

MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution
higher education
NORTH CAUCASIAN FEDERAL UNIVERSITY

I APPROVE

Dean of the Faculty of Mathematics
and computer science named after
Professor N.I. Chervyakov,
Candidate of Physical and
Mathematical Sciences, Associate
Professor
Grobova T.A.

ASSESSMENT TOOLS FUND FOR DISCIPLINE

Intelligent Terminal Operating System / Интеллектуальная терминальная операционная
система

Direction of training	02.04.01 Mathematics and Computer Science
Directionality (profile)	Training Program for Electronic Information
Year of commencement of studies	2026
Form of study	full-time
It is implemented in semesters	3

Introduction

1. Purpose

The assessment tools fund is intended for ongoing monitoring of academic performance and midterm assessment in the discipline "Intelligent Terminal Operating System / Интеллектуальная терминальная операционная система" for full-time students majoring in 02.04.01 Mathematics and computer science.

2. FOS is an appendix to the program of the discipline "Intelligent Terminal Operating System / Интеллектуальная терминальная операционная система".

3. Developer: Alexey Vyacheslavovich Shaposhnikov, Associate Professor of the Department of Mathematical Modeling.

4. An examination of the organophosphorus compounds was carried out.
Members of the expert group:

Chairman:

Poddubnaya N.A. – Chairman of the Teaching and Methodological Committee of the Faculty of Mathematics and Computer Science named after Professor N.I. Chervyakov

Members of the commission:

Gladkov A.V. – member of the teaching and methodological committee of the Department of Computational Mathematics and Cybernetics;

Andrukhiv L.V. – member of the teaching and methodological committee of the Department of Mathematical Modeling;

Kopytkova L.B. – member of the teaching and methodological committee of the department of mathematical analysis, algebra and geometry.

Representative of the employer organization: Lapin V.G. – Head of the Automated Control System Department of the Stavropol Regional Clinical Consultative and Diagnostic Center.

Expert opinion: The FOS for the course " Intelligent Terminal Operating System / Интеллектуальная терминальная операционная система " allows for assessing the level of competency development. Recommended for use in the educational process.

April 15 , 2026

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

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

Competence(s), indicator(s)	Descriptors			
	The minimum level has not been reached (unsatisfactory) 2 points	Minimum level (satisfactorily) 3 points	Intermediate level (Fine) 4 points	High level (excellent) 5 points
Competence: PC-4. Capable of conducting patent research, determining forms and methods of legal protection and defense of rights to the results of intellectual activity, and managing rights to them to solve problems in the field of development of science, engineering and technology				
<i>ID-1_{PC-4}</i> <i>Makes rational choices regarding methods of protecting intellectual property rights;</i> <i>ID-2_{PC-4}</i> <i>Conducts patent research in the field of computing and communication systems.</i>	Does not know the purpose, composition, functions of operating systems, and the mechanisms for managing processes and memory, input-output	Difficulty formulating the purpose, composition, functions of operating systems, and mechanisms for managing processes and memory, input-output	Has a fairly complete knowledge of the purpose, composition, functions of operating systems, and mechanisms for managing processes and memory, input-output	Fully knows the purpose, composition, functions of operating systems, and mechanisms for managing processes and memory, input-output
Competence: PC-5. Able to present and adapt mathematical knowledge, programming methods and information technology in various ways, taking into account the level of the audience				
<i>ID-1_{PC-5}</i> <i>Assesses the level of preparation of listeners during their public speeches</i> <i>ID-2_{PC-5}</i> <i>Adapts the presentation of mathematical knowledge and programming methods to the level of the students</i>	Cannot use the API to develop command and batch files	Difficulty developing command and batch files	Can use the API to develop batch files	Can use the API to develop command and batch files
Competence: PC-7. Able to create and explore new mathematical models in the natural sciences, industry and business, taking into account the capabilities of modern information technology, programming and computer equipment				
<i>ID-1_{PC-7}</i> <i>With the help of modern information technologies, explores newly created mathematical models in the</i>	Cannot install, configure and work in modern operating systems	Difficulty installing, configuring and working in modern operating systems	Possesses skills in installation, configuration and operation of modern operating systems	Has perfect skills in installing, configuring and working with modern operating systems

<i>natural sciences of industry;</i> <i>ID-2</i> PC-7 <i>Conducts Parallel Computer and Network Technologies as part of his professional activities</i> <i>ID-3</i> PC-7 <i>Uses modern programming languages and application software packages to implement specific algorithms and mathematical models</i>				
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EVALUATION TOOLS FOR CHECKING THE LEVEL OF DEVELOPMENT OF COMPETENCIES

Task number	Correct answer	Contents of the question	Competence
1.	19 52	In what year was the first operating system created?	PC-4 PC-5 PC-7
2.	a	An operating system is classified as... software. a) systemic b) applied c) basic d) user	PC-4 PC-5 PC-7
3.	a	The operating system is... a) a set of programs that control the operation of application programs and system applications and act as an interface between users, programmers, application programs, system applications, and computer hardware b) defines an application programming interface as a set of system functions and services (system calls) that are provided to application programs c) implements the user interface (text, graphic, etc.) and provides the user with command and service capabilities for managing application programs and the computer	PC-4 PC-5 PC-7
4.	b	The operating environment is... a) a set of programs that control the operation of application programs and system applications and act as an interface between users, programmers, application programs, system applications, and computer hardware b) defines an application programming interface as a set of system functions and services (system calls) that	PC -4 PC-5 PC-7

		are provided to application programs a) implements the user interface (text, graphic, etc.) and provides the user with command and service capabilities for managing application programs and the computer	
5.	c	The operating shell is... a) a set of programs that control the operation of application programs and system applications and act as an interface between users, programmers, application programs, system applications, and computer hardware b) defines an application programming interface as a set of system functions and services (system calls) that are provided to application programs a) implements the user interface (text, graphic, etc.) and provides the user with command and service capabilities for managing application programs and the computer	PC-4 PC-5 PC-7
6.	1- a 2-b 3-c	... is... 1) operating system 2) operating environment 3) shell a) a set of programs that control the operation of application programs and system applications and act as an interface between users, programmers, application programs, system applications, and computer hardware b) defines an application programming interface as a set of system functions and services (system calls) that are provided to application programs c) implements the user interface (text, graphic, etc.) and provides the user with command and service	PC -4 PC-5 PC-7

		capabilities for managing application programs and the computer	
7.	a	... is a set of programs that control the operation of application programs and system applications and act as an interface between users, programmers, application programs, system applications and computer hardware. a) operating system b) operating environment c) operating shell	PC-4 PC-5 PC-7
8.	b	... defines an application programming interface as a set of system functions and services (system calls) that are provided to application programs a) operating system b) operating environment c) operating shell	PC-4 PC-5 PC-7
9.	c	...implements the user interface (text, graphic, etc.) and provides the user with command and service capabilities for managing application programs and the computer a) operating system b) operating environment c) operating shell	PC -4 PC-5 PC-7
10.	a	Single-tasking operating systems include: a) MS-DOS b) Windows c) Linux	PC-4 PC-5 PC-7
11.	a	Microsoft developed operating systems... a) MS-DOS b) Linux c) OS/2 d) Unix e) NetWare	PC-4 PC-5 PC-7
12.	a	Microsoft developed operating systems... a) Windows	PC-4 PC-5

		b) Linux c) OS/2 d) Unix e) NetWare	PC-7
13.	b	Canonical Ltd developed operating systems... a) Windows b) Linux c) OS/2 d) Unix e) NetWare	PC-4 PC-5 PC-7
14.	c	IBM developed operating systems... a) Windows b) Linux c) OS/2 d) Unix e) NetWare	PC -4 PC-5 PC-7
15.	d	AT&T has developed operating systems that include: a) Windows b) Linux c) OS/2 d) Unix e) NetWare	PC-4 PC-5 PC-7
16.	e	The Novell company developed operating systems that include: a) Windows b) Linux c) OS/2 d) Unix e) NetWare	PC-4 PC-5 PC-7
17.	a	Single-tasking operating systems include: a) MS-DOS b) OS/2 c) Unix	PC-4 PC-5 PC-7

18.	c	Multitasking operating systems include: a) MS-DOS b) MSX c) OS/2	PC-4 PC-5 PC-7
19.	c	Multitasking operating systems include: a) MS-DOS b) MSX c) Unix	PC-4 PC-5 PC-7
20.	c	Multitasking operating systems include: a) MS-DOS b) MSX c) Windows 95	PC -4 PC-5 PC-7
21.	c	Multitasking operating systems include: a) MS-DOS b) MSX c) Linux	PC-4 PC-5 PC-7
22.	a	Single-user operating systems include: a) MS-DOS b) OS/2 c) Unix	PC-4 PC-5 PC-7
23.	a	Single-user operating systems include: a) Windows 3.1 b) OS/2 c) Unix	PC-4 PC-5 PC-7
24.	c	Multi-user operating systems include: a) Windows 3.1 b) MS-DOS c) Unix	PC-4 PC-5 PC-7
25.	c	Multi-user operating systems include: a) Windows 3.1 b) MS-DOS c) Linux	PC-4 PC-5 PC-7
26.	c	Multi-user operating systems include:	PC-4

		a) Windows 3.1 b) MS-DOS c) Windows XP	PC-5 PC-7
27.	c	Operating systems that support multiprocessing include: a) Windows 3.1 b) Windows 95 c) Windows NT	PC -4 PC-5 PC-7
28.	c	Operating systems that support multiprocessing include: a) MS-DOS b) Windows 95 c) Windows 2000	PC-4 PC-5 PC-7
29.	a	The degree of compliance with its purpose determines ... the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC-4 PC-5 PC-7
30.	b	The ability to operate for a given period of time determines the ... of the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility	PC-4 PC-5 PC-7

		i) Convenience j) Scalability	
31.	c	The ability to withstand failures in operation determines ... the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC -4 PC-5 PC-7
32.	d	The ability to ensure the security of processed information determines ... the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC-4 PC-5 PC-7
33.	e	The expected results of the program's work are determined by ... the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability	PC -4 PC-5 PC-7

		f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	
34.	f	The ability to make changes without compromising the integrity determines ... the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC-4 PC-5 PC-7
35.	g	Support for different processors and hardware platforms determines the ... operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC-4 PC-5 PC-7
36.	h	The ability to run applications from other systems is determined by... a) Efficiency b) Reliability	PC -4 PC-5 PC-7

		c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	
37.	i	The presence of a graphical user interface and all kinds of wizards determines ... the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC-4 PC-5 PC-7
38.	j	The linear increase in performance with increasing number of processors determines the ... of the operating system. a) Efficiency b) Reliability c) Fault tolerance d) Safety e) Predictability f) Extensibility g) Tolerability h) Compatibility i) Convenience j) Scalability	PC-4 PC-5 PC-7

39.	a	The efficiency of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	PC -4 PC-5 PC-7
40.	b	The reliability of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing	PC -4 PC-5 PC-7

		number of processors	
41.	c	The fault tolerance of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	PC-4 PC-5 PC-7
42.	d	Operating system security is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all	PC -4 PC-5 PC-7

		kinds of wizards j) linear increase in performance with increasing number of processors	
43.	e	The predictability of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	PC-4 PC-5 PC-7
44.	f	The extensibility of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware	PC -4 PC-5 PC-7

		platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	
45.	g	Operating system portability is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	PC -4 PC-5 PC-7
46.	h	Operating system compatibility is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity	PC-4 PC-5 PC-7

		g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	
47.	i	The convenience of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	PC -4 PC-5 PC-7
48.	j	The scalability of an operating system is determined by... . a) degree of compliance with its purpose b) ability to work for a given time c) ability to withstand operational failures d) the ability to ensure the security of processed information e) the expectation of the results obtained from the	PC-4 PC-5 PC-7

		program's operation f) the ability to make changes without compromising integrity g) support for various processors and hardware platforms h) the ability to run applications from other systems i) the presence of a graphical user interface and all kinds of wizards j) linear increase in performance with increasing number of processors	
49.	a	The command line interface of operating systems is denoted by the abbreviation a) CLI b) WIMP c) SILK	PC -4 PC-5 PC-7
50.	b	The graphical interface of operating systems is denoted by the abbreviation a) CLI b) WIMP c) SILK	PC-4 PC-5 PC-7
51.	c	The voice interface of operating systems is designated by the abbreviation a) CLI b) WIMP c) SILK	PC-4 PC-5 PC-7
52.	a	CLI interface of operating systems a) command line b) graphic c) voice	PC-4 PC-5 PC-7
53.	b	WIMP interface of operating systems a) command line b) graphic c) voice	PC-4 PC-5 PC-7

54.	c	SILK interface of operating systems a) command line b) graphic c) voice	PC-4 PC-5 PC-7
55.	a b c d	Arrange the working units of operating systems in descending order, from largest to smallest. a) Exercise b) Process c) Flow d) Fiber	PC-4 PC-5 PC-7
56.	a	The largest unit of work in an operating system, describing the computer's resources required to perform a task a) Exercise b) Process c) Flow d) Fiber	PC -4 PC-5 PC-7
57.	b	A unit of work in an operating system generated by a task a) Exercise b) Process c) Flow d) Fiber	PC-4 PC-5 PC-7
58.	c	A unit of work in an operating system that is a sequence of commands a) Exercise b) Process c) Flow d) Fiber	PC-4 PC-5 PC-7
59.	d	The smallest unit of work in an operating system a) Exercise b) Process c) Flow d) Fiber	PC-4 PC-5 PC-7

60.	a	A task in an operating system is... a) The largest unit of work b) A unit of work in an operating system generated by a task c) A unit of work in an operating system that is a sequence of commands d) The smallest unit of work in an operating system	PC-4 PC-5 PC-7
61.	b	A process in an operating system is... a) The largest unit of work b) A unit of work in an operating system generated by a task c) A unit of work in an operating system that is a sequence of commands d) The smallest unit of work in an operating system	PC-4 PC-5 PC-7
62.	c	A thread in an operating system is... a) The largest unit of work b) A unit of work in an operating system generated by a task c) A unit of work in an operating system that is a sequence of commands d) The smallest unit of work in an operating system	PC-4 PC-5 PC-7
63.	d	Fiber in the operating system is... a) The largest unit of work b) A unit of work in an operating system generated by a task c) A unit of work in an operating system that is a sequence of commands d) The smallest unit of work in an operating system	PC-4 PC-5 PC-7
64.	1-a 2-b 3-c 4-d	... in the operating system is... 1) Exercise 2) Process 3) Flow 4) Fiber	PC -4 PC-5 PC-7

		a) The largest unit of work b) A unit of work in an operating system generated by a task c) A unit of work in an operating system that is a sequence of commands d) The smallest unit of work in an operating system	
65.	a b c d e f g h	Arrange the different types of computer memory in order of increasing capacity... a) Registered memory b) Internal cache c) Second-level cache d) Read-only memory e) Main (RAM) memory f) External drive cache g) Hard drive h) Storage media on various media	PC-4 PC-5 PC-7
66.	a b c d e f g h	Arrange the different types of computer memory in order of increasing access time... a) Registered memory b) Internal cache c) Second-level cache d) Read-only memory e) Main (RAM) memory f) External drive cache g) Hard drive h) Storage media on various media	PC-4 PC-5 PC-7
67.	a b c d e f g	Arrange the different types of computer memory in order of decreasing unit cost per cell... a) Registered memory b) Internal cache c) Second-level cache d) Read-only memory e) Main (RAM) memory	PC -4 PC-5 PC-7

	h	f) External drive cache g) Hard drive h) Storage media on various media	
68.	a b c d e f	Arrange the stages of development of the computer input-output subsystem in the order of evolution... a) The processor directly controls the peripheral device b) The peripheral device is controlled by a controller c) Using the interrupt controller d) Using a direct memory access module (channel) e) Using a separate dedicated I/O processor controlled by the CPU f) Using a separate computer to control I/O devices with minimal CPU intervention	PC-4 PC-5 PC-7
69.	a b c	Rank the methods of performing input/output operations by a computer in order of increasing efficiency... a) Using programmable input/output b) Interrupt-driven I/O c) Direct memory access	PC-4 PC-5 PC-7
70.	An operating system is a set of programs that control the operation of application programs and system applications and act as an interface between users, programmers, application programs, system applications and hardware. computer support.	Give a definition of an operating system.	PC-4 PC-5 PC-7
71.	An operating environment is a software environment formed by an operating system that defines an application programming interface as a set of system functions and services (system calls) that are provided to application programs.	Define the operating environment.	PC-4 PC-5 PC-7
72.	The operating shell implements the user interface (text, graphic, etc.) and provides	What are the functions of the operating shell?	PC-4 PC-5

	the user with command and service capabilities for managing application programs and the computer .		PC-7
73.	A task is the largest unit of work in an operating system and is a collection of one or more processes managed as a single unit.	Define a task in an operating system.	PC-4 PC-5 PC-7
74.	A process is a unit of work in an operating system, generated by a task, which represents a container with descriptions of resources and threads.	Define a process in an operating system.	PC-4 PC-5 PC-7
75.	A thread is a unit of work in an operating system, generated by a process, and representing a sequence of commands.	Define a thread in an operating system.	PC-4 PC-5 PC-7
76.	A fiber is the smallest unit of work in an operating system, generated by a thread and scheduled in user space by the program that created it.	Define fiber in an operating system.	PC-4 PC-5 PC-7
77.	The efficiency of an operating system refers to the degree to which it meets its intended purpose.	What is meant by operating system efficiency?	PC-4 PC-5 PC-7
78.	The reliability of an operating system refers to its ability to operate for a given period of time.	What is meant by operating system reliability?	PC-4 PC-5 PC-7
79.	Fault tolerance of an operating system refers to its ability to withstand failures and malfunctions.	What is meant by fault tolerance of an operating system?	PC-4 PC-5 PC-7
80.	Operating system security refers to its ability to ensure the security of processed information.	What is meant by operating system security?	PC-4 PC-5 PC-7
81.	Predictability of an operating system means the expectability of the results obtained from the programs running under	What is meant by operating system predictability?	PC-4 PC-5 PC-7

	it.		
82.	Extensibility of an operating system refers to the ability to make changes to it without compromising its integrity.	What is meant by operating system extensibility?	PC-4 PC-5 PC-7
83.	Operating system portability refers to its support for various processors and hardware platforms.	What is meant by operating system portability?	PC-4 PC-5 PC-7
84.	Compatibility of an operating system means the ability to run applications from other systems.	What is meant by operating system compatibility ?	PC-4 PC-5 PC-7
85.	The convenience of an operating system means the presence of a graphical user interface and all kinds of wizards.	What is meant by operating system usability ?	PC-4 PC-5 PC-7
86.	Operating system usability refers to a linear increase in performance with an increase in the number of processors.	What is meant by operating system scaling?	PC-4 PC-5 PC-7

Competency assessment criteria

An "excellent" grade is awarded to a student if he or she has a deep knowledge of the program material, is able to closely link theory with practice, and possesses a wide range of skills and techniques for completing practical tasks.

A grade of "good" is given to a student if he/she has a solid knowledge of the material, but minor inaccuracies in the answer are allowed, theoretical knowledge is correctly applied in solving practical questions and problems, and the necessary skills and techniques for their implementation are available.

A “satisfactory” grade is given to a student if he or she has knowledge of only the basic material, but has not mastered its details, contains inaccuracies, insufficiently correct formulations, violations of the logical sequence in the presentation of the program material, and has difficulty applying theoretical knowledge in practice.

A student is given a grade of “unsatisfactory” if they lack knowledge, skills, and abilities on the topics under consideration.