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MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution
Higher Education
"NORTH CAUCASUS FEDERAL UNIVERSITY"

APPROVED BY
Acting Director of the Institute
Advanced Engineering
Cand. Tech. Sci., Associate Professor
A.A. Porokhnya

DISCIPLINE ASSESSMENT TOOLS FUND
"Principles of Communications"

Field of study	11.03.02 Infocommunication Technologies and Communication Systems
Profile	Intelligent Data Processing in Infocommunication Systems and Networks
Year of start of training	2026
Form of study	Full-time
Implemented in a semester	6

Introduction

1. Purpose

The Principles of Communications assessment tool fund is designed to objectively assess the level of competence formation.

2. The FAT is an appendix to the program of the discipline "Principles of Communications".

3. The developer is A.V. Bazhenov, Associate Professor of the Department of Digital, Robotic Systems and Electronics of the Institute of Advanced Engineering.

4. An examination of the FOC was carried out.

Members of the expert group:

Chairman: V.P. Mochalov, Professor of the Department of Digital, Robotic Systems and Electronics of the Institute of Advanced Engineering.

Members of the Commission:

S.V. Yakovlev, Associate Professor of the Department of Digital, Robotic Systems and Electronics of the Institute of Advanced Engineering.

S.V. Melnikov, Senior Researcher of the Interdisciplinary Training and Research Center for Agricultural Technologies, Associate Professor of the Department of Digital, Robotic Systems and Electronics of the Institute of Advanced Engineering.

Representative of the employer's organization:

Mironov V.A., General Director of Orintex LLC.

Expert opinion: The FAT for the discipline allows you to assess the level of competence formation. Start approbation.

5. The validity period of the FAT is determined by the period of implementation of the educational program.

1. Description of the criteria for assessing competence at various stages of their formation, description of assessment scales

Competencies, indicators	Levels of competence formation,			
	The minimum level has not been reached (Unsatisfactory) 2 points	Minimum level (satisfactory) 3 points	Intermediate level (good) 4 points	High level (excellent) 5 points
Competency: PC-1				
Learning outcomes in the discipline (module): <i>Indicator:</i> ID-1PK-1 understands and is guided by the principles of construction and operation of communication networks, including their constituent subsystems, and signaling protocols, standards for the quality of data, voice and video transmission used in communication networks, in the legislation of the Russian Federation in the field of communications.	Does not understand and is not familiar with the principles of construction and operation of structured cabling systems	Poorly understands and is sufficiently oriented in the principles of construction and operation of structured cabling systems	Sufficiently understands and is well versed in the principles of construction and operation of structured cabling systems	Fully and at a high level understands and is guided in the principles of construction and operation of structured cabling systems
ID-2PC-1 analyzes statistical parameters of traffic, develops solutions for operational reconfiguration of the network, changing the parameters of the switching subsystem, network platforms, for the use of equipment of new technologies; changing and adjusting the parameters of the switching	It is not able to develop solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the organization of new and expansion of existing information and communication networks based on SCS technology	Makes minor mistakes in the development of solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the organization of new and expansion of existing information and communication networks based on SCS technology	In general, it is able to develop solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the organization of new and expansion of existing	Develops high-level solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the

subsystem, transport networks and data transmission networks, for organizing new and expanding existing communication directions.			information and communication networks based on SCS technology	organization of new and expansion of existing information and communication networks based on SCS technology
ID-4PC-1 develops schemes for the organization of communication and integration of new network elements, builds and expands the switching subsystem and network platforms; performs work on switching equipment, deploys equipment for service platforms, equipment for new technologies on the network, fulfills plans for the expansion of existing equipment of network platforms and new technologies.	Unable to design structured cabling systems with the ability to implement plans to expand existing equipment, network platforms and new technologies.	Poorly able to design structured cabling systems with the ability to implement plans to expand existing equipment, network platforms and new technologies.	Able to design structured cabling systems at a good level with the ability to implement plans to expand existing equipment, network platforms and new technologies.	Designs high-level structured cabling systems with the ability to implement plans to expand existing equipment, network platforms and new technologies.
Competency: PC-3				
<i>Indicator:</i> ID-1PK-3 understands regulatory, regulatory, technical, organizational and methodological documents that regulate the design preparation, implementation and operation of communication systems (telecommunication systems), the construction of facilities and	Does not understand and does not apply international and national standards, regulatory documentation for the design of structured cabling systems in practice	Poorly understands and generally applies international and national standards, regulatory documentation for the design of structured cabling systems in practice	Understands at a sufficient level and applies international and national standards, regulatory documentation for the design of structured cabling systems without gross mistakes in practice	Understands at a high level and fully applies in practice international and national standards, regulatory documentation for the design of structured cabling systems

communication lines.				
ID-3PK-3 calculates the parameters and characteristics of the network and infocommunication facilities, analyzes their qualitative indicators based on statistics and radio measurements, and uses specialized design software	It is not able to calculate the parameters of structured cabling systems, including the use of specialized software.	In general, without gross errors, it calculates the parameters of structured cabling systems, including the use of specialized software.	Calculates the parameters of structured cabling systems, including the use of specialized software.	At a high level, it carries out calculations of the parameters of structured cabling systems, including the use of specialized software.
ID-4PK-3 identifies and analyzes the advantages and disadvantages of design solutions, assesses the risks associated with the implementation of the project.	Unable to identify and analyze the advantages and disadvantages of structured cabling design options	In general, it is able to identify and analyze the advantages and disadvantages of design solutions for structured cabling systems	Identifies and analyzes the advantages and disadvantages of structured cabling design options	Identifies and analyzes the advantages and disadvantages of structured cabling design options at a high level
ID-5PK-3 collects initial data for the design of the network and infocommunication facilities, determination of the optimal configuration and topology of the transport network; develops technical solutions for the implementation of the communication system (telecommunication system) and its components.	Unable to collect input data for the design of structured cabling systems and their components.	Collects initial data for the design of structured cabling systems and their components without gross errors	In general, it collects initial data for the design of structured cabling systems and their components at a good level.	Carries out high-level collection of initial data for the design of structured cabling systems and their components.
Competency: PC-5				
<i>Indicator:</i> ID-1PK-5 understands the current industry standards that determine the requirements for the parameters of the operation of equipment, channels and paths; methods for	Does not understand and does not comply with the requirements of standards, technical regulations and industry regulations that determine the requirements for	In general, he understands and complies with the requirements of standards, technical regulations and industry regulations that determine the requirements for the design of	Understands and complies with standards, technical regulations and industry regulations that define the requirements for the design of structured cabling systems	Understands and complies with the requirements of standards, technical regulations and industry regulations defining the requirements for the design

checking the technical condition of equipment, paths and transmission channels.	the design of structured cabling systems	structured cabling systems without gross errors		of structured cabling systems at a high level
ID-2PK-5 complies with the technologies for setting up, adjusting and testing communication (telecommunications) equipment, operating rules and methods of using measuring and testing equipment.	Does not comply with the technology of installation and configuration of structured cabling equipment	In general, without gross errors, it complies with the technologies for the installation and configuration of structured cabling equipment	Complies with the technologies for the installation and configuration of structured cabling equipment	Observes at a high level the technology for the installation and configuration of structured cabling equipment
ID-5PC-5 selects and uses the appropriate test and measurement equipment, uses the equipment software when setting it up.	Unable to select and cannot use test and measurement equipment for installation and configuration of structured cabling systems	Selects and uses test and measurement equipment for installation and configuration of structured cabling systems without gross errors	Selects and uses test and measurement equipment for the installation and configuration of structured cabling systems	Selects and uses test and measurement equipment at a high level for the installation and configuration of structured cabling systems
Competency: PC-8				
ID-1PK-8 complies with the instructions for the installation and operation of the administered network devices and software; the regulations for preventive maintenance on the administered information and communication system.	Does not comply with the instructions for installation, operation and maintenance of structured cabling systems, does not orient himself in the work regulations	Poorly complies with the instructions for installation and operation of SCS, makes mistakes when performing routine maintenance	In general, he complies with the instructions for installation, operation and maintenance of SCS, performs routine maintenance with minor errors	Fully and competently complies with the instructions for installation, operation and maintenance of SCS, confidently performs routine and preventive maintenance
ID-2PC-8 installs operating systems of network devices; monitors administered network devices; uses standard data recovery procedures, works with	Unable to install, configure and monitor SCS equipment, does not apply diagnostic and recovery methods	Performs basic operations with SCS equipment, but makes errors in monitoring and diagnostics	In general, correctly performs installation, configuration and monitoring of SCS, applies standard methods of diagnostics and recovery	Confidently installs, configures, monitors and diagnoses SCS, competently applies recovery and maintenance procedures

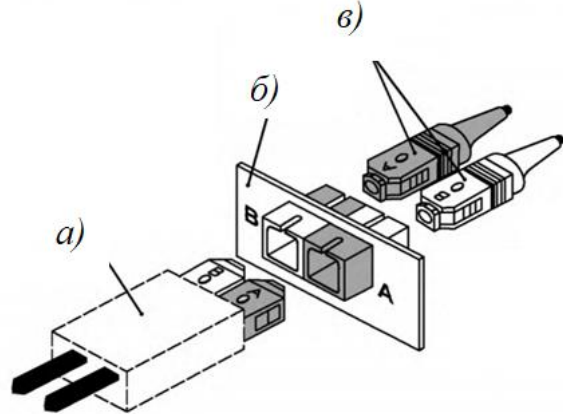
archiving servers and operating system management tools; draws up a backup schedule for the operating systems of network devices; disassembles and assembles administered network devices.				
ID-3PC-8 uses modern means of monitoring the performance of the administered network; it uses regulatory and technical documentation in the field of information and communication technologies to solve problems.	Does not use control tools and is not guided by the regulatory and technical documentation on SCS	Poorly uses SCS testing tools, has difficulties when working with regulatory documentation	Uses the main means of monitoring the SCS parameters and applies regulatory documentation	Confidently uses modern SCS testing tools and competently applies regulatory and technical documentation
ID-4PC-8 performs work on rebooting the operating systems of network devices, planning the schedule for copying the software of the network infocommunication system, restoring parameters using archiving servers and management tools of specialized operating systems of network equipment.	Unable to restore SCS operability and plan routine maintenance	Performs certain operations to restore SCS with errors, poorly participates in work planning	In general, it performs the restoration of SCS operability and participates in the planning of routine measures	Confidently performs SCS restoration, competently plans and implements routine maintenance
ID-5PK-8 carries out routine maintenance of	Unable to perform routine maintenance of SCS in accordance	Performs SCS maintenance in violation of the manufacturer's	In general, it correctly performs routine	Carries out routine maintenance of SCS at a high

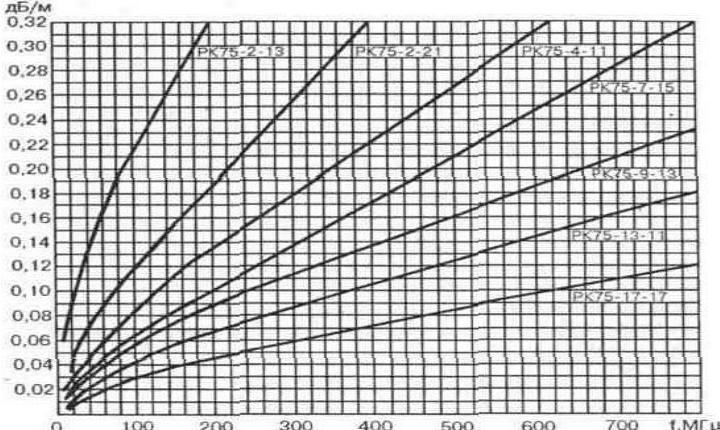
equipment in accordance with the manufacturer's recommendations .	with the requirements of	requirements and recommendations	maintenance of SCS	level in full compliance with the requirements and recommendations of manufacturers
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ASSESSMENT TOOLS TO CHECK THE LEVEL OF FORMATION OF COMPETENCIES

Job Number	Correct answer	Content of the question	Competence
Form of study: Full-time Semester 6			
1.	c)	Which of the following is not a sign of SCS: a) Has a standardized structure and topology; b) Uses components (cables, switchgears, connectors, etc.) only from the closed list defined by the standard; c) All elements of the structure are directly interconnected d) Provides standardized parameters (attenuation, bandwidth, etc.) of communication lines organized with its help; e) Managed (administered) by standardized methods	PC-1
2.	b)	What material are the conductors of a symmetrical cable made of? a) polyethylene b) copper c) cordel d) all answers are correct e) there is no correct answer	PC-1
3.	b)	The choice of the method of presenting information in the form of signals sent to the communication line is called? (a) Capacity b) Physical or linear coding c) Link immunity d) All answers are correct e) No Correct Answer	PC-1
4.	d)	Which network includes: terminal subscriber devices, individual connecting lines, switching devices: a) Backbone network b) primary network c) local primary network d) secondary network e) there is no correct answer	PC-1

5.	c)	Bandwidth for single-mode fiber: a) 300 MHz*km b) 2000 MHz*km c) 50-100 GHz*km d) 800 MHz*km e) No Correct Answer	PC-1
6.	b)	Name the cause of mutual electromagnetic influences between symmetrical circuits of electrical communication cables a) magnetic influence (magnetic coupling) b) joint electric and magnetic influence c) Electrical influence (electrical communication)	PC-1
7.	b)	Multiplexing (group formation) is called a) the process of combining several channels b) the process of sealing several channels c) the process of densification of physical communication lines	PC-1
8.	a)	Linear attenuation is: a) uniform reduction of signal amplitude, regardless of its frequency b) attenuation associated with multipath transmission of the signal c) the methodology for measuring the radio frequency path	PC-1
9.	a)	What is synchronization (a) The process of ensuring the equality of phase shifts and time channel intervals b) the process of establishing and maintaining certain temporal relations between two or more processes c) the process of coordination of various nodes of the transmission system	PC-1

10.	1-c) 2-a) 3-b)	 Establish a match: 1) Simplex Connectors 2) Duplex Connector 3) Adapter	
11.		Define structured cabling systems (SCS)	PC-1
12.		What regulatory documents determine the requirements for SCS	PC-1
13.		List the advantages of SCS	PC-1
14.		List the technological methods of performing work on the installation of structured cabling systems using FOCL	PC-1
15.		List the technological methods for setting up equipment for structured cabling systems based on FOCL	PC-1
16.		List the technological methods for measuring attenuation in SCS communication lines	PC-1
17.		Procedure for choosing a cable type for a horizontal SCS subsystem	PC-1
18.		Procedure for choosing a cable type for a vertical SCS subsystem	PC-1
19.		Fire safety requirements and the use of cables in SCS	PC-1
20.		Describe the SCS interface system	PC-1
21.		Technology for checking the integrity of the SCS cable system	PC-1
22.		Choosing a topology for an enterprise structured cabling system	PC-1
23.		Reliability requirements for SCS	PC-1
24.		Reliability indicators applied to SCS	PC-1

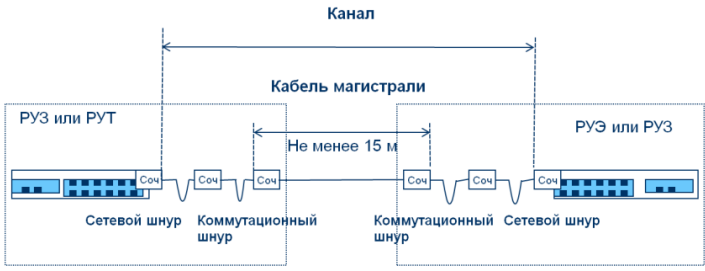
25.		Measures to improve reliability during SCS operation	PC-1
26.	b)	The type of protective cover of a cable with round wire armor is marked with the letters: a) B b) K c) Sh d) D e) BkShp	PC-3
27.	1-a) 2-c) 3-c) 4-d)	Match analytic expression to calculated parameter 1- Wave impedance 2- Linear capacity 3- Linear inductance 4- Dielectric Attenuation Coefficient a) $Z_{\epsilon} = \frac{60}{\sqrt{\epsilon}} * \ln\left(\frac{D}{d}\right)$ b) $L = Z_{\epsilon}^2 * C$ c) $C = 2\pi\epsilon_0\epsilon / \ln(D/d)$ d) $\alpha_{\epsilon} = 9 \cdot 10^{-11} \cdot f \sqrt{\epsilon} \cdot \text{tg}\delta$	PC-3
28.	0.17 or 0.17		PC-3

		To determine the linear attenuation of the RK-75-2-21 coaxial cable at a frequency of 180 MHz according to the graphs	
29.	b)	What are the conditions for laying ZKPC brand cable? a) through mountainous, navigable and floating rivers, swamps with a depth of more than 2 m. b) in sewer pipes, collectors, shafts, in stable soils c) in soils of all categories, if there is a danger of damage by rodents d) all answers are correct e) there is no correct answer	PC-3
30.	d)	The main characteristics of communication lines include: (a) Frequency response and bandwidth b) attenuation, noise immunity c) bandwidth, reliability of data transmission d) All answers are correct e) No Correct Answer	PC-3
31.	a)	Material dispersion in fiber optics is caused by: a) The refractive index changes with the wavelength b) The refractive index changes with phase c) The refractive index changes with the power of the electrical signal d) The refractive index changes with frequency e) No Correct Answer	PC-3
32.	a)	For what purposes are protective sheaths used in the cable? a) to provide protection against moisture penetration and external electromagnetic influences b) to evenly distribute the weight of the cable c) to reduce linear attenuation	PC-3
33.	a) b)	What are the advantages of multi-directional twisting (SZ twist) compared to classic twisting? a) it allows you to combine the process of twisting with the application of a protective shell b) allows to increase labor productivity in the production of cables; c) increase in noise immunity	PC-3

34.	c)	What are the ways to make permanent connections of optical fibers? a) manual, semi-automatic, automatic; b) glue, using mechanical connectors, by welding; c) glue, crimping, with the help of a press, with the help of welding.	PC-3
35.	a)	How does transient attenuation at the far end of a coaxial circuit change with a change in signal frequency? a) first decreases, then stabilizes; b) it decreases monotonously; c) it increases monotonically.	PC-3
36.		List the main components of SCS	PC-3
37.		SCS topologies and their characteristics	PC-3
38.		Composition and purpose of vertical and horizontal SCS subsystems	PC-3
39.		Continue the definition. SCS design standards define	PC-3
40.		Continue the definition. SCS installation standards determine	PC-3
41.		Continue the definition. SCS administration standards define	PC-3
42.		What does the structured cabling property reflect?	PC-3
43.		What does the SCS redundancy property reflect?	PC-3
44.		Which reflects the property of the versatility of SCS	PC-3
45.		Horizontal Cable Mounting Technology on Patch Panel	PC-3
46.		Technology for laying horizontal cables to floor switching sockets	PC-3
47.		Connection of subscriber equipment to floor switching sockets	PC-3
48.		Tools and technology for the manufacture of connecting cables	PC-3
49.		Procedure for certification of cable systems	PC-3
50.		Switching methods implemented in SCS	PC-3
51.	a)	What type of coaxial cable is intended for laying in areas of high lightning activity and in areas of convergence with power lines, as well as electrified railway: a) LME b) ISBS c) KMG d) TDSB	PP-5

		e) KMC	
52.	a)	What types of insulation of conductive conductors are most widely used in electrical symmetrical communication cables? a) tubular, cordel, solid, porous, rubber, mica b) tubular, paper-porous, cordel, solid, porous, rubber c) tubular, paper-porous, cordel, solid, porous, balloon, film-porous	PP-5
53.	b)	A consolidation point is: (a) Transmission media and interconnection equipment that provide interconnections between telecommunications, hardware and city inputs within or between buildings b) the connection point of horizontal (distribution) cables coming out of the conduits and horizontal open office cables entering the furniture conduits. c) a connecting device at the workplace where a horizontal or socket cable is cut.	PP-5
54.	a)	The backbone subsystem is: a) transmission media and connecting equipment that provide interconnections between telecommunications, equipment and city inputs within or between buildings. b) the connection point of horizontal (distribution) cables coming out of the conduits and horizontal open office cables entering the furniture conduits. c) a connecting device at the workplace where a horizontal or socket cable is cut.	PP-5
55.	c)	A telecommunication socket/connector is: a) connecting equipment that provides interconnections between telecommunications, hardware and city inputs inside or between buildings. b) the connection point of horizontal (distribution) cables coming out of the conduits and horizontal open office cables entering the furniture conduits. c) a connecting device at the workplace where a horizontal or socket cable is cut.	PP-5
56.	d)	What is not an element of the main cable subsystem of the first level: a) switching cords and jumpers of the main cross b) switching equipment on which the cables of the main subsystem of the first level are located in the main and intermediate crossings c) cables of the main subsystem of the first level d) switching cords and jumpers of the intermediate crossover	PP-5
57.	g)	What is not an element of the horizontal cable subsystem: a) cable of the horizontal subsystem; b) switching cords and crossover bridges of the horizontal crossing;	PP-5

		c) switching equipment in the horizontal cross-section, on which the cable of the horizontal subsystem is terminated; d) telecommunication sockets at the workplace where the cable of the horizontal subsystem is terminated; e) multi-user sockets at the workplace where the cable of the horizontal subsystem is terminated; f) consolidation points g) all of the above are elements of the horizontal subsystem	
58.	e)	If the load resistance exceeds the characteristic resistance of the cable, then: a) a reflected signal of opposite polarity with a smaller amplitude is formed b) a reflected signal of the same polarity with a greater amplitude is formed c) there is no reflected signal d) a reflected signal of opposite polarity with a greater amplitude is formed e) a reflected signal of the same polarity with a lower amplitude is formed	PP-5
59.	a)	If the load resistance is less than the characteristic resistance of the cable, then: a) a reflected signal of opposite polarity with a smaller amplitude is formed b) a reflected signal of the same polarity with a greater amplitude is formed c) there is no reflected signal d) a reflected signal of opposite polarity with a greater amplitude is formed e) a reflected signal of the same polarity with a lower amplitude is formed	PP-5
60.	b)	What are the three main types of single-mode optical fibers? (a) Standard single-mode fibres, non-dispersion fibres, non-zero dispersion biased fibres; b) standard single-mode fibers, fibers with dispersion shift, fibers with shifted non-zero dispersion. c) standard single-mode fibers, fibers with high dispersion, fibers with low dispersion;	PP-8

61.		 Give the characteristics of the path model shown in the figure	PP-8
62.		Procedure for calculating the attenuation of the SCS communication channel. Required tools and equipment	PP-8
63.		Maximum lengths of SCS horizontal path components	PP-8
64.		What technologies and technical means are used to connect SCS lines and subsystems	PP-8
65.		How to create a new project in the nanoCAD BIM CKC environment	PP-8
66.		Procedure for creating a building topology in the nanoCAD BIM CKC environment	PP-8
67.		Automatic distribution of workstations in the room implemented in the nanoCAD BIM CKC environment	PP-8
68.		Installation of a mounting cabinet on the floor plan in the nanoCAD BIM CKC environment	PP-8
69.		Connection of workstations to the assembly cabinet in the nanoCAD BIM CKC environment	PP-8
70.		Laying of routes with cable support systems	PP-8
71.		Generation of SCS project output documentation in the nanoCAD BIM CKC environment	PP-8
72.		Features of 3D representation of SCS graphic objects	PP-8
73.		Improving SCS reliability due to link aggregation	PP-8
74.		Improve SCS performance with redundancy and STP configuration	PP-8
75.		Use of Active Switching Equipment in SCS	PP-8

2. Description of the rating scale

Within the framework of the rating system, the progress of students in the discipline "Structured Cable Systems" is evaluated in the course of current control and intermediate certification.

3. Criteria for assessing competencies*

An "excellent" grade is given to a student if he/she fully and at a high level understands and orients himself in the principles of construction and operation of structured cabling systems; develops high-level solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the organization of new and expansion of existing information and communication networks based on SCS technology; designs structured cabling systems at a high level with the possibility of implementing plans to expand the existing equipment of network platforms and new technologies; understands and actively applies in practice international and national standards, regulatory documents for the design of structured cabling systems; at a high level carries out calculations of the parameters of structured cabling systems, including the use of specialized software; identifies and analyzes the advantages and disadvantages of options for design solutions of structured cabling systems; at a high level, collects initial data for the design of structured cabling systems and their components; observes at a high level the technologies for the installation and configuration of structured cabling system equipment; selects and uses test and measuring equipment for installation and configuration of structured cabling systems at a high level.

A "good" grade is given to a student if he/she understands and is well versed in the principles of construction and operation of structured cabling systems; in general, is able to develop solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the organization of new and expansion of existing infocommunication networks based on SCS technology; is able to design structured cabling systems at a good level with the possibility of implementing plans to expand the existing equipment of network platforms and new technologies; applies international and national standards, regulatory documentation for the design of structured cabling systems without gross errors in practice; calculates the parameters of structured cabling systems, including using specialized software; identifies and analyzes the advantages and disadvantages of design solutions for structured cabling systems; carries out a good level of collection of initial data for the design of structured cabling systems and their components; observes the technologies for the installation and configuration of structured cabling system equipment; is able to select and use test and measuring equipment for installation and configuration of structured cabling systems.

A "satisfactory" grade is given to a student if he/she has a poor understanding and is mainly oriented in the principles of construction and operation of structured cabling systems; makes minor mistakes in the development of decisions on the operational reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, on the organization of new and expansion of existing information and communication networks based on SCS technology; poorly able to design structured cabling systems with the possibility of implementing plans to expand the existing equipment of network platforms and new technologies; poorly understands and generally applies in practice international and national standards, regulatory documentation for the design of structured cabling systems; in general, without gross errors, carries out calculations of the parameters of structured cabling systems, including the use of specialized software; is able to identify and analyze the advantages and disadvantages of a limited number of options for design solutions of structured cabling systems; collects initial data for the design of structured cabling systems and their components without gross errors; in general, without gross errors, follows the technologies for the installation and configuration of structured cabling system equipment; selects and uses test and measuring equipment for installation and configuration of structured cabling systems without gross errors.

An "unsatisfactory" grade is given to a student if he does not understand and is not guided

by the principles of construction and operation of structured cabling systems; is not able to develop solutions for the prompt reconfiguration of structured cabling systems (SCS), parameters of the switching subsystem, transport networks and data transmission networks, for the organization of new and expansion of existing information and communication networks based on SCS technology; is not able to design structured cabling systems with the possibility of implementing plans to expand the existing equipment of network platforms and new technologies; does not understand and does not apply in practice international and national standards, regulatory documentation for the design of structured cabling systems; is not able to calculate the parameters of structured cabling systems, including using specialized software; is not able to identify and analyze the advantages and disadvantages of design solutions for structured cabling systems; is not able to collect initial data for the design of structured cabling systems and their components; does not understand and does not comply with the requirements of standards, technical regulations and industry regulatory documents that determine the requirements for the design of structured cabling systems; does not comply with the technology of installation and configuration of structured cabling system equipment; is not able to select and cannot use test and measuring equipment for installation and configuration of structured cabling systems