Non-Profit Joint-Stock Company «L.N. Gumilyov Eurasian National University»

Department Computer Science
(department name)

Approved by
Dean of Faculty of Information technologies

Sh. Zh. Seilov

(signature)
13.01. 20_22__ y.

Syllabus

EDUC 73003 Methodology of research in the field ofteaching methods and informatization
(module code and name)

on the discipline
lOOKS 7203 Methods for the implementation of conlinuity in the operational activity componeпt of teaching computer science
(discipline code and name)

for students of education program
«8D015l l - Computer Science»
(education program code and name)

Nur-Sultan
2021

Syllabus on the discipline **IOOKS 7203 Methods for the implementation of conlinuity in the operational activity component of teaching computer science**
(discipline code and name)
designed on the base of education program **«8D015l l - Computer Science»**

(education program code and name)

Designer / Designers

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Considered at the department meeting of the Department of Computer Science

Record № 4 «10» December 2021

Head of department   *Петрis*   Serik M., doctor of pedagogical sciences
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Approved at the meeting of the Educational and Methodological Commission of the Faculty

Record № 5 «10» January 2022

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*Agreed:

Head of department   *Петрis*   Serik M., doctor of pedagogical sciences
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* The content of the Syllabus is coordinated with the graduate department.

F ENU 703-08-21 Syllabus. Second edition

EXPLANATORY NOTE

1. Description

Aim	Learning objectives *	Learning outcomes
Expansion of knowledge gained in the basics of computer science. To teach students to master the features and capabilities of new information technologies and the ability to actually use them. In addition, the preparation of computer systems and information technology for effective use in future professional activities.	The ability to identify the methodological and practical foundations of the continuity of teaching computer science and the scientific and pedagogical foundations of vocational training of students, to determine the principles and requirements of continuity in teaching compчter science, as well as to apply the potential of digital technologies in the training of students.	To know the functions of continuity in the continuous leaming of computer science, its eSSence scientific in the technological aspect, the and pedagogical foundations of vocational training for students; to be able to justify didactic conditions, to define principles, requirements of continuity in teaching computer science; to identify and apply the potential possibilities of digital technologies in the training of students.

according to education program "8D015ll - Computer Science" 2021

2. Prerequisites

Knowledge, skills and abilities acquired during the study of the following disciplines are necessary to master this discipline: Methods of teaching Informatics.

(course name)

Postrequisites

The knowledge, skills and abilities acquired during the study of the discipline are necessary for the learning of the following disciplines: Doctoral research work

(course name)

3. Extract from the curriculum

Year **1**
Semester **2**
Number of ECTS **5**

Types of classes	Total number of hours
Lectures	15
Practical classes	30
Seminars	
Laboratory practicals	
Independent work of a student (IWS)	105
Total	150

4.Thematic plan of the discipline by modules
(150 hours)

Module №	Name of the module
1	The main pedagogical foundations of ICT and the content of education at school in the field of informatics
2	Methods and means of teaching computer science, types of additional education
3	Problems of teaching at different levels of education

Lectures				
Week №	Module №	Theme of the lecture	Number of hours	Types and methods of training
1	1	Pedagogical foundations for the formation of the content of education in the field of informatics.	1	Actualization of the problem; The method of action learning.
2	1	Formation of the concept of the content of the course of continuous informatics (secondary school).	1	Actualization of the problem; The method of action learning.
3	1	Information technologies in the implementation of information and information-activity learning models	1	Actualization of the problem; The method of action learning.
4	1	Development and development of the contextual structure of information from common information resources based on search engines organizations	1	Actualization of the problem; The method of action learning.
5	1	Information technologies in enhancing the cognitive activity of students	1	Actualization of the problem; The method of action learning.
6	2	Information and communication educational environment.	1	Actualization of the problem; The method of action learning.
7	2	Methods and forms of teaching informatics, innovative teaching methods.	1	Actualization of the problem; The method of action learning.
8	2	Maximum individualization of teaching computer science	1	Actualization of the problem; The method of action learning.
9	2	Information subject environment for teaching computer science	1	Actualization of the problem; The method of action learning.
10	2	Organization of additional education, research work	1	Actualization of the problem; The method of action learning.
11	2	Types of additional educational work and their didactic foundations	1	Actualization of the problem; The method of action learning.
12	2	Features and methods of organizing additional education.	1	Actualization of the problem; The method of action learning.

13	3	Problems of teaching informatics.	1	Actualization of the problem; The method of action learning.
14	3	Education in the system of secondary vocational education	1	Actualization of the problem; The method of action learning.
15	3	Teaching a course of informatics in higher educational institutions	1	Actualization of the problem; The method of action learning.
		Total	15	

Practical classes (seminars)

Week №	Module №	Theme of the practical lesson (seminar)	Number of hours	Types and methods of training
1	1	Pedagogical foundations for the formation of the content of education in the field of informatics.	2	Discussion/debates
2	1	Formation of the concept of the content of the course of continuous informatics (secondary school).	2	Discussion/debates
3	1	Information technologies in the implementation of information and information-activity learning models	2	Discussion/debates
4	1	Development and development of the contextual structure of information from common information resources based on search engines organizations	2	Discussion/debates
5	1	Information technologies in enhancing the cognitive activity of students	2	Discussion/debates
6	2	Information and communication educational environment.	2	Discussion/debates
7	2	Methods and forms of teaching informatics, innovative teaching methods.	2	Discussion/debates
8	2	Maximum individualization of teaching computer science	2	Discussion/debates
9	2	Information subject environment for teaching computer science	2	Discussion/debates
10	2	Organization of additional education, research work	2	Discussion/debates
11	2	Types of additional educational work and their didactic foundations	2	Discussion/debates
12	2	Features and methods of organizing additional education.	2	Discussion/debates
13	3	Problems of teaching informatics.	2	Discussion/debates
14	3	Education in the system of secondary vocational education	2	Discussion/debates

15	3	Teaching a course of informatics in higher educational institutions		Discussion/debates
		TOTAL	30	

IWS				
Week №	Module №	Theme of IWS Deadlines	Number of hours	Types and methods of training
1-2	1	Formation of the content of education in the field of informatics. Students turn to the recommended educational literature and develop a presentation on the topic of IWS Deadline: 2 week	12	Presentation/information search
3-4	1	Development of the concept of the content of the informatics course. Students turn to the recommended educational literature and develop a report on the topic of IWS Deadline: 4 week	12	Report/ information search
5-6	1	Information and communication educational environment. Students turn to the recommended educational literature and develop a glossary on the topic of IWS. Deadline: 6 week	12	Abstract review/ information search
7-8	2	Organization of educational, research work. Students turn to the recommended educational literature and develop an abstract review on the topic of IWS. Deadline: 8 week	12	Abstract review /Research
9	2	Types, didactic foundations of educational work. Students turn to the recommended educational literature and develop a presentation on the topic of IWS. Deadline: 9 week	12	Presentation/information search
10	2	Specificity and methodology for organizing applications. Students turn to the recommended educational literature and develop an abstract review on the topic of IWS Deadline: 10 week	12	Abstract review /information search
11-12	3	Experimental Computer Science Courses. Conduct an analysis that will identify the most common courses in the field of ICT and arrange in the form of a presentation. Deadline: 12 week	11	Presentation / information search

13	3	Full text training. Prepare a presentation on the topic of IWS. Deadline: 13 week	11	Presentation/information search
15	3	Teaching a course of informatics in higher educational institutions. Prepare a presentation on the topic of IWS. Deadline: 15 week	11	Presentation/information search
		TOTAL	105	

5. Brief organizational and methodological characteristics of the discipline

Types of control of educational achievements:

Midterm examination 1 <u>*oral survey.*</u>

Midterm examination 2 <u>*oral survey.*</u>

Summative assessment: <u>*paperwork.*</u>

(The forms of current and midterm examination are determined by the teacher independently)

(The form of summative assessment is determined by the department)

Course Policies and Procedures:

- Mandatory attendance of all classes by the trainee according to the schedule;
- Preliminary preparation for classes;
- Timely execution and delivery of IWS;
- Preparation for all types of classes should be independent and creative;
- Active work and creativity during classes;
- Participation in all types of control;
- Commitment to the University's Academic Integrity Policy.

6. Educational and methodological coverage of the discipline

№	Author, name, publisher, year of publication	Information carrier	Available in stock (p)	
			In the library	At the department
1	2	3	4	5
	Basic literature			
1	Сманцер, А. П. Теория и практика реализации преемственности в обучении школьников и студентов / А. П. Сманцер. – Минск : БГУ, 2013. – 271 p. https://elib.bsu.by/bitstream/123456789/91361/1/Smantser2.pdf	Monograph	-	1
2	Кузнецов, А. С. Общая методика обучения информатике : учебное пособие / А. С. Кузнецов, Т. Б. Захарова, А. С. Захаров. – Москва : Прометей, 2016. – Часть 1. – 300 p. https://biblioclub.ru/index.php?page=book&id=438600	Manual	-	1
3	Методика обучения и воспитания информатике : учебное пособие : [16+] / авт.-сост. Г. И. Шевченко, Т. А. Куликова, А. А. Рыбакова ; Северо-Кавказский федеральный университет. – Ставрополь: Северо-	Manual	-	1

	Кавказский Федеральный университет (СКФУ), 2017. – 172 p. https://biblioclub.ru/index.php?page=book&id=467105			
	A d d i t i o n a l l i t e r a t u r e			
4	Соболева, М. Л. Методика обучения информатике : практикум : [16+] / М. Л. Соболева ; Министерство науки и высшего образования Российской Федерации, Московский педагогический государственный университет. – Москва : МПГУ, 2018. – 60 p. https://biblioclub.ru/index.php?page=book&id=563665	Textbook	-	1
5	Гафурова, Н. В. Методика обучения информационным технологиям. Теоретические основы : учебное пособие / Н. В. Гафурова, Е. Ю. Чурилова. – Красноярск : Сибирский федеральный университет (СФУ), 2012. – 111 p. https://biblioclub.ru/index.php?page=book&id=229302	Manual	-	1
	Electronic and Internet resources			
6	https://biblioclub.ru			
7	https://www.iprbookshop.ru			

The list of basic literature includes basic textbooks and manuals (usually three or four titles) in the disciplines of the socio-humanitarian profile for the last 5 years, in other areas - for the last 10 years.

Additional literature should include no more than 10 titles.

When specifying electronic and Internet resources, it is necessary to specify the short name of the information to which the link is given, then place the active link. The number of links to Internet resources should not exceed 10 titles.

7. System of learning outcomes assessment of a student
Students' knowledge, skills and abilities are evaluated according to the following system

Grade by letter system	Digital equivalent of grade	Percentage content	Grade by traditional system	Grade criteria
A	4,0	95-100	Excellent	The **A** grade is given when a complete, detailed answer to the question is given, a set of conscious knowledge about the object is shown, manifested in the free operation of concepts, the ability to identify its essential and non-essential features, cause-and-effect relationships. Knowledge about the object is demonstrated against the background of understanding it in the system of this science and interdisciplinary connections. The answer is formulated in terms of science, presented in literary language, logical, evidence-based, demonstrates the author's position of students.
A-	3,67	90-94		The **A-** grade is made when a complete, detailed answer to the question is given, a

				set of conscious knowledge about the object is shown, the main provisions of the topic are evidently disclosed; a clear structure, logical sequence is traced in the answer, reflecting the essence of the disclosed concepts, theories, phenomena. Knowledge about the object is demonstrated against the background of understanding it in the system of this science and interdisciplinary connections. The answer is presented in literary language in terms of science. There may be shortcomings in the definition of concepts, corrected by the student himself in the process of answering.
B+	3,33	85-89	Good	The **B+** grade is given when the students give a complete, detailed answer to the question posed, the main provisions of the topic are evidently disclosed in the answer, a clear structure, logical sequence is traced, reflecting the essence of the concepts, theories, phenomena being disclosed. The answer is presented in literary language in terms of science. There are shortcomings in the answer, corrected by the student with the help of the teacher.
B	3,0	80-84		The **B** grade is given when a complete, detailed answer to the question is given, the ability to identify essential and non-essential signs, cause-and-effect relationships is shown. The answer is clearly structured, logical, presented in literary language in terms of science. There may be shortcomings or minor errors corrected by the student with the help of the teacher.
B-	2,67	75-79		The **B-** grade is made when a detailed answer to the question is given, the ability to identify essential and non-essential signs, cause-and-effect relationships is shown. The answer is clearly structured, logical, stated in terms of science. However, minor mistakes or shortcomings were made, corrected by the student with the help of guiding questions.
C+	2,33	70-74		The **C+** grade is given when a complete but insufficiently consistent answer to the question is given, but at the same time the ability to identify essential and non-essential signs and cause-and-effect

				relationships is shown. The answer is logical and stated in terms of science. There may be 1-2 mistakes in the definition of basic concepts that the student found it difficult to correct on their own.
C	2,0	65-69	Satisfactory	The **C** grade is given in the case when an insufficiently complete and insufficiently detailed answer is given. The logic and sequence of the presentation have violations. Mistakes were made in the disclosure of concepts, the use of terms. The student is not able to independently identify essential and non-essential signs and cause-and-effect relationships. The student can concretize generalized knowledge by proving their main points by examples only with the help of a teacher. Speech design requires corrections.
C-	1,67	60-64		The **C-** grade is given in the case when an incomplete answer is given, the logic and sequence of presentation have significant violations. Gross mistakes were made in determining the essence of the disclosed concepts, theories, phenomena, due to students' misunderstanding of their essential and non-essential features and connections. There are no conclusions in the response. The ability to reveal specific manifestations of generalized knowledge is not shown. Speech design requires corrections.
D+	1,33	55-59		The **D+** grade is given when an incomplete answer is given. There is an illogical presentation. The teacher finds it difficult to prove. There are a lot of significant errors in the definitions of terms, concepts, characteristics of facts, phenomena. There are no inputs in the response. Speech is illiterate. When answering additional questions, the student begins to realize the existence of a connection between knowledge only after the teacher prompts.
D	1,0	50-54		The **D** grade is given when an incomplete answer is given, which represents scattered knowledge on the topic of the question with significant errors in definitions. There is fragmentary, illogical presentation. The student is not aware of the connection of this concept, theory, phenomenon with

				other objects of the module (discipline). There are no conclusions, concretization and evidence-based presentation. The speech is illiterate. Additional and clarifying questions from the teacher do not lead to correction of the student's answer not only to the question posed, but also to other questions of the module (discipline).
FX	0,5	25-49	Unsatisfactory	The grade "unsatisfactory" corresponds to the letter **FX**, **F**, which has a digital equivalent of 0 and a percentage of 0-49. This assessment is made if the student has found gaps in the knowledge of the basic material provided by the program, has not mastered more than half of the module (discipline) program, has made fundamental mistakes in the answers, has not completed individual tasks provided for by the forms of current, intermediate and final control, has not worked through all the basic literature provided by the program.
F	0	0-24		