htm>
2. PhD in Russia. Postgraduate and doctoral student portal:<http://phdru.com/>
3. National Open Education Platform<https://openedu.ru/>
4. Legal Information System<http://www.consultant.ru/>
5. Scientific electronic library eLIBRARY RFBR projectwww.elibrary.ru
6. Information technology portals:<http://www.citforum.ru>,<http://www.intuit.ru>
7. Portal of the Association of Enterprises of Computer and Information Technologies (AKIT):<http://www.apkit.ru>
8. Business processes. Approaches to optimization, modeling and reengineering. Informicus Company website:<http://www.informicus.ru/Default.aspx?SECTION=4&id=92>

9. Methods of business process reengineering. Quality management resource:<http://quality.eup.ru/DOCUM3/pbvrbk.html>

10. Modeling business processes. Information site on "ISO 9000, quality system, quality management, quality control, certification":http://www.kpms.ru/General_info/BPM.htm

11. Modeling and reengineering of business processes. Website of the consulting company "Intellectual Solutions":http://www.iso14001.ru/?p=18&row_id=22

List of information technologies and software

The location of the computer equipment on which the software is installed, the number of jobs	Software List
Vladivostok, about. Russian, p. Ajaxd.10,building D, aud. D734 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security
Vladivostok, about. Russian, p. Ajaxd.10,building L, room. L450 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security

10. LOGISTICS AND TECHNICAL SUPPORT OF TRAINING PRACTICE

The following laboratory equipment and specialized rooms are available for students to conduct research related to the implementation of the practice task, as well as to organize independent work, which comply with the current sanitary and fire safety standards, as well as safety requirements for educational and scientific production work:

Name of equipped premises and premises for independent work	List of main equipment
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D 734 classroom for conducting seminar-type classes, practical classes: computer class	Monoblock HPP-B0G08ES#ACB/8200E AIO i52400S 500G 4.0G 28 PC - 15 pcs Multimedia equipment: Projection screen ScreenLine Trim White Ice50 cmlblack border on top, working area size 236x147 cm Document camera Avervision CP355AF LCD panel 47", Full HD, LG M4716 CCBA Mitsubishi EW330U multimedia projector, 3000 ANSI Lumen, 1280x800 Network video camera Multipix MP-HD718

<p>Reading rooms of the FEFU Scientific Library with open access to the fund (building A - level 10) Auditorium for independent work</p>	<p>HP ProOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/- RW,GigEth,Wi-Fi,BT,usb kbd/mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Internet access speed 500 Mbps. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-print texts, scanning and reading machines, a video enlarger with the ability to regulate color spectra; magnifying electronic loupes and ultrasonic markers</p>
<p>Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D821 15 places specialized laboratory DI&KS: Information systems administration laboratory</p>	<p>15 computers (system unit model - 30AGCT01WW RZ + monitor AOC 28" LI2868POU)</p>

In order to provide special conditions for the education of people with disabilities and people with disabilities in FEFU, all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilets, information and navigation support signs.



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education

"Far Eastern Federal University"

(FEFU)

Institute of Mathematics and Computer Technologies (School)

WORKING INTERNSHIP PROGRAM

Technological (design and technological) practice
for the direction of training

09.03.02 Information systems and technologies

Undergraduate program

Digital footprint analytics

Vladivostok
2023

1. GOALS OF MASTERING INDUSTRIAL PRACTICE

The objectives of the internship are to consolidate the theoretical knowledge gained in the study of basic disciplines, as well as to acquire practical skills and experience in independent professional activities in the development of software systems projects and project documentation.

2. OBJECTIVES OF INDUSTRIAL PRACTICE

The objectives of the production practice are:

1. obtaining professional skills in solving standard problems of professional activity;
2. obtaining professional skills related to the application of information technology knowledge in practice;
3. acquisition of practical skills related to the use of information technology to solve production problems.

3. THE PLACE OF INTERNSHIP IN THE BRI STRUCTURE

Industrial practice is an integral part of the main professional educational program, included in block 2 "Practice" of the curriculum (index B2.V.03 (P)).

The total labor intensity of practice (4th semester, 2nd year) is 2 weeks, 3 credits, 108 hours.

The practice is based on the disciplines "Information systems programming technologies", "Information systems tools", "Discrete mathematics", "Information systems architecture", "Infocommunication systems and networks", "Information systems security and information protection in networks", "Fundamentals of design activities".

To master this practice, students must:

- know the methods of developing programs for solving standard problems;
- know the basics of computer science;
- know the algorithmic programming language;
- know the information technologies used in the preparation of documents;
- be able to develop algorithms for solving problems using a computer;
- know how to check the correctness of the program.

4. TYPES, METHODS, PLACE AND TIME OF INTERNSHIP

Type of practice: industrial practice.

Type of practice: technological (design and technological) practice.

Method of conducting the practice: stationary or traveling.

Form of practice: concentrated.

Time of practical training: in accordance with the curriculum for two weeks in the fourth semester of study in the 2nd year.

Places of industrial practice:

Institutes of the Far Eastern Branch of the Russian Academy of Sciences;
Enterprises and organizations of Vladivostok and the Far Eastern Federal District;

Departments of IM&CT and other subdivisions of FEFU.

For persons with disabilities and the disabled, the choice of places for internship is consistent with the requirement of their accessibility for these students, and the practice is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

If the student, by the time of the end of the practice, has work experience in the specialty corresponding to the direction of 03/09/02, at least 2 months, then upon submission of an application and documents confirming work experience, including a report, the results of the work can be credited by the decision of the department as practice.

5. STUDENT COMPETENCES FORMED AS A RESULT OF INTERNSHIP

Professional competencies and indicators of their achievement:

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
design	PC-2 Able to work in an international project team in the field of information systems and technologies, analyze, plan project work	PC-2.1 Analyzes methods and tools for designing information systems and technologies PC-2.2 Organizes the execution of projects in the field of information technology based on project plans PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
organizational and managerial	PC-3 Able to provide organizational support for the project in the field of information systems and technologies	<p>PC-3.1 Organizes interaction with the customer and other stakeholders of the project</p> <p>PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies</p> <p>PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations</p>
production and technological	PC-5 Capable of testing, preparing and applying test datasets	<p>PC-5.1 Understands the software testing process and software product life cycle</p> <p>PC-5.2 Able to use special software for automated testing</p> <p>PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure</p>

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-2.1 Analyzes methods and tools for designing information systems and technologies	Knows the basic methods of designing information systems and technologies
	Can identify and analyze design methods
	Proficient in analyzing methods and tools for designing information systems and technologies
PC-2.2 Organizes the execution of projects in the field of information technology based on project plans	Knows the basic methods of organizing the execution of project work
	Able to organize the execution of projects in the field of information technology
	Has the skills to organize the execution of projects in the field of information technology
PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans	Knows the methods and means of monitoring the implementation of projects
	Able to estimate the time required to complete project milestones
	Has the skills to control the implementation of projects
PC-3.1 Organizes interaction with the customer and other stakeholders of the project	Knows the basic principles of organizing interaction with the customer
	Able to analyze information from the customer and other stakeholders of the project
	Has the skills to organize interaction with the customer and other stakeholders of the project

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies	Knows the main stages of the organization of the contractual process
	Able to monitor the implementation of contracts
	Has the skills to conclude contracts and monitor their implementation
PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management
	Able to ensure the coordination and distribution of documentation
	Has the skills to manage the approval and distribution of documentation in accordance with established regulations
PC-5.1 Understands the software testing process and software product life cycle	Knows the basic methods of software testing
	Can analyze software testing process
	Has the skills to analyze the software testing process and the life cycle of a software product
PC-5.2 Able to use special software for automated testing	Knows the main types of special software for automated testing
	Able to configure special software for automated testing
	Proficient in using special software for automated testing
PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure	Knows the general principles of system recovery after a failure
	Able to compare and analyze, independently find the information necessary to restore systems after a failure
	Has the skills to analyze and search for information necessary to restore systems after a failure

6. STRUCTURE AND CONTENT OF PRACTICE INCLUDING PRACTICAL TRAINING

No. p/p	Stages of practice	Types of work in practice, including practical training and independent work of students	Labor intensity (in hours)	Forms of current control
1	Preparatory	Safety briefing Introductory classes	4	Interview
2	Theoretical	Analysis of the tasks set at the enterprise	40	Individual task
3	Practical	Completion of assigned tasks	50	Demonstration to the head of the enterprise
4	Final	Registration of results, preparation of a report, presentations	8	Report
5	final	Report protection	6	Performance
TOTAL			108	

7. TRAINING AND METHODOLOGICAL SUPPORT FOR SELF-STANDING STUDENTS' INTERNSHIP WORK

Student independent work (SIW) is one of the forms of practice and is organized with the aim of:

- systematization and consolidation of the received theoretical knowledge and practical skills of students;
- deepening and expanding theoretical knowledge;
- formation of the ability to work with various types of information, the ability to use normative, legal, reference documentation and special literature;
- development of cognitive abilities of students;
- the formation of such personality traits as responsibility and organization, independence of thinking, the ability to self-development, self-improvement and self-realization.

Educational and methodological support for independent work of students in industrial practice are:

- educational literature on previously mastered profile disciplines;
- normative documents regulating the activities of the enterprise (organization) where the student undergoes internship;
- methodological developments for students that determine the order of passage and the content of the industrial practice;
- reporting forms and instructions for completing them.

Independent work of a student (according to an individual task) includes:

- 1) research of the subject area;
- 2) performance of an individual task;
- 3) analysis of the obtained results, their interpretation and adjustment of work plans.

Planned results of independent work - mastery of skills:

- identification of problems in the use of freely distributed software for microcomputer systems;
- preparation of recommendations to eliminate or minimize the identified problems;
- testing of developed projects.

The final part is the preparation of a report on the work done with an analysis of the results and conclusions.

8. FORMS OF CERTIFICATION (BY THE RESULTS OF PRACTICE), including a list of forms of assessment used at various stages of

the formation of competencies in the course of completing assignments for the production practice "Technological (design and technological) practice"

No. p / p	Supervised sections of work experience	Code and name of achievement indicator	Learning Outcomes	Evaluation tools *	
				current control	intermediate certification
	Individual task for production practice	PC-2.1 Analyzes methods and tools for designing information systems and technologies	Knows the basic methods of designing information systems and technologies Can identify and analyze design methods Proficient in analyzing methods and tools for designing information systems and technologies	PR-9	-
		PC-2.2 Organizes the execution of projects in the field of information technology based on project plans	Knows the basic methods of organizing the execution of project work Able to organize the execution of projects in the field of information technology Has the skills to organize the execution of projects in the field of information technology	PR-9	-
		PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans	Knows the methods and means of monitoring the implementation of projects Able to estimate the time required to complete project milestones Has the skills to control the implementation of projects	PR-9	
		PC-3.1 Organizes interaction with the customer and other	Knows the basic principles of organizing interaction with the customer Able to analyze	PR-9	

		stakeholders of the project	information from the customer and other stakeholders of the project Has the skills to organize interaction with the customer and other stakeholders of the project		
		PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies	Knows the main stages of the organization of the contractual process Able to monitor the implementation of contracts Has the skills to conclude contracts and monitor their implementation	PR-9	
		PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management Able to ensure the coordination and distribution of documentation Has the skills to manage the approval and distribution of documentation in accordance with established regulations	PR-9	
		PC-5.1 Understands the software testing process and software product life cycle	Knows the basic methods of software testing Can analyze software testing process Has the skills to analyze the software testing process and the life cycle of a software product	PR-9	
		PC-5.2 Able to use special software for automated testing	Knows the main types of special software for automated testing Able to configure special software for automated testing Proficient in using special software for automated testing	PR-9	

		PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure	Knows the general principles of system recovery after a failure Able to compare and analyze, independently find the information necessary to restore systems after a failure Has the skills to analyze and search for information necessary to restore systems after a failure	PR-9	
	Running a Field Practice Report	PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management Able to ensure the coordination and distribution of documentation Has the skills to manage the approval and distribution of documentation in accordance with established regulations	PR-16	-
	Protection of the practice report			-	UO-1

* Forms of evaluation tools:
Interview (WP-1), draft (WP-9), practice report (WP-16).

Current control over the work of students is carried out during interviews, verification of interim reporting on completed individual tasks.

The form of attestation based on the results of practice is a test with an assessment.

To receive a credit with an assessment based on the results of the internship, the student must complete the internship program in full, complete and submit all necessary reporting documents in a timely manner. The results of the work done should be reflected in the practice report. The report is checked and signed by the head of practice from the enterprise, then it is submitted to the head of practice from the university during the last week of practice on time. If the place of internship is a subdivision of FEFU, the report is drawn up by the student and submitted to the head of the internship from the university.

The final grade for the practice is set on the basis of all submitted documents, through which the regularity of visiting the place of practice, the

thoroughness of the report, the student's initiative shown in the process of practice and the ability for independent professional activity are revealed.

A student who has not completed the practice program for a good reason is sent to practice again in his free time from classroom studies. A student who fails to complete an internship program without a valid reason or receives an unsatisfactory grade is considered to have an academic debt. The liquidation of this debt is carried out in accordance with the FEFU regulations.

9. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF INDUSTRIAL PRACTICE

Main literature

(printed and electronic editions)

1. Varfolomeeva, A.O. Enterprise information systems[Electronic resource]: textbook. allowance / A.O. Varfolomeeva, A.V. Koryakovsky, V.P. Romanov. - M. : INFRA-M, 2022. - 330 p. - Access mode:<https://znanium.com/catalog/document?id=399900>

2. Gagarina, L.G. Development and operation of automated information systems[Electronic resource]: textbook. allowance / L.G. Gagarin. - M. : FORUM : INFRA-M, 2021. - 384 p. - Access mode:<https://znanium.com/catalog/document?id=367817>

3. Gvozdeva, V. A. Basic and applied information technologies[Electronic resource]: textbook / V. A. Gvozdeva. – M.: FORUM: INFRA-M, 2020. – 384 p. - Access mode:<https://znanium.com/catalog/product/1053944>

4. Gvozdeva, V. A. Informatics, automated information technologies and systems[Electronic resource]: textbook / V. A. Gvozdeva. — M.: FORUM: INFRA-M, 2020. — 542 p. - Access mode:<https://znanium.com/catalog/product/1066785>

5. Gvozdeva, V.A. Fundamentals of building automated information systems[Electronic resource]: textbook / V.A. Gvozdev, I.Yu. Lavrentiev. - M. : Publishing House "FORUM" : INFRA-M, 2019. - 318 p. - Access mode:<http://znanium.com/catalog/product/989678>

6. Zatonsky, A. V. Information technologies: development of information models and systems[Electronic resource]: textbook / A. V. Zatonsky. – M. : RIOR : INFRA-M, 2020. – 344 p. - Access mode:<https://znanium.com/catalog/product/1043096>

7. Information systems and digital technologies. Part 1[Electronic resource]: textbook / V.V. Trofimov, M.I. Barabanova, V.I. Kiyayev, E.V. Trofimova; under

total ed. prof. V.V. Trofimov and V.I. Kiyayev. — M.: INFRA-M, 2021. — 253 p. —Access mode:<https://znanium.com/catalog/product/1370826>

8. Information systems and digital technologies. Part 2[Electronic resource]: tutorial. / under total ed. prof. V.V. Trofimov and V.I. Kiyayev. - Moscow: INFRA-M, 2021. - 270 p. -Access mode:<https://znanium.com/catalog/product/1786660>

9. Kovalenko, V.V. Information systems design[Electronic resource]: textbook. allowance / V.V. Kovalenko. — M.: INFRA-M, 2021. — 357 p. - Access mode:<https://znanium.com/catalog/document?id=361782>

10. Morozova, E. I. Tools of information systems[Electronic resource]: textbook / E. I. Morozova. - Novosibirsk: Siberian State University of Telecommunications and Informatics, 2018. - 91 p. —Access mode: <https://www.iprbookshop.ru/90585.html>

11. Sysoeva, L.A. Information systems project management[Electronic resource]: textbook. allowance / L.A. Sysoeva, A.E. Satunin. - M. : INFRA-M, 2021. - 345 p. - Access mode:<https://znanium.com/catalog/product/1167942>

12. Fedotova, E. L. Information technologies and systems[Electronic resource]: textbook / E. L. Fedotova. - M. : FORUM : INFRA-M, 2020. - 352 p. - Access mode:<https://znanium.com/catalog/product/1043098>

13. Fedotova, E. L. Applied Information Technologies[Electronic resource]: textbook / E. L. Fedotova, E. M. Portnov. - M. : FORUM : INFRA-M, 2020. - 336 p. - Access mode:<https://znanium.com/catalog/product/1043092>

14. Shishov, O. V. Modern technologies and technical means of informatization[Electronic resource]: textbook / O.V. Shishov. — M.: INFRA-M, 2021. — 462 p. -Access mode:<https://znanium.com/catalog/product/1215864>

additional literature

(printed and electronic editions)

1. Astapchuk, V.A. Architecture of corporate information systems[Electronic resource] / V.A. Astapchuk, P.V. Tereshchenko. - Novosib.: NGTU, 2015. - 75 p. - Access mode:<http://znanium.com/catalog/product/546624>

2. Gagarina, L.G. Introduction to Software Architecture[Electronic resource]: textbook. allowance / L.G. Gagarina, A.R. Fedorov, P.A. Fedorov. - M. : FORUM : INFRA-M, 2020. - 320 p. - Access mode:<https://znanium.com/catalog/document?id=395721>

3. Gagarina, L.G. Modern problems of informatics and computer technology[Electronic resource]: textbook / L.G. Gagarina, A.A. Petrov. - M.: ID FORUM: INFRA-M, 2019. - 368 p. - Access mode:<https://znanium.com/catalog/document?id=354525>

4. Zolotukhina, E.B. Business Process Modeling[Electronic resource]: lecture notes / E.B. Zolotukhina, S.A. Krasnikova, A.S. Cherry. - M.: KURS, NITs INFRA-M, 2017. - 79 p. - Access mode:<http://znanium.com/catalog/product/767202>

5. Zolotukhina, E.B. Information Systems Lifecycle Management (advanced course) [Electronic resource]: lecture notes / E.B. Zolotukhina, S.A. Krasnikova, A.S. Cherry. - M.: KURS, NITs INFRA-M, 2017. - 119 p. - Access mode:<http://znanium.com/catalog/product/767219>

6. Karminsky, A. M. Methodology for creating information systems[Electronic resource]: textbook / A. M. Karminsky, B. V. Chernikov. - M. : FORUM : INFRA-M, 2020. - 320 p. - Access mode:<https://znanium.com/catalog/product/1043095>

7. Markova, V.D. Digital economy[Electronic resource]: textbook / V.D. Markov. - M. : INFRA-M, 2019. - 186 p. - Access mode:<http://znanium.com/catalog/product/982132>

8. Martyshyn, S.A. Fundamentals of the theory of reliability of information systems[Electronic resource]: textbook. allowance / S.A. Martyshyn, V.L. Simonov, M.V. Khrapchenko. - M. : FORUM : INFRA-M, 2020. - 255 p. - Access mode:<https://znanium.com/catalog/product/1062374>

9. Fedorova, G.N. Development, implementation and adaptation of industry-specific software[Electronic resource]: textbook. allowance / G.N. Fedorov. — M.: KURS, INFRA-M, 2018. — 336 p. - Access mode:<http://znanium.com/catalog/product/898670>

10. Yasenev, V.N. Information systems and technologies in economics[Electronic resource]: textbook. allowance / V.N. Yasenev. - M.: UNITI-DANA, 2017. - 560 p. - Access mode:<http://znanium.com/catalog/product/1028481>

List of information and telecommunication resources networks "Internet"

1. Official website of the Ministry of Science and Higher Education of the Russian Federation.<https://minobrnauki.gov.ru/>
2. Federal portal "Russian education"<http://www.edu.ru>
3. National Open Education Platform<https://openedu.ru/>
4. Legal information system<http://www.consultant.ru/>
5. Scientific electronic library eLIBRARY RFBR projectwww.elibrary.ru

List of information technologies and software

The location of the computer	Software List
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equipment on which the software is installed, the number of jobs	
Vladivostok, about. Russian, p. Ajaxd.10,building D, aud. D734 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security
Vladivostok, about. Russian, p. Ajaxd.10,building L, room. L450 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security

10. LOGISTICS AND TECHNICAL SUPPORT OF INDUSTRIAL PRACTICE

The following laboratory equipment and specialized rooms are available for students to conduct research related to the implementation of the practice task, as well as to organize independent work, which comply with the current sanitary and fire safety standards, as well as safety requirements for educational and scientific production work:

Name of equipped premises and premises for independent work	List of main equipment
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D 734 classroom for conducting seminar-type classes, practical classes: computer class	Monoblock HPP-B0G08ES#ACB/8200E AIO i52400S 500G 4.0G 28 PC - 15 pcs Multimedia equipment: Projection screen ScreenLine Trim White Ice50 cmlblack border on top, working area size 236x147 cm Document camera Avervision CP355AF LCD panel 47", Full HD, LG M4716 CCBA Mitsubishi EW330U multimedia projector, 3000 ANSI Lumen, 1280x800 Network video camera Multipix MP-HD718
Reading rooms of the FEFU Scientific Library with open access to the fund (building A - level 10) Auditorium for independent work	HP ProOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/- RW,GigEth,Wi-Fi,BT,usb kbd/mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Internet access speed 500 Mbps. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-print texts, scanning and reading machines, a video enlarger with the ability to regulate color spectra; magnifying electronic loupes and ultrasonic markers
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D821 15 places specialized laboratory DI&KS: Information systems administration laboratory	15 computers (system unit model - 30AGCT01WW RZ + monitor AOC 28" LI2868POU)

In order to provide special conditions for the education of people with disabilities and people with disabilities in FEFU, all buildings are equipped with

ramps, elevators, lifts, specialized places equipped with toilets, information and navigation support signs.



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education

"Far Eastern Federal University"

(FEFU)

Institute of Mathematics and Computer Technologies (School)

WORKING INTERNSHIP PROGRAM

Practice for obtaining professional skills and experience
for the direction of training

09.03.02 Information systems and technologies

Undergraduate program

Digital footprint analytics

Vladivostok
2023

1. GOALS OF MASTERING INDUSTRIAL PRACTICE

The objectives of the internship are to consolidate the theoretical knowledge gained in the study of basic disciplines, as well as to acquire practical skills and experience in independent professional activities in the development of software systems projects and project documentation.

2. OBJECTIVES OF INDUSTRIAL PRACTICE

The objectives of the production practice are:

1. obtaining professional skills in solving standard problems of professional activity;
2. obtaining professional skills related to the application of information technology knowledge in practice;
3. acquisition of practical skills related to the use of information technology to solve production problems.

3. THE PLACE OF INTERNSHIP IN THE BRI STRUCTURE

Industrial practice is an integral part of the main professional educational program, included in block 2 "Practice" of the curriculum (index B2.V.04 (P)).

The total labor intensity of practice (6th semester, 3rd course) is 2 weeks, 3 credits, 108 hours.

The practice is based on the disciplines "Information Systems Programming Technologies", "Information Systems Tools", "Discrete Mathematics", "Information Systems Architecture", "Operating Systems", "Infocommunication Systems and Networks", "Information Systems Security and Information Protection in Networks". ", "Fundamentals of design activities", "Information systems and technology development standards", "Methods and tools for designing information systems and technologies", "Information systems and networks administration", "Data management fundamentals", "Data analysis and machine learning", "Algorithms and Data Structures".

To master this practice, students must:

- know the methods of developing programs for solving standard problems;
- know the basics of computer science;
- know the algorithmic programming language;
- know the information technologies used in the preparation of documents;
- be able to develop algorithms for solving problems using a computer;
- know how to check the correctness of the program.

4. TYPES, METHODS, PLACE AND TIME OF INTERNSHIP

Type of practice: industrial practice.

Type of practice: practice for obtaining professional skills and experience.

Method of conducting the practice: stationary or traveling.

Form of practice: concentrated.

The time of the production practice: in accordance with the curriculum for two weeks in the sixth semester of study at the 3rd year.

Places of industrial practice:

Institutes of the Far Eastern Branch of the Russian Academy of Sciences;

Enterprises and organizations of Vladivostok and the Far Eastern Federal District;

Departments of IM&CT and other subdivisions of FEFU.

For persons with disabilities and the disabled, the choice of places for internship is consistent with the requirement of their accessibility for these students, and the practice is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

If the student, by the time of the end of the practice, has work experience in the specialty corresponding to the direction of 03/09/02, at least 2 months, then upon submission of an application and documents confirming work experience, including a report, the results of the work can be credited by the decision of the department as practice.

5. STUDENT COMPETENCES FORMED AS A RESULT OF INTERNSHIP

Professional competencies and indicators of their achievement:

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
research	PC-1 Able to conduct research on information systems and technologies, analyze scientific and technical information and experimental results	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
production and technological	PC-4 Capable of developing software using programming languages, defining and manipulating data	<p>PC-4.1 Able to describe requirements for integrated software in terms of architecture</p> <p>PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces</p> <p>PC-4.3 Develops integrated software, interaction interfaces</p>
production and technological	PC-5 Capable of testing, preparing and applying test datasets	<p>PC-5.1 Understands the software testing process and software product life cycle</p> <p>PC-5.2 Able to use special software for automated testing</p> <p>PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure</p>
production and technological	PC-6 Capable of analyzing, developing and applying network technologies based on physical and logical layer protocols	<p>PC-6.1 Able to analyze the use and quality of use of network technologies</p> <p>PC-6.2 Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems</p> <p>PC-6.3 Capable of identifying and eliminating incidents in information and communication and server systems</p>
production and technological	PC-7 Capable of analyzing the digital footprint of a person (a group of people) and information and communication systems	<p>SC-7.1 Collects and prepares digital footprint data for analysis</p> <p>PC-7.2 Tests hypotheses and identifies patterns in data sets</p> <p>PC-7.3 Visualizes the results of digital footprint analysis</p>

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
production and technological	PC-8 Able to conduct analytical research using big data technologies	<p>PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data</p> <p>PC-8.2 Analyzes and selects methods and tools for big data analysis</p> <p>PC-8.3 Conducts analytical work using big data technologies</p>

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies
	Able to summarize the results of experiments and research in the field of information systems and technologies
	Has the skills to analyze domestic and foreign experience in the field of information systems and technologies
PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies
	Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems
	Possesses the skills to substantiate the choice of applied research methods
PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies
	Able to develop research programs in the field of information systems and technologies
	Has the skills to develop draft schedules and programs for conducting individual elements of research and development work
PC-4.1 Able to describe requirements for integrated software in terms of architecture	Knows the architecture, structure and functioning of modern information systems
	Able to analyze the architecture, structure and functioning of modern information systems

	Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system
PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces	Knows the basic methods and tools for software design
	Able to apply methods and tools for designing software, data structures, databases, programming interfaces
	Has skills in applying methods and tools for designing software, data structures, databases, program interfaces
PC-4.3 Develops integrated software, interaction interfaces	Knows the tools and techniques for developing integrated software
	Able to design and create integrated software, interaction interfaces
	Has the skills to develop integrated software, interaction interfaces
PC-5.1 Understands the software testing process and software product life cycle	Knows the basic methods of software testing
	Can analyze software testing process
	Has the skills to analyze the software testing process and the life cycle of a software product
PC-5.2 Able to use special software for automated testing	Knows the main types of special software for automated testing
	Able to configure special software for automated testing
	Proficient in using special software for automated testing
PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure	Knows the general principles of system recovery after a failure
	Able to compare and analyze, independently find the information necessary to restore systems after a failure
	Has the skills to analyze and search for information necessary to restore systems after a failure
PC-6.1 Able to analyze the use and quality of use of network technologies	Knows the architecture, device and basic principles of network technologies
	Able to analyze the use and quality of use of network technologies

	Has the skills to analyze the use and quality of use of network technologies
PC-6.2 Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems	Knows the possibilities of typical schemes for backup, archiving and recovery of information and communication and server systems
	Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems
	Proficient in the use of schemes for backup, archiving and recovery of information and communication and server systems
PC-6.3 Capable of identifying and eliminating incidents in information and communication and server systems	Knows the tools and methods for identifying incidents in information and communication and server systems
	Able to identify incidents in information and communication and server systems
	Has the skills to eliminate incidents in information and communication and server systems
SC-7.1 Collects and prepares digital footprint data for analysis	Knows the structure and sources of the digital footprint, methods of data preprocessing
	Able to collect and pre-process digital footprint data
	Skilled in collecting and preparing digital footprint data for analysis
PC-7.2 Tests hypotheses and identifies patterns in data sets	Knows data processing algorithms, software, libraries and frameworks for data analysis
	Able to apply data processing algorithms, specialized software for data analysis
	Has the skills to test hypotheses and search for patterns in data arrays
PC-7.3 Visualizes the results of digital footprint analysis	Knowledge of data visualization techniques, specialized data visualization software
	Able to use specialized software, libraries and frameworks for data visualization
	Proficient in visualization of digital footprint analysis results
PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data	Knows big data sources, technologies for storing and processing big data
	Able to extract, clean, integrate and transform large amounts of data

	Skilled in identifying big data sources for analysis, extracting, validating and cleaning data
PC-8.2 Analyzes and selects methods and tools for big data analysis	Knows the theoretical and applied foundations of big data analysis, modern methods and tools for big data analysis
	Knows how to select appropriate methods and tools for big data analysis
	Possesses the skills of comparative analysis and reasonable choice of methods and tools for analyzing big data
PC-8.3 Conducts analytical work using big data technologies	Knows the theoretical and applied foundations of big data analysis, data analysis technologies
	Able to plan and conduct analytical work using big data technologies
	Proficient in analytical work using big data technologies

6. STRUCTURE AND CONTENT OF PRACTICE INCLUDING PRACTICAL TRAINING

No. p/p	Stages of practice	Types of work in practice, including practical training and independent work of students	Labor intensity (in hours)	Forms of current control
1	Preparatory	Safety briefing Introductory classes	4	Interview
2	Theoretical	Analysis of the tasks set at the enterprise	40	Individual task
3	Practical	Completion of assigned tasks	50	Demonstration to the head of the enterprise
4	Final	Registration of results, preparation of a report, presentations	8	Report
5	final	Report protection	6	Performance
TOTAL			108	

7. TRAINING AND METHODOLOGICAL SUPPORT FOR SELF-STANDING STUDENTS' INTERNSHIP WORK

Student independent work (SIW) is one of the forms of practice and is organized with the aim of:

- systematization and consolidation of the received theoretical knowledge and practical skills of students;
- deepening and expanding theoretical knowledge;
- formation of the ability to work with various types of information, the ability to use normative, legal, reference documentation and special literature;
- development of cognitive abilities of students;
- the formation of such personality traits as responsibility and organization, independence of thinking, the ability to self-development, self-improvement and self-realization.

Educational and methodological support for independent work of students in industrial practice are:

- educational literature on previously mastered profile disciplines;
- normative documents regulating the activities of the enterprise (organization) where the student undergoes internship;
- methodological developments for students that determine the order of passage and the content of the industrial practice;
- reporting forms and instructions for completing them.

Independent work of a student (according to an individual task) includes:

- 1) research of the subject area;
- 2) performance of an individual task;
- 3) analysis of the obtained results, their interpretation and adjustment of work plans.

Planned results of independent work - mastery of skills:

- identifying problems that arise when using the necessary tools;
- preparation of recommendations to eliminate or minimize the identified problems;
- testing of developed projects.

The final part is the preparation of a report on the work done with an analysis of the results and conclusions.

8. FORMS OF CERTIFICATION (BY THE RESULTS OF PRACTICE), including a list of forms of assessment used at various stages of the formation of competencies in the course of completing tasks for the production practice "Practice for obtaining professional skills and experience"

No.	Supervised	Code and name of	Learning Outcomes	Evaluation tools *
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p / p	sections of work experience	achievement indicator		current control	intermediate certification
1	Individual task for production practice	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-9	-
		PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems Possesses the skills to substantiate the choice of applied research methods	PR-9	-
		PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies Able to develop research programs in the field of information systems and technologies Has the skills to develop draft schedules and programs for conducting individual elements of research and development work	PR-9	
		PC-4.1 Able to describe requirements for integrated software in terms of architecture	Knows the architecture, structure and functioning of modern information systems Able to analyze the architecture, structure and functioning of modern information systems Has the skills to analyze the architecture, structure and	PR-9	

			operation of information systems in order to select the optimal configuration of the information system		
		PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces	Knows the basic methods and tools for software design Able to apply methods and tools for designing software, data structures, databases, programming interfaces Has skills in applying methods and tools for designing software, data structures, databases, program interfaces	PR-9	
		PC-4.3 Develops integrated software, interaction interfaces	Knows the tools and techniques for developing integrated software Able to design and create integrated software, interaction interfaces Has the skills to develop integrated software, interaction interfaces	PR-9	
		PC-5.1 Understands the software testing process and software product life cycle	Knows the basic methods of software testing Can analyze software testing process Has the skills to analyze the software testing process and the life cycle of a software product	PR-9	
		PC-5.2 Able to use special software for automated testing	Knows the main types of special software for automated testing Able to configure special software for automated testing Proficient in using special software for automated testing	PR-9	
		PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure	Knows the general principles of system recovery after a failure Able to compare and analyze, independently find the information necessary to restore systems after a failure Has the skills to analyze and search for information necessary to restore systems after a failure	PR-9	

		PC-6.1 Able to analyze the use and quality of use of network technologies	Knows the architecture, device and basic principles of network technologies Able to analyze the use and quality of use of network technologies Has the skills to analyze the use and quality of use of network technologies	PR-9	
		PC-6.2 Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems	Knows the possibilities of typical schemes for backup, archiving and recovery of information and communication and server systems Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems Proficient in the use of schemes for backup, archiving and recovery of information and communication and server systems	PR-9	
		PC-6.3 Capable of identifying and eliminating incidents in information and communication and server systems	Knows the tools and methods for identifying incidents in information and communication and server systems Able to identify incidents in information and communication and server systems Has the skills to eliminate incidents in information and communication and server systems	PR-9	
		SC-7.1 Collects and prepares digital footprint data for analysis	Knows the structure and sources of the digital footprint, methods of data preprocessing Able to collect and pre-process digital footprint data Skilled in collecting and preparing digital footprint data for analysis	PR-9	
		PC-7.2 Tests hypotheses and identifies patterns in data sets	Knows data processing algorithms, software, libraries and frameworks for data analysis Able to apply data processing algorithms,	PR-9	

			specialized software for data analysis Has the skills to test hypotheses and search for patterns in data arrays		
		PC-7.3 Visualizes the results of digital footprint analysis	Knowledge of data visualization techniques, specialized data visualization software Able to use specialized software, libraries and frameworks for data visualization Proficient in visualization of digital footprint analysis results	PR-9	
		PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data	Knows big data sources, technologies for storing and processing big data Able to extract, clean, integrate and transform large amounts of data Skilled in identifying big data sources for analysis, extracting, validating and cleaning data	PR-9	
		PC-8.2 Analyzes and selects methods and tools for big data analysis	Knows the theoretical and applied foundations of big data analysis, modern methods and tools for big data analysis Knows how to select appropriate methods and tools for big data analysis Possesses the skills of comparative analysis and reasonable choice of methods and tools for analyzing big data	PR-9	
		PC-8.3 Conducts analytical work using big data technologies	Knows the theoretical and applied foundations of big data analysis, data analysis technologies Able to plan and conduct analytical work using big data technologies Proficient in analytical work using big data technologies	PR-9	
2	Running a Field Practice Report	PC-3.3 Manages the coordination and distribution of documentation in accordance with	Knows the basic principles of document management Able to ensure the coordination and distribution of	PR-16	-

		established regulations	documentation Has the skills to manage the approval and distribution of documentation in accordance with established regulations		
3	Protection of the practice report			-	UO-1

* Forms of evaluation tools:

Interview (WP-1), draft (WP-9), practice report (WP-16).

Current control over the work of students is carried out during interviews, verification of interim reporting on completed individual tasks.

The form of attestation based on the results of practice is a test with an assessment.

To receive a credit with an assessment based on the results of the internship, the student must complete the internship program in full, complete and submit all necessary reporting documents in a timely manner. The results of the work done should be reflected in the practice report. The report is checked and signed by the head of practice from the enterprise, then it is submitted to the head of practice from the university during the last week of practice on time. If the place of internship is a subdivision of FEFU, the report is drawn up by the student and submitted to the head of the internship from the university.

The final grade for the practice is set on the basis of all submitted documents, through which the regularity of visiting the place of practice, the thoroughness of the report, the student's initiative shown in the process of practice and the ability for independent professional activity are revealed.

A student who has not completed the practice program for a good reason is sent to practice again in his free time from classroom studies. A student who fails to complete an internship program without a valid reason or receives an unsatisfactory grade is considered to have an academic debt. The liquidation of this debt is carried out in accordance with the FEFU regulations.

9. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF INDUSTRIAL PRACTICE

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10. Yasenev, V.N. Information systems and technologies in economics[Electronic resource]: textbook. allowance / V.N. Yasenev. – M.: UNITI-DANA, 2017. - 560 p. - Access mode:<http://znanium.com/catalog/product/1028481>

**List of information and telecommunication resources
networks "Internet"**

1. Official website of the Ministry of Science and Higher Education of the Russian Federation.<https://minobrnauki.gov.ru/>
2. Federal portal "Russian education"<http://www.edu.ru>
3. National Open Education Platform<https://openedu.ru/>
4. Legal information system<http://www.consultant.ru/>
5. Scientific electronic library eLIBRARY RFBR projectwww.elibrary.ru

List of information technologies and software

The location of the computer equipment on which the software is installed, the number of jobs	Software List
Vladivostok, about. Russian, p. Ajaxd.10,building D, aud. D734 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security
Vladivostok, about. Russian, p. Ajaxd.10,building L, room. L450 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security

10. LOGISTICS AND TECHNICAL SUPPORT OF INDUSTRIAL PRACTICE

The following laboratory equipment and specialized rooms are available for students to conduct research related to the implementation of the practice task, as well as to organize independent work, which comply with the current sanitary and fire safety standards, as well as safety requirements for educational and scientific production work:

Name of equipped premises and premises for independent work	List of main equipment
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D 734 classroom for conducting seminar-type classes, practical classes: computer class	Monoblock HPP-B0G08ES#ACB/8200E AIO i52400S 500G 4.0G 28 PC - 15 pcs Multimedia equipment: Projection screen ScreenLine Trim White Ice50 cmlblack border on top, working area size 236x147 cm Document camera Avervision CP355AF LCD panel 47", Full HD, LG M4716 CCBA Mitsubishi EW330U multimedia projector, 3000 ANSI Lumen, 1280x800 Network video camera Multipix MP-HD718
Reading rooms of the FEFU Scientific Library with open access to the fund (building A - level 10) Auditorium for independent work	HP ProOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/-RW,GigEth,Wi-Fi,BT,usb kbd/ mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Internet access speed 500 Mbps. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-print texts, scanning and reading machines, a video enlarger with the ability to regulate color spectra; magnifying electronic loupes and ultrasonic markers
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D821 15 places specialized laboratory DI&KS: Information systems administration laboratory	15 computers (system unit model - 30AGCT01WW RZ + monitor AOC 28" LI2868POU)

In order to provide special conditions for the education of people with disabilities and people with disabilities in FEFU, all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilets, information and navigation support signs.



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION

Federal State Autonomous Educational Institution of Higher Education

"Far Eastern Federal University"

(FEFU)

Institute of Mathematics and Computer Technologies (School)

WORKING INTERNSHIP PROGRAM

Research work
for the direction of training

09.03.02 Information systems and technologies

Undergraduate program

Digital footprint analytics

Vladivostok
2023

1. GOALS OF MASTERING INDUSTRIAL PRACTICE

The objectives of the internship are to consolidate and deepen the theoretical training of students, as well as the acquisition of practical skills and competencies of research activities.

2. OBJECTIVES OF INDUSTRIAL PRACTICE

The objectives of the production practice are:

- implementation of research tasks in the field of information technology;
- systematization, expansion and consolidation of the skills of independent research work for the subsequent preparation of the final qualification work (WQR).

3. THE PLACE OF INTERNSHIP IN THE BRI STRUCTURE

Industrial practice is an integral part of the main professional educational program, included in block 2 "Practice" of the curriculum (index B2.V.05 (P)).

The total labor intensity of the practice (semester 7, course 4, distributed) is 2 credits, 72 hours.

Research work is based on the material of the disciplines of theoretical training and practices.

The materials of the research work serve as the basis for writing the final qualification work.

4. TYPES, METHODS, PLACE AND TIME OF INTERNSHIP

Type of practice: industrial practice.

Type of practice: research work.

Method of conducting the practice: stationary or traveling.

Form of practice: distributed.

Time of research work: in accordance with the curriculum during the seventh semester of study in the 4th year. The practice is carried out in parallel with the study of the disciplines of the curriculum.

Locations of research work:

Laboratories on the basis of the Department of Information and Computer Systems of IMiKT.

Research work can also take place at enterprises of any profile, providing a base on the types of professional activities of graduates. The main third-party objects are organizations for which targeted training of specialists is carried out, enterprises and organizations with which FEFU has contractual relations in conducting research, design and other work. Other objects are mainly enterprises

and organizations proposed on a personal initiative by the students themselves to carry out research work.

5. STUDENT COMPETENCES FORMED AS A RESULT OF INTERNSHIP

Universal competencies and indicators of their achievement:

Name of the category (group) of universal competencies	Code and name of the universal competence (the result of mastering)	Code and name of the indicator of achievement of competence
Systems and critical thinking	UK-1. Able to search, critically analyze and synthesize information, apply a systematic approach to solve tasks	UK-1.1. Determines the role and importance of information, informatization of society, information technology, uses the theoretical foundations of information processes of information transformation UK-1.2. Chooses modern technical and software tools and methods for searching, summarizing, processing and transmitting information when creating documents of various types, modern software tools for creating and editing documents, website pages, databases
Teamwork and Leadership	UK-3. Able to carry out social interaction and realize their role in the team	UK-3.1. Determines his role in social interaction and teamwork, based on the strategy of cooperation to achieve the set goal UK-3.2. Sharing information, knowledge and experience with team members

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
UK-1.1 Determines the role and importance of information, informatization of society, information technology, uses the theoretical foundations of information processes of information transformation	Knows the meaning of information, informatization of society, information technology, basic concepts and definitions of information theory
	Able to systematize information, apply information transformation methods embedded in modern software tools
	Possesses the skills of creating, accumulating and processing information
UK-1.2 Selects modern methods of information technology and software tools for searching, collecting, processing and transmitting information to solve standard problems	Knows the main modern technical and software tools for obtaining, processing, storing and transmitting information and methods for solving standard problems in professional activities
	Ability to properly use modern software tools to solve tasks
	Has the skills to correctly apply modern methods of information technology and software tools for searching,

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
	analyzing, organizing and transmitting information to solve standard problems
UK-3.1 Determines their role in social interaction and teamwork, based on the strategy of cooperation to achieve the set goal	Knows the role in social interaction and teamwork, based on the strategy of cooperation to achieve the goal
	Able to organize activities within the framework of a role in social interaction and teamwork, based on a cooperation strategy to achieve the set goal
	Possesses the skills to implement a role in social interaction and teamwork, based on a cooperation strategy to achieve the goal
UK-3.2 Sharing information, knowledge and experience with team members	Knows the structure of the process of sharing information, knowledge and experience with team members
	Able to share information, knowledge and experience with team members
	Has the skills to share information, knowledge and experience with team members

Professional competencies and indicators of their achievement:

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
research	PC-1 Able to conduct research on information systems and technologies, analyze scientific and technical information and experimental results	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work
production and technological	PC-7 Capable of analyzing the digital footprint of a person (a group of people) and information and communication systems	SC-7.1 Collects and prepares digital footprint data for analysis PC-7.2 Tests hypotheses and identifies patterns in data sets PC-7.3 Visualizes the results of digital footprint analysis

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
production and technological	PC-8 Able to conduct analytical research using big data technologies	PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data PC-8.2 Analyzes and selects methods and tools for big data analysis PC-8.3 Conducts analytical work using big data technologies

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies
	Able to summarize the results of experiments and research in the field of information systems and technologies
	Has the skills to analyze domestic and foreign experience in the field of information systems and technologies
PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies
	Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems
	Possesses the skills to substantiate the choice of applied research methods
PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies
	Able to develop research programs in the field of information systems and technologies
	Has the skills to develop draft schedules and programs for conducting individual elements of research and development work
SC-7.1 Collects and prepares digital footprint data for analysis	Knows the structure and sources of the digital footprint, methods of data preprocessing
	Able to collect and pre-process digital footprint data
	Skilled in collecting and preparing digital footprint data for analysis
PC-7.2 Tests hypotheses and identifies patterns in data sets	Knows data processing algorithms, software, libraries and frameworks for data analysis
	Able to apply data processing algorithms, specialized software for data analysis
	Has the skills to test hypotheses and search for patterns in data arrays
PC-7.3 Visualizes the results of digital footprint analysis	Knowledge of data visualization techniques, specialized data visualization software

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
	Able to use specialized software, libraries and frameworks for data visualization
	Proficient in visualization of digital footprint analysis results
PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data	Knows big data sources, technologies for storing and processing big data
	Able to extract, clean, integrate and transform large amounts of data
	Skilled in identifying big data sources for analysis, extracting, validating and cleaning data
PC-8.2 Analyzes and selects methods and tools for big data analysis	Knows the theoretical and applied foundations of big data analysis, modern methods and tools for big data analysis
	Knows how to select appropriate methods and tools for big data analysis
	Possesses the skills of comparative analysis and reasonable choice of methods and tools for analyzing big data
PC-8.3 Conducts analytical work using big data technologies	Knows the theoretical and applied foundations of big data analysis, data analysis technologies
	Able to plan and conduct analytical work using big data technologies
	Proficient in analytical work using big data technologies

6. STRUCTURE AND CONTENT OF PRACTICE INCLUDING PRACTICAL TRAINING

No. p/p	Stages of practice	Types of work in practice, including practical training and independent work of students	Labor intensity (in hours)	Current control form
1	Preparatory	Safety briefing Introductory classes	2	Interview
2	Theoretical	Analysis of the tasks set for research	24	Individual task
3	Practical	Completion of assigned tasks	34	Demonstration to the head of research
4	Final	Registration of results, preparation of a report, presentations	6	Report
5	final	Report protection	6	Performance
TOTAL			72	

7. TRAINING AND METHODOLOGICAL SUPPORT FOR SELF-STANDING STUDENTS' INTERNSHIP WORK

Student independent work (SIW) is one of the forms of practice and is organized with the aim of:

- systematization and consolidation of the received theoretical knowledge and practical skills of students;
- deepening and expanding theoretical knowledge;
- formation of the ability to work with various types of information, the ability to use normative, legal, reference documentation and special literature;
- development of cognitive abilities of students;
- the formation of such personality traits as responsibility and organization, independence of thinking, the ability to self-development, self-improvement and self-realization.

Educational and methodological support for independent work of students in practice are:

- educational literature on previously mastered profile disciplines;
- regulatory documents regulating the activities of the enterprise (organization) where the student is practicing;
- methodological developments for students that determine the order of passing and the content of the practice;
- reporting forms and instructions for completing them.

Independent work of a student (according to an individual task) includes:

- 1) research of the subject area;
- 2) performance of an individual task;
- 3) analysis of the obtained results, their interpretation and adjustment of work plans.

Planned results of independent work - mastering the skills of research work.

The final part is the preparation of a report on the work done with an analysis of the results and conclusions.

8. FORMS OF CERTIFICATION (BY THE RESULTS OF PRACTICE), including a list of forms of assessment used at various stages of the formation of competencies in the course of completing assignments for the production practice "Research work"

No. p/p	Supervised sections of work experience	Code and name of achievement indicator	Learning Outcomes	Evaluation tools *	
				current control	intermediate certification
	Individual task for production practice	UK-1.1 Determines the role and importance of information,	Knows the meaning of information, informatization of society, information technology, basic	PR-9	-

		informatization of society, information technology, uses the theoretical foundations of information processes of information transformation	concepts and definitions of information theory Able to systematize information, apply information transformation methods embedded in modern software tools Possesses the skills of creating, accumulating and processing information		
		UK-1.2 Selects modern methods of information technology and software tools for searching, collecting, processing and transmitting information to solve standard problems	Knows the main modern technical and software tools for obtaining, processing, storing and transmitting information and methods for solving standard problems in professional activities Ability to properly use modern software tools to solve tasks Has the skills to correctly apply modern methods of information technology and software tools for searching, analyzing, organizing and transmitting information to solve standard problems	PR-9	-
		UK-3.1 Determines their role in social interaction and teamwork, based on the strategy of cooperation to achieve the set goal	Knows the role in social interaction and teamwork, based on the strategy of cooperation to achieve the goal Able to organize activities within the framework of a role in social interaction and teamwork, based on a cooperation strategy to achieve the set goal Possesses the skills to implement a role in social interaction and teamwork, based on a cooperation strategy to achieve the goal	PR-9	
		UK-3.2 Sharing information, knowledge and	Knows the structure of the process of sharing information, knowledge	PR-9	

		experience with team members	and experience with team members Able to share information, knowledge and experience with team members Has the skills to share information, knowledge and experience with team members		
		PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-9	
		PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems Possesses the skills to substantiate the choice of applied research methods	PR-9	
		PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies Able to develop research programs in the field of information systems and technologies Has the skills to develop draft schedules and programs for conducting individual elements of	PR-9	

			research and development work		
		PC-7.1 Develops models and layouts of RTS software modules	Knows methods and tools for developing models and layouts of RTS software modules Able to analyze methods and tools for developing models and layouts of RTS software modules Has the skills to develop models and layouts of RTS software modules	PR-9	
		PC-7.2 Develops layouts of RTS electronic modules	Knows the basic principles of RTS electronic modules development Able to use knowledge of the functioning of electronic modules to develop layouts Has the skills to develop layouts of RTS electronic modules	PR-9	
		PC-7.3 Develops and programs RTS microprocessor modules	Knows the architecture and basic principles of microprocessor programming Able to develop programs for microprocessor modules Possesses skills in development and programming of RTS microprocessor modules	PR-9	
		PC-8.1 Able to plan the use of software and hardware systems and their modules based on smart technologies	Knows the main areas of application of smart technologies Knows how to plan the use of smart technologies Has the skills to use software and hardware systems and their modules based on smart technologies	PR-9	
		PC-8.2 Able to configure and apply software and hardware systems based on smart	Knows methods of optimizing software and hardware systems based on smart technologies Knows how to use software and hardware	PR-9	

		technologies	systems based on smart technologies Skilled in setting up and using software and hardware systems based on smart technologies		
		PC-8.3 Able to develop software and hardware modules of complexes based on smart technologies	Knows the basic methods of developing software and hardware modules based on smart technologies Able to develop software and hardware modules of complexes based on smart technologies Has the skills to develop software and hardware modules of complexes based on smart technologies	PR-9	
	Running a Field Practice Report	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-16	-
	Protection of the practice report			-	UO-1

* Forms of evaluation tools:
Interview (WP-1), draft (WP-9), practice report (WP-16).

Current control over the work of students is carried out during interviews, verification of interim reporting on completed individual tasks.

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To receive a credit with an assessment based on the results of the internship, the student must complete the internship program in full, complete and submit all necessary reporting documents in a timely manner. The results of the work done

should be reflected in the practice report. The report is checked and signed by the head of practice from the enterprise, then it is submitted to the head of practice from the university during the last week of practice on time. If the place of internship is a subdivision of FEFU, the report is drawn up by the student and submitted to the head of the internship from the university.

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A student who has not completed the practice program for a good reason is sent to practice again in his free time from classroom studies. A student who fails to complete an internship program without a valid reason or receives an unsatisfactory grade is considered to have an academic debt. The liquidation of this debt is carried out in accordance with the FEFU regulations.

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Main literature

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List of resources of the information and telecommunications network

"Internet"

1. Library of publications on the site "To help graduate students. Section "Science and scientific methodology":<http://dis.finansy.ru/publ/yarsk/002.htm>

2. PhD in Russia. Postgraduate and doctoral student portal:<http://phdru.com/>
3. National Open Education Platform<https://openedu.ru/>
4. Legal Information System<http://www.consultant.ru/>
5. Scientific electronic library eLIBRARY RFBR projectwww.elibrary.ru
6. Information technology portals:<http://www.citforum.ru>,<http://www.intuit.ru>
7. Portal of the Association of Enterprises of Computer and Information Technologies (AKIT):<http://www.apkit.ru>
8. Business processes. Approaches to optimization, modeling and reengineering. Informicus Company website:<http://www.informicus.ru/Default.aspx?SECTION=4&id=92>
9. Methods of business process reengineering. Quality management resource:<http://quality.eup.ru/DOCUM3/pbvrbk.html>
10. Modeling business processes. Information site on "ISO 9000, quality system, quality management, quality control, certification":http://www.kpms.ru/General_info/BPM.htm
11. Modeling and reengineering of business processes. Website of the consulting company "Intellectual Solutions":http://www.iso14001.ru/?p=18&row_id=22

List of information technologies and software

The location of the computer equipment on which the software is installed, the number of jobs	Software List
Vladivostok, about. Russian, p. Ajaxd.10,building D, aud. D734 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security
Vladivostok, about. Russian, p. Ajaxd.10,building L, room. L450 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security

10. LOGISTICS AND TECHNICAL SUPPORT OF INDUSTRIAL PRACTICE

The following laboratory equipment and specialized rooms are available for students to conduct research related to the implementation of the practice task, as well as to organize independent work, which comply with the current sanitary and fire safety standards, as well as safety requirements for educational and scientific production work:

Name of equipped premises and premises for independent work	List of main equipment
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D 734 classroom for conducting seminar-type classes, practical classes: computer class	Monoblock HPP-B0G08ES#ACB/8200E AIO i52400S 500G 4.0G 28 PC - 15 pcs Multimedia equipment: Projection screen ScreenLine Trim White Ice50 cmblack border on top, working area size 236x147 cm Document camera Avervision CP355AF LCD panel 47", Full HD, LG M4716 CCBA Mitsubishi EW330U multimedia projector, 3000 ANSI Lumen, 1280x800 Network video camera Multipix MP-HD718
Reading rooms of the FEFU Scientific Library with open access to the fund (building A - level 10) Auditorium for independent work	HP ProOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/- RW,GigEth,Wi-Fi,BT,usb kbd/mse,Win7Pro (64-bit)+Win8.1Pro(64-bit),1-1-1 Wty Internet access speed 500 Mbps. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-print texts, scanning and reading machines, a video enlarger with the ability to regulate color spectra; magnifying electronic loupes and ultrasonic markers
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D821 15 places specialized laboratory DI&KS: Information systems administration laboratory	15 computers (system unit model - 30AGCT01WW RZ + monitor AOC 28" LI2868POU)

In order to provide special conditions for the education of people with disabilities and people with disabilities in FEFU, all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilets, information and navigation support signs.



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education

"Far Eastern Federal University"

(FEFU)

Institute of Mathematics and Computer Technologies (School)

INTERNSHIP WORK PROGRAM

Undergraduate practice
for the direction of training

09.03.02 Information systems and technologies

Undergraduate program

Digital footprint analytics

Vladivostok
2023

1. GOALS OF MASTERING INDUSTRIAL PRACTICE

The objectives of undergraduate practice are:

- generalization of professional knowledge obtained in the learning process;
- formation of practical skills for conducting independent scientific work;
- selection of the necessary materials for the final qualification work
- preparation of the final qualifying work for defense.

Practice is an important form of communication between the university and production and therefore should also be used for the purpose of scientific and technical assistance to enterprises by scientists and students in the form of rationalization proposals, developments and calculations to improve the informatization of production processes. At the same time, the achievement of the main goal is envisaged: the acquisition of experience in the study of an actual scientific problem, as well as the selection of the necessary materials for the completion of the final qualifying work, the design of the final qualifying work.

2. OBJECTIVES OF INDUSTRIAL PRACTICE

Pre-diploma practice is an important stage before graduation design, as a result of which the student should be clear, basically resolved and partially formalized all the key issues of the project, collected material and conducted all the necessary research. The practice has a clearly expressed special character in relation to the subject of graduation design and, along with this, is one of the forms of communication between the university and production, assisting in solving urgent problems of production, in cooperation with the forces of the scientific and pedagogical workers of the department and student interns. Pre-diploma practice and subsequent diploma design are the final stages of bachelor's preparation.

The tasks of undergraduate practice are:

- in-depth study of all production processes related to the topic of the graduation project and future production activities;
- deepening the theoretical training and expanding the technical horizons of the student by studying engineering, technology, organization and economics of production, studying technical literature, linking them with practical activities in the future profession;
- development of a creative attitude and abilities in solving information technology issues and the desire to gain a foothold in the workforce;
- collection and preparation of materials necessary for the completion of the final qualifying work.

3. THE PLACE OF INTERNSHIP IN THE BRI STRUCTURE

Undergraduate practice is an integral part of the main professional educational program, included in block 2 "Practice" of the curriculum (index B2.V.06 (P)).

The total labor intensity of practice (8th semester, 4th course) is 4 weeks, 6 credits, 216 hours.

The practice is based on the following disciplines: "Information systems programming technologies", "Information systems tools", "Discrete mathematics", "Information systems architecture", "Operating systems", "Infocommunication systems and networks", "Information systems security and information protection in networks", "Fundamentals of design activities", "Information systems and technologies development standards", "Information systems and technologies design methods and tools", "Information systems and networks administration", "Data management fundamentals", "Data analysis and machine learning", "Algorithms and data structures", "Methods of artificial intelligence", "Big data", etc.

To master this practice, students must:

- know the methods of developing programs for solving standard problems;
- know the basics of computer science;
- know the algorithmic programming language;
- know the information technologies used in the preparation of documents;
- be able to develop algorithms for solving problems using a computer;
- know how to check the correctness of the program.

4. TYPES, METHODS, PLACE AND TIME OF INTERNSHIP

Type of practice: industrial practice.

Type of practice: undergraduate practice.

Method of conducting the practice: stationary or traveling.

Form of practice: concentrated.

Time of the production practice: in accordance with the curriculum for four weeks in the eighth semester of study in the 4th year.

Places of undergraduate practice:

Institutes of the Far Eastern Branch of the Russian Academy of Sciences;

Enterprises and organizations of Vladivostok and the Far Eastern Federal District;

Department of information and computer systems IMIKT and other divisions of FEFU.

The head of the graduate qualification work is appointed as the head of the undergraduate practice.

For persons with disabilities and the disabled, the choice of places for internship is consistent with the requirement of their accessibility for these students, and the practice is carried out taking into account the peculiarities of their psychophysical development, individual capabilities and health status.

5. STUDENT COMPETENCES FORMED AS A RESULT OF INTERNSHIP

Professional competencies and indicators of their achievement:

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
research	PC-1 Able to conduct research on information systems and technologies, analyze scientific and technical information and experimental results	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work
design	PC-2 Able to work in an international project team in the field of information systems and technologies, analyze, plan project work	PC-2.1 Analyzes methods and tools for designing information systems and technologies PC-2.2 Organizes the execution of projects in the field of information technology based on project plans PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans
organizational and managerial	PC-3 Able to provide organizational support for the project in the field of information systems and technologies	PC-3.1 Organizes interaction with the customer and other stakeholders of the project PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations

Task type	Code and name of professional competence (result of development)	Code and name of the indicator of achievement of competence
production and technological	PC-4 Capable of developing software using programming languages, defining and manipulating data	PC-4.1 Able to describe requirements for integrated software in terms of architecture PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces PC-4.3 Develops integrated software, interaction interfaces
production and technological	PC-5 Capable of testing, preparing and applying test datasets	PC-5.1 Understands the software testing process and software product life cycle PC-5.2 Able to use special software for automated testing PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure
production and technological	PC-6 Capable of analyzing, developing and applying network technologies based on physical and logical layer protocols	PC-6.1 Able to analyze the use and quality of use of network technologies PC-6.2 Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems PC-6.3 Capable of identifying and eliminating incidents in information and communication and server systems
production and technological	PC-7 Capable of analyzing the digital footprint of a person (a group of people) and information and communication systems	SC-7.1 Collects and prepares digital footprint data for analysis PC-7.2 Tests hypotheses and identifies patterns in data sets PC-7.3 Visualizes the results of digital footprint analysis
production and technological	PC-8 Able to conduct analytical research using big data technologies	PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data PC-8.2 Analyzes and selects methods and tools for big data analysis PC-8.3 Conducts analytical work using big data technologies

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies
	Able to summarize the results of experiments and research in the field of information systems and technologies
	Has the skills to analyze domestic and foreign experience in the field of information systems and technologies
PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies
	Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems
	Possesses the skills to substantiate the choice of applied research methods
PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work	Knows the principles of forming plans for conducting research in the field of information systems and technologies
	Able to develop research programs in the field of information systems and technologies
	Has the skills to develop draft schedules and programs for conducting individual elements of research and development work
PC-2.1 Analyzes methods and tools for designing information systems and technologies	Knows the basic methods of designing information systems and technologies
	Can identify and analyze design methods
	Proficient in analyzing methods and tools for designing information systems and technologies
PC-2.2 Organizes the execution of projects in the field of information technology based on project plans	Knows the basic methods of organizing the execution of project work
	Able to organize the execution of projects in the field of information technology
	Has the skills to organize the execution of projects in the field of information technology
PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans	Knows the methods and means of monitoring the implementation of projects
	Able to estimate the time required to complete project milestones
	Has the skills to control the implementation of projects
PC-3.1 Organizes interaction with the customer and other stakeholders of the project	Knows the basic principles of organizing interaction with the customer
	Able to analyze information from the customer and other stakeholders of the project
	Has the skills to organize interaction with the customer and other stakeholders of the project
PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies	Knows the main stages of the organization of the contractual process
	Able to monitor the implementation of contracts
	Has the skills to conclude contracts and monitor their implementation

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management
	Able to ensure the coordination and distribution of documentation
	Has the skills to manage the approval and distribution of documentation in accordance with established regulations
PC-4.1 Able to describe requirements for integrated software in terms of architecture	Knows the architecture, structure and functioning of modern information systems
	Able to analyze the architecture, structure and functioning of modern information systems
	Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system
PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces	Knows the basic methods and tools for software design
	Able to apply methods and tools for designing software, data structures, databases, programming interfaces
	Has skills in applying methods and tools for designing software, data structures, databases, program interfaces
PC-4.3 Develops integrated software, interaction interfaces	Knows the tools and techniques for developing integrated software
	Able to design and create integrated software, interaction interfaces
	Has the skills to develop integrated software, interaction interfaces
PC-5.1 Understands the software testing process and software product life cycle	Knows the basic methods of software testing
	Can analyze software testing process
	Has the skills to analyze the software testing process and the life cycle of a software product
PC-5.2 Able to use special software for automated testing	Knows the main types of special software for automated testing
	Able to configure special software for automated testing
	Proficient in using special software for automated testing
PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure	Knows the general principles of system recovery after a failure
	Able to compare and analyze, independently find the information necessary to restore systems after a failure
	Has the skills to analyze and search for information necessary to restore systems after a failure
PC-6.1 Able to analyze the use and quality of use of network technologies	Knows the architecture, device and basic principles of network technologies
	Able to analyze the use and quality of use of network technologies
	Has the skills to analyze the use and quality of use of network technologies
PC-6.2 Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems	Knows the possibilities of typical schemes for backup, archiving and recovery of information and communication and server systems
	Able to configure and apply schemes for backup, archiving and recovery of information and communication and server

Code and name of the indicator of achievement of competence	Name of the assessment indicator (the result of training in practice)
	systems
	Proficient in the use of schemes for backup, archiving and recovery of information and communication and server systems
PC-6.3 Capable of identifying and eliminating incidents in information and communication and server systems	Knows the tools and methods for identifying incidents in information and communication and server systems
	Able to identify incidents in information and communication and server systems
	Has the skills to eliminate incidents in information and communication and server systems
SC-7.1 Collects and prepares digital footprint data for analysis	Knows the structure and sources of the digital footprint, methods of data preprocessing
	Able to collect and pre-process digital footprint data
	Skilled in collecting and preparing digital footprint data for analysis
PC-7.2 Tests hypotheses and identifies patterns in data sets	Knows data processing algorithms, software, libraries and frameworks for data analysis
	Able to apply data processing algorithms, specialized software for data analysis
	Has the skills to test hypotheses and search for patterns in data arrays
PC-7.3 Visualizes the results of digital footprint analysis	Knowledge of data visualization techniques, specialized data visualization software
	Able to use specialized software, libraries and frameworks for data visualization
	Proficient in visualization of digital footprint analysis results
PC-8.1 Identifies big data sources for analysis, extracts, validates and cleans data	Knows big data sources, technologies for storing and processing big data
	Able to extract, clean, integrate and transform large amounts of data
	Skilled in identifying big data sources for analysis, extracting, validating and cleaning data
PC-8.2 Analyzes and selects methods and tools for big data analysis	Knows the theoretical and applied foundations of big data analysis, modern methods and tools for big data analysis
	Knows how to select appropriate methods and tools for big data analysis
	Possesses the skills of comparative analysis and reasonable choice of methods and tools for analyzing big data
PC-8.3 Conducts analytical work using big data technologies	Knows the theoretical and applied foundations of big data analysis, data analysis technologies
	Able to plan and conduct analytical work using big data technologies
	Proficient in analytical work using big data technologies

6. STRUCTURE AND CONTENT OF PRACTICE INCLUDING PRACTICAL TRAINING

No. p / p	Stages of practice	Types of work in practice, including practical training and independent work of students	Labor intensity (in hours)	Current control form
1	Preparatory	Safety briefing Introductory classes	4	Interview
2	Theoretical	Analysis of the tasks set at the WRC	40	Individual task
3	Practical	Completion of assigned tasks	120	Demonstration to the head of the WRC
4	WRC preparation	Registration of results in the form of WRC	36	WRC
5	Final	Registration of results, preparation of a report, presentations	10	Report
6	final	Protection of reports, presentation of WRC results	6	Performance
TOTAL			216	

7. TRAINING AND METHODOLOGICAL SUPPORT FOR SELF-STANDINGSTUDENTS' INTERNSHIP WORK

Student independent work (SIW) is one of the forms of practice and is organized with the aim of:

- systematization and consolidation of the received theoretical knowledge and practical skills of students;
- deepening and expanding theoretical knowledge;
- formation of the ability to work with various types of information, the ability to use normative, legal, reference documentation and special literature;
- development of cognitive abilities of students;
- the formation of such personality traits as responsibility and organization, independence of thinking, the ability to self-development, self-improvement and self-realization.

Educational and methodological support for independent work of students in industrial practice are:

- educational literature on previously mastered profile disciplines;
- normative documents regulating the activities of the enterprise (organization) where the student undergoes internship;
- methodological developments for students that determine the order of passage and the content of the industrial practice;
- reporting forms and instructions for completing them.

Independent work of a student (according to an individual task) includes:

- 1) research of the subject area;
- 2) performance of an individual task;
- 3) analysis of the obtained results, their interpretation and adjustment of work plans.

The final part is the preparation of a report on the work done with an analysis of the results and conclusions.

8. FORMS OF CERTIFICATION (BY THE RESULTS OF PRACTICE), including a list of forms of assessment used at various stages of the formation of competencies in the course of completing assignments for the production practice "Undergraduate practice"

No. p / p	Supervised sections of work experience	Code and name of achievement indicator	Learning Outcomes	Evaluation tools *	
				current control	intermediate certification
	Individual task for production practice	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-9	
		PC-1.2 Conducts experiments and draws up the results of research and development in the field of information systems and technologies	Knows the methods of conducting experiments in the field of information systems and technologies Knows how to choose appropriate methods for reporting research results at all stages of the life cycle of information systems Possesses the skills to substantiate the choice of applied research methods	PR-9	

		<p>PC-1.3 Able to develop draft schedules and programs for carrying out individual elements of research and development work</p>	<p>Knows the principles of forming plans for conducting research in the field of information systems and technologies Able to develop research programs in the field of information systems and technologies Has the skills to develop draft schedules and programs for conducting individual elements of research and development work Knows the architecture, structure and functioning of modern information systems Able to analyze the architecture, structure and functioning of modern information systems Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system</p>	PR-9	
		<p>PC-4.1 Able to describe requirements for integrated software in terms of architecture</p>	<p>Knows the architecture, structure and functioning of modern information systems Able to analyze the architecture, structure and functioning of modern information systems Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system</p>	PR-9	
		<p>PC-2.1 Analyzes methods and tools for designing information systems and</p>	<p>Knows the basic methods of designing information systems and technologies Can identify and analyze design methods Proficient in analyzing methods and tools for</p>	PR-16	

		technologies	designing information systems and technologies		
		PC-2.2 Organizes the execution of projects in the field of information technology based on project plans	Knows the basic methods of organizing the execution of project work Able to organize the execution of projects in the field of information technology Has the skills to organize the execution of projects in the field of information technology	PR-16	
		PC-2.3 Monitors the implementation of projects in the field of information technology based on project plans	Knows the methods and means of monitoring the implementation of projects Able to estimate the time required to complete project milestones Has the skills to control the implementation of projects	PR-16	
		PC-3.1 Organizes interaction with the customer and other stakeholders of the project	Knows the basic principles of organizing interaction with the customer Able to analyze information from the customer and other stakeholders of the project Has the skills to organize interaction with the customer and other stakeholders of the project	PR-9	
		PC-3.2 Organizes the conclusion of contracts, monitors the implementation of contracts in projects in the field of information systems and technologies	Knows the main stages of the organization of the contractual process Able to monitor the implementation of contracts Has the skills to conclude contracts and monitor their implementation	PR-9	

		PC-3.3 Manages the coordination and distribution of documentation in accordance with established regulations	Knows the basic principles of document management Able to ensure the coordination and distribution of documentation Has the skills to manage the approval and distribution of documentation in accordance with established regulations	PR-9	
		PC-4.1 Able to describe requirements for integrated software in terms of architecture	Knows the architecture, structure and functioning of modern information systems Able to analyze the architecture, structure and functioning of modern information systems Has the skills to analyze the architecture, structure and operation of information systems in order to select the optimal configuration of the information system	PR-9	
		PC-4.2 Applies methods and tools for designing software, data structures, databases, software interfaces	Knows the basic methods and tools for software design Able to apply methods and tools for designing software, data structures, databases, programming interfaces Has skills in applying methods and tools for designing software, data structures, databases, program interfaces	PR-9	
		PC-4.3 Develops integrated software, interaction interfaces	Knows the tools and techniques for developing integrated software Able to design and create integrated software, interaction interfaces Has the skills to develop integrated software, interaction interfaces	PR-9	

		PC-5.1 Understands the software testing process and software product life cycle	Knows the basic methods of software testing Can analyze software testing process Has the skills to analyze the software testing process and the life cycle of a software product	PR-9	
		PC-5.2 Able to use special software for automated testing	Knows the main types of special software for automated testing Able to configure special software for automated testing Proficient in using special software for automated testing	PR-9	
		PC-5.3 Able to compare and analyze, independently find the information necessary to restore systems after a failure	Knows the general principles of system recovery after a failure Able to compare and analyze, independently find the information necessary to restore systems after a failure Has the skills to analyze and search for information necessary to restore systems after a failure	PR-9	
		PC-6.1 Able to analyze the use and quality of use of network technologies	Knows the architecture, device and basic principles of network technologies Able to analyze the use and quality of use of network technologies Has the skills to analyze the use and quality of use of network technologies	PR-9	
		PC-6.2 Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems	Knows the possibilities of typical schemes for backup, archiving and recovery of information and communication and server systems Able to configure and apply schemes for backup, archiving and recovery of information and communication and server systems	PR-9	

			Proficient in the use of schemes for backup, archiving and recovery of information and communication and server systems		
		PC-6.3 Capable of identifying and eliminating incidents in information and communication and server systems	Knows the tools and methods for identifying incidents in information and communication and server systems Able to identify incidents in information and communication and server systems Has the skills to eliminate incidents in information and communication and server systems	PR-9	
		SC-7.1 Collects and prepares digital footprint data for analysis	Knows the structure and sources of the digital footprint, methods of data preprocessing Able to collect and pre-process digital footprint data Skilled in collecting and preparing digital footprint data for analysis	PR-9	
		PC-7.2 Tests hypotheses and identifies patterns in data sets	Knows data processing algorithms, software, libraries and frameworks for data analysis Able to apply data processing algorithms, specialized software for data analysis Has the skills to test hypotheses and search for patterns in data arrays	PR-9	
		PC-7.3 Visualizes the results of digital footprint analysis	Knowledge of data visualization techniques, specialized data visualization software Able to use specialized software, libraries and frameworks for data visualization Proficient in visualization of digital footprint analysis results	PR-9	
		PC-8.1 Identifies big data sources for analysis, extracts, validates and	Knows big data sources, technologies for storing and processing big data Able to extract, clean, integrate and transform	PR-9	

		cleans data	large amounts of data Skilled in identifying big data sources for analysis, extracting, validating and cleaning data		
		PC-8.2 Analyzes and selects methods and tools for big data analysis	Knows the theoretical and applied foundations of big data analysis, modern methods and tools for big data analysis Knows how to select appropriate methods and tools for big data analysis Possesses the skills of comparative analysis and reasonable choice of methods and tools for analyzing big data	PR-9	
		PC-8.3 Conducts analytical work using big data technologies	Knows the theoretical and applied foundations of big data analysis, data analysis technologies Able to plan and conduct analytical work using big data technologies Proficient in analytical work using big data technologies	PR-9	
	Running a Field Practice Report	PC-1.1 Collects, processes, analyzes and summarizes the results of experiments and research, domestic and foreign experience in the field of information systems and technologies	Knows the methodological basis for collecting and processing the results of research in the field of information systems and technologies Able to summarize the results of experiments and research in the field of information systems and technologies Has the skills to analyze domestic and foreign experience in the field of information systems and technologies	PR-16	
	Protection of the practice report				UO-1

* Forms of evaluation tools:

Interview (WP-1), draft (WP-9), practice report (WP-16).

Current control over the work of students is carried out during interviews, verification of interim reporting on completed individual tasks.

The form of attestation based on the results of undergraduate practice is a test with an assessment.

The result of pre-diploma practice is the final qualifying work prepared for defense.

To receive a credit with an assessment based on the results of the internship, the student must complete the internship program in full, complete and submit all necessary reporting documents in a timely manner. The results of the work done should be reflected in the practice report.

The report is checked and signed by the head of practice from the enterprise, then it is submitted to the head of practice from the university during the last week of practice on time. If the place of internship is a subdivision of FEFU, the report is drawn up by the student and submitted to the head of the internship from the university.

The final grade for the practice is set on the basis of all submitted documents, through which the regularity of visiting the place of practice, the thoroughness of the report, the student's initiative shown in the process of practice and the ability for independent professional activity are revealed.

A student who has not completed the practice program for a good reason is sent to practice again in his free time from classroom studies. A student who fails to complete an internship program without a valid reason or receives an unsatisfactory grade is considered to have an academic debt. The liquidation of this debt is carried out in accordance with the FEFU regulations.

9. EDUCATIONAL-METHODOLOGICAL AND INFORMATION SUPPORT OF INDUSTRIAL PRACTICE

Main literature

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1. Bederdinova, O. I. Business process modeling technologies[Electronic resource]: textbook / O.I. Bederdinov. — M.: INFRA-M, 2022. — 102 p. -Access mode:<https://znanium.com/catalog/product/1913625>
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7. Grekul, V. I. Design of information systems[Electronic resource]: textbook / V. I. Grekul, G. N. Denishchenko, N. L. Korovkina. - M. : Internet University of Information Technologies (INTUIT), IP Ar Media, 2020. - 299 p. - Access mode:<http://www.iprbookshop.ru/97577.html>

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11. Information and network economy: structure, dynamics, regulation[Electronic resource]: monograph / S.A. Dyatlov, V.P. Maryanenko, T.A. Selishchev. — M. : INFRA-M, 2019. — 414 p. - Access mode:<http://znanium.com/catalog/product/1002862>

12. Information systems and digital technologies. Part 1[Electronic resource]: textbook / V.V. Trofimov, M.I. Barabanova, V.I. Kiyayev, E.V. Trofimova; under total ed. prof. V.V. Trofimov and V.I. Kiyayev. — M.: INFRA-M, 2021. — 253 p. —Access mode:<https://znanium.com/catalog/product/1370826>

13. Information systems and digital technologies. Part 2[Electronic resource]: tutorial. / under total ed. prof. V.V. Trofimov and V.I. Kiyayev. - Moscow: INFRA-M, 2021. - 270 p. -Access mode:<https://znanium.com/catalog/product/1786660>

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Regulatory materials

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List of resources of the information and telecommunications network

"Internet"

1. Control Library. Group decisions. Site corporate management:http://www.cfin.ru/management/decision_science2.shtml#p7
2. Business processes. Approaches to optimization, modeling and reengineering. Informicus Company website:<http://www.informicus.ru/Default.aspx?SECTION=4&id=92>
3. Information society. Information site:http://infdeyatchel.narod.ru/inf_ob.htm
4. Methods of business process reengineering. Quality management resource:<http://quality.eup.ru/DOCUM3/pbvrbk.html>

5. Modeling of business processes. Information site on "ISO 9000, quality system, quality management, quality control, certification":http://www.kpms.ru/General_info/BPM.htm

6. Modeling and reengineering of business processes. Website of the consulting company "Intellectual Solutions":http://www.iso14001.ru/?p=18&row_id=22

7. Website of the magazine "Information Society":<http://www.infosoc.iis.ru/>

8. Decision support systems. Website Bibliofond:<http://bibliofond.ru/view.aspx?id=723891>

List of information technologies and software

The location of the computer equipment on which the software is installed, the number of jobs	Software List
Vladivostok, about. Russian, p. Ajaxd.10,building D, aud. D734 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security
Vladivostok, about. Russian, p. Ajaxd.10,building L, room. L450 15 places	MS Office, MS Visual Studio, Anaconda Navigator, Jupiter Notebook, Java, Virtual Box, Google Chrome, Acrobat Reader, 7-Zip, Kaspersky Endpoint Security

10. LOGISTICS AND TECHNICAL SUPPORT OF INDUSTRIAL PRACTICE

The following laboratory equipment and specialized rooms are available for students to conduct research related to the implementation of the practice task, as well as to organize independent work, which comply with the current sanitary and fire safety standards, as well as safety requirements for educational and scientific production work:

Name of equipped premises and premises for independent work	List of main equipment
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D 734 classroom for conducting seminar-type classes, practical classes: computer class	Monoblock HPP-B0G08ES#ACB/8200E AIO i52400S 500G 4.0G 28 PC - 15 pcs Multimedia equipment: Projection screen ScreenLine Trim White Ice50 cmlblack border on top, working area size 236x147 cm Document camera Avervision CP355AF LCD panel 47", Full HD, LG M4716 CCBA Mitsubishi EW330U multimedia projector, 3000 ANSI Lumen, 1280x800 Network video

	camera Multipix MP-HD718
Reading rooms of the FEFU Scientific Library with open access to the fund (building A - level 10) Auditorium for independent work	HP ProOpe 400 All-in-One 19.5 (1600x900), Core i3-4150T, 4GB DDR3-1600 (1x4GB), 1TB HDD 7200 SATA, DVD+/- RW, GigEth, Wi-Fi, BT, usb kbd/mse, Win7Pro (64-bit)+Win8.1Pro(64-bit), 1-1-1 Wty Internet access speed 500 Mbps. Workplaces for people with disabilities are equipped with Braille displays and printers; equipped with: portable devices for reading flat-print texts, scanning and reading machines, a video enlarger with the ability to regulate color spectra; magnifying electronic loupes and ultrasonic markers
Vladivostok, about. Russian, p. Ajaks d.10, building D, room. D821 15 places specialized laboratory DI&KS: Information systems administration laboratory	15 computers (system unit model - 30AGCT01WW RZ + monitor AOC 28" LI2868POU)

In order to provide special conditions for the education of people with disabilities and people with disabilities in FEFU, all buildings are equipped with ramps, elevators, lifts, specialized places equipped with toilets, information and navigation support signs.