

Документ подписан простой электронной подписью
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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
A.A. Porokhnya

DISCIPLINE ASSESSMENT TOOLS FUND
"Python Program Designing"

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	4

Introduction

1. Purpose: conducting current monitoring of progress and intermediate certification in the discipline "Development of programs in Python".

2. FOS is an appendix to the program of the discipline "Programming in Python"

1. Developer: Shayakhmetov O.Kh., Associate Professor of the Department of Digital, Robotic Systems and Electronics of the Institute of Advanced Engineering.

2. An examination of the FOC was carried out.

Members of the expert group:

Chairman: N.Y. Bratchenko, Chairman of the CMT of the Institute of Advanced Engineering, Associate Professor of the Department of Digital, Robotic Systems and Electronics of the Institute of Advanced Engineering.

Members of the Commission:

V.P. Mochalov, 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

Competence(s), indicator(s)	Levels of competence formation(s),			
	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
Competence: OPK-4				
ID-1 OPK-4 uses information and communication technologies when searching for the necessary information.	Does not understand information and communication technologies when searching for the necessary information	Poorly understands and uses information and communication technologies when searching for the necessary information	Sufficiently understands and uses information and communication technologies when searching for the necessary information	Clearly understands and uses information and communication technologies when searching for the necessary information
ID-2 OPK-4 designs a solution to a specific project task, choosing the best way to solve it, based on the current legal norms and available resources and restrictions.	Has difficulty designing a solution to a specific project task, choosing the best way to solve it, based on the current legal norms and available resources and restrictions.	Does not fully design the solution of a specific project task, choosing the optimal way to solve it, based on the current legal norms and available resources and restrictions	In general, he successfully designs a solution to a specific project problem, choosing the best way to solve it, based on the current legal norms and available resources and restrictions	Perfectly designs a solution to a specific project problem, choosing the best way to solve it, based on current legal regulations and available resources and constraints
ID-3 OPK-4 understands modern interactive software systems and basic methods of processing experimental data, including the use of standard software, general and special-purpose software packages.	Does not understand modern interactive software systems and basic methods of processing experimental data, including the use of standard software, general-purpose and special-purpose software packages	Poorly understands modern interactive software systems and basic methods of processing experimental data, including the use of standard software, general-purpose and special-purpose software packages	Acceptably understands modern interactive software systems and basic methods of processing experimental data, including the use of standard software, general-purpose and special-purpose software packages	He understands modern interactive software systems and the basic methods of processing experimental data, including the use of standard software, general-purpose and special-purpose software packages
ID-4 OPK-4 uses the capabilities of computer technology and software to solve problems of control and algorithmization of information processing processes.	It does not use the capabilities of computing and software to create applications, uses the Python language to solve information processing problems	Poorly uses the capabilities of computing and software to create applications, uses the Python language to solve information processing problems	Uses the capabilities of computing and software to create applications quite fully, uses the Python language to solve information processing problems	Clearly uses the capabilities of computing and software to create applications, uses the Python language to solve information processing problems

Assessment of the level of competence in the discipline is carried out on the basis of the "Regulation on the current monitoring of progress and intermediate certification of students in educational programs of higher education - bachelor's programs, specialist programs, master's programs - in the Federal State Autonomous Educational Institution of Higher Education "North Caucasus Federal University" in the current edition.

ASSESSMENT TOOLS FOR CHECKING THE LEVEL OF COMPETENCE FORMATION

Job Number	Correct answer	Content of the question	Competence
Semester <u>3</u> .			
		What is a version control system and why is it used in software development?	OPK-4
		What advantages does Git offer over other version control systems?	OPK-4
		What is a commit in Git and what information does it contain?	OPK-4
		How do I create a new repository in Git and add files to it?	OPK-4
		How do I create a new branch in Git and switch to it?	OPK-4
		How do I add changes from a working directory to an index in Git?	OPK-4
		What is a Git merge and how do I do it?	OPK-4
		How do I undo the last commit in Git?	OPK-4
		How do I upload changes from a remote repository to a local repository in Git?	OPK-4
		How do I push changes from a local repository to a remote repository in Git?	OPK-4
	3	How do I create a new repository in Git? 1) git new 2) git create 3) git init 4) git clone	OPK-4
	1	What is the "git add" command in Git? 1) Command to add new files to the repository 2) Command to delete files from the repository 3) Command to rename files in repositories 4) Command to move files to another branch	OPK-4
	1	How do I create a new branch in Git? 1) git branch new-branch 2) git new-branch 3) git create-branch 4) Song Init-Branch	OPK-4
	1	What command can I use to find out the status of changes in the working directory and index? 1) git status 2) git log	OPK-4

		3) git diff 4) git checkout	
	4	Which team can download changes from a remote repository? 1) git push 2) git fetch 3) git clone 4) git pull	OPK-4
	4	What command can you use to delete a branch in Git? 1) git delete-branch 2) git remove-branch 3) git erase-branch 4) git branch -d	OPK-4
	3	Which command can undo the last commit in Git? 1) git revert 2) git undo 3) git reset 4) git cancel	OPK-4
	1	Which command can I use to create a new tag in Git? 1) git tag new-tag 2) git new-tag 3) git create-tag 4) git init-tag	OPK-4
	2	Which team can view the commit history in Git? 1) git history 2) git log 3) git show 4) git diff	OPK-4
	1	Which command can you use to add a tag to a specific Git commit? 1) git tag new-tag <commit-hash> 2) git add tag new-tag <commit-hash> 3) git commit -t new-tag <commit-hash> 4) git create-tag new-tag <commit-hash>	OPK-4

	2	Which command can undo changes to a particular file before the last commit in Git? 1) git reset <file> 2) git checkout <file> 3) git undo <file> 4) git revert <file>	OPK-4
	1	What happens when I run the "git clone" command? 1) Copy the repository to the local machine 2) Clone the branch on the remote server 3) Create a new repository on the local machine 4) Delete the repository from the remote server	OPK-4
	1	Какой командой можно отобразить изменения между двумя коммитами в Git? 1) git diff <commit1>.. <commit2> 2) git show <commit1>.. <commit2> 3) git compare <commit1>.. <commit2> 4) git log <commit1>.. <commit2>	OPK-4
	3	Which team can create a new branch and switch to it in Git? 1) git branch new-branch 2) git create-branch new-branch 3) git checkout -b new-branch 4) git switch new-branch	OPK-4
	4	What command can I use to remove a file from Git? 1) git remove <file> 2) git delete <file> 3) git erase <file> 4) git rm <file>	OPK-4
	2	Which command can I use to push changes to a remote server in Git? 1) git send 2) git push 3) git upload 4) git commit	OPK-4
		What is Python and what is it used for?	OPK-4
		What Python libraries do you know and what are they used for?	OPK-4
		What is a variable in Python and how do I declare it?	OPK-4
		What types of data are supported in Python and how do I define them?	OPK-4
		What operators do you know in Python and what are they used for?	OPK-4
		How do I declare a function in Python and how do I call it?	OPK-4
		What are loops in Python and how do I use them?	OPK-4
		How do I handle a bug in Python using the try-except construct?	OPK-4
		What is a module in Python and how do I import it?	OPK-4
		How to create a GUI application in Python using the Tkinter library?	OPK-4
		What is Python and what is it used for?	OPK-4

	<pre> sum = 0 for i in range(1, 1001): if i % 3 == 0 or i % 5 == 0: sum += i print(sum) </pre>	Write a Python program that finds the sum of all numbers from 1 to 1000 that are divisible by 3 or 5.	OPK-4
	<pre> def gcd(a, b): if b == 0: return a else: return gcd(b, a % b) </pre>	Write a function in Python that finds the greatest common divisor of two numbers.	OPK-4
	<pre> text = input("Enter text: ") words = text.split() print("Word count:", len(words)) </pre>	Write a Python program that counts the number of words in the text.	OPK-4
	<pre> def average(numbers): sum = 0 for n in numbers: sum += n return sum / len(numbers) </pre>	Write a function in Python that finds the average of a list of numbers.	OPK-4
	<pre> for num in range(1, 101): if all(num % i != 0 for i in range(2, num)): print(num) </pre>	Write a Python program that finds all the prime numbers from 1 to 100.	OPK-4
	<pre> def factorial(n): if n == 0: return 1 else: </pre>	Write a Python program that finds the factorial of a number.	OPK-4

	<code>return n * factorial(n-1)</code>		
	<pre> matrix = [[1, 2, 3], [4, 5, 6], [7, 8, 9]] sum = 0 for row in matrix: for elem in row: sum += elem print(sum) </pre>	Write a Python program that finds the sum of the elements of the matrix.	OPK-4
	<pre> def lcm(a, b): return a * b / gcd(a, b) </pre>	Write a Python program that finds the smallest common factor of two numbers.	OPK-4
	b	What type of data in Python is designed to store integers? a) float b) int c) str d) bool	OPK-4
	b	What character is used to indicate the beginning of a comment in Python? a) // b) # c) /* d) '	OPK-4
	a	What method is used in Python to remove the last item from the list? a) pop() b) remove() c) del d) clear()	OPK-4
	b	What operator in Python is used to join two lists? a) * b) + c) & d)	OPK-4
	in	Which module in Python is used to work with regular expressions? a) math b) datetime c) re d) os	OPK-4
	a	What method is used in Python to convert a string to a list? a) split() b) join() c) append() d) extend()	OPK-4
	a	What method is used in Python to sort a list in descending order? a) sort(reverse=True) b) sorted(reverse=True) c) reverse() d) sort(reverse=False)	OPK-4
	a	What module does Python use to work with files? a) os b) re c) datetime d) io	OPK-4

		What are the basic structured programming constructs available in Python?	OPK-4
		What are conditional statements? How are they implemented in Python?	OPK-4
		What are loops? What types of loops are there in Python?	OPK-4
		What function is used to read data from standard input?	OPK-4
		What are lists in Python? How do I create a list?	OPK-4
		How do you add an item to the end of a list in Python?	OPK-4
		What are tuples in Python? How are they different from lists?	OPK-4
		How do I declare and call a function in Python?	OPK-4
		What is recursion? What features can be implemented with recursion?	OPK-4
		What is a module in Python? How do I plug a module into my script?	OPK-4
	1	What statement is used to execute a conditional statement in Python? 1) if 2) for 3) while 4) def	OPK-4
	1	What function is used to read data from standard input in Python? 1) input() 2) print() 3) read() 4) scan()	OPK-4
	2	How do you declare a function in Python? 1) function myFunction(): 2) def myFunction(): 3) void myFunction(): 4) myFunction def():	OPK-4
	1	What is a list in Python? 1) Ordered collection of items 2) Unordered collection of items 3) Immutable collection of items 4) Collection of items of different types	OPK-4

	3	How do you add an item to the end of a list in Python? 1) list.add() 2) list.insert() 3) list.append() 4) list.extend()	OPK-4
	1	What types of loops are there in Python? 1) for and while 2) do-while and while 3) for and do-while 4) while and until	OPK-4
	2	How do you declare a tuple in Python? 1) tuple myTuple = () 2) myTuple = tuple() 3) tuple myTuple() 4) myTuple = ()	OPK-4
	1	What is recursion in programming? 1) One function calls itself 2) A function that calls another function 3) Looping a program 4) A program that uses only one function	OPK-4
	1	What keyword is used to define a function in Python? 1) def 2) function 3) define 4) func	OPK-4
	3	What value will the y variable have after the following code is executed? x = 3 y = x + 2 1) 3 2) 2 3) 5 4) 6	OPK-4
	3	What statement does Python use to execute a while loop? 1) for 2) do 3) while 4) until	OPK-4
	1	What function is used to display text in Python? 1) print() 2) input() 3) write() 4) show()	OPK-4
	3	What character does Python use to indicate comments in code? 1) // 2) -- 3) # 4) /* */	OPK-4
	1	What operator does Python use to return a value from a function? 1) return 2) back 3) exit 4) stop	OPK-4
	3	What type of data does Python use to store a sequence of characters? 1) int 2) float 3) str 4) bool	OPK-4

	2	What operator does Python use to check whether two values are equal? 1) = 2) == 3) != 4) <>	OPK-4
		What is the standard library of the Python programming language?	OPK-4
		How do I import a module from the standard library into Python?	OPK-4
		Which modules from the standard library of the Python programming language are responsible for working with dates and times?	OPK-4
		Which modules from the standard library of the Python programming language are responsible for working with files and directories?	OPK-4
		Which module from the standard library of the Python programming language is responsible for working with regular expressions?	OPK-4
		Which module from the standard library of the Python programming language is responsible for working with network protocols?	OPK-4
		Which module from the standard library of the Python programming language is responsible for working with databases?	OPK-4
		Which module from the standard library of the Python programming language is responsible for working with threads and processes?	OPK-4
		Which module from the standard library of the Python programming language is responsible for working with multithreading?	OPK-4
		Which module from the standard library of the Python programming language is responsible for working with XML?	OPK-4
	2	Which function from the <code>os</code> module allows you to find out the current working directory? 1) <code>os.path</code> 2) <code>os.getcwd()</code> 3) <code>os.chdir()</code> 4) <code>os.fork()</code>	OPK-4
	2	Which module in Python allows you to work with date and time? 1) <code>time</code> 2) <code>datetime</code> 3) <code>calendar</code> 4) <code>locale</code>	OPK-4
	2	Which math function can find the largest integer that is less than or equal to a given number? 1) <code>math.ceil()</code> 2) <code>math.floor()</code> 3) <code>math.trunc()</code> 4) <code>math.exp()</code>	OPK-4
	1	Which function from the <code>random</code> module allows you to select a random element from the sequence? 1) <code>random.choice()</code> 2) <code>random.sample()</code> 3) <code>random.shuffle()</code> 4) <code>random.random()</code>	OPK-4

	2	Which module in Python allows you to send emails? 1) <code>email</code> 2) <code>smtpplib</code> 3) <code>poplib</code> 4) <code>imaplib</code>	OPK-4
	3	Which function in the <code>re</code> module allows you to replace text by regular expression? 1) <code>re.search()</code> 2) <code>re.match()</code> 3) <code>re.sub()</code> 4) <code>re.findall()</code>	OPK-4
	1	Which function from the <code>sys</code> module allows you to get a list of command-line arguments? 1) <code>sys.argv</code> 2) <code>sys.path</code> 3) <code>sys.modules</code> 4) <code>sys.exc_info()</code>	OPK-4
	1	Which function from the <code>csv</code> module allows you to write data to a CSV file? 1) <code>csv.writer()</code> 2) <code>csv.reader()</code> 3) <code>csv.DictWriter()</code> 4) <code>csv.DictReader()</code>	OPK-4
	2	Which function from the <code>os</code> module allows you to create a new directory? 1) <code>os.path</code> 2) <code>os.mkdir()</code> 3) <code>os.getcwd()</code> 4) <code>os.fork()</code>	OPK-4
	1	Which module in Python allows you to work with ZIP archives? 1) <code>zipfile</code> 2) <code>tarfile</code> 3) <code>gzip</code> 4) <code>bz2</code>	OPK-4
	2	Which math function allows you to calculate the factorial of a number? 1) <code>math.fabs()</code> 2) <code>math.factorial()</code> 3) <code>math.exp()</code> 4) <code>math.log()</code>	OPK-4
	2	Which function from the <code>random</code> module allows you to generate a random real number in a given range? 1) <code>random.choice()</code> 2) <code>random.uniform()</code> 3) <code>random.shuffle()</code> 4) <code>random.random()</code>	OPK-4
	2	Which module in Python allows you to work with TAR archives? 1) <code>zipfile</code> 2) <code>tarfile</code> 3) <code>gzip</code> 4) <code>bz2</code>	OPK-4
	3	Which function from the <code>re</code> module allows you to divide a string into substrings according to a given separator? 1) <code>re.search()</code> 2) <code>re.match()</code> 3) <code>re.split()</code> 4) <code>re.sub()</code>	OPK-4
	1	Which function from the <code>sys</code> module allows you to exit the program with a given return code? 1) <code>sys.exit()</code> 2) <code>sys.argv</code> 3) <code>sys.path</code> 4) <code>sys.exc_info()</code>	OPK-4
	2	Which function from the <code>csv</code> module allows you to read data from a CSV file? 1) <code>csv.writer()</code> 2) <code>csv.reader()</code> 3) <code>csv.DictWriter()</code> 4) <code>csv.DictReader()</code>	OPK-4

2. Description of the rating scale

Students' progress in each discipline is assessed during current control and intermediate certification.

3. Criteria for assessing competencies*

An "excellent" grade is given to a student if he has deeply and firmly mastered the program material, exhaustively, consistently, clearly and logically presents it, is able to closely link theory with practice, freely copes with tasks and questions not only of the basic, but also advanced level, and does not find it difficult to answer when modifying the tasks, correctly justifies the decision made, has versatile skills and techniques for performing practical tasks.

A grade of "good" is given to a student if he knows the material firmly, presents it competently and to the point, avoiding significant inaccuracies in answering questions of the basic level, correctly applies theoretical provisions when solving practical issues and tasks of the basic level, has the necessary skills and techniques for their implementation.

A "satisfactory" grade is given to a student if he has knowledge of only the basic material of the basic level, but has not mastered its details, makes inaccuracies, insufficiently correct formulations, violations of the logical sequence in the presentation of the program material, has difficulties in solving problems of the basic level.

The grade "unsatisfactory" is given to a student who does not know a significant part of the program material, makes gross mistakes, and does not know how to solve practical problems.