

The syllabus of the discipline
Java programming

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Field name	Detailed content, comments
Name of the faculty	Faculty of Infocommunications
Level of higher education	First (bachelor's)
Code and name of the specialty	172 Telecommunications and radio engineering
Type and name of educational program	EPP "Information and Network Engineering"
Name of the discipline	Java programming
Number of ECTS credits	3
Discipline structure (distribution by types and hours of study)	16 hours - 8 lectures, 20 hours - 5 laboratory classes, 6 hours - 3 consultations, 48 hours - homework, type of control: credit
Schedule (terms) of studying the discipline	3rd year, VI semester
Prerequisites for studying the discipline	Basic knowledge of: Higher mathematics, Programming; Discrete mathematics; Fundamentals of computer modeling and design of TCRT; Data processing technologies in IR; Basics of Web design.
Competences, knowledge, skills, understanding, which is acquired by the applicant in higher education in the learning process	The discipline is used to form the following competencies: FC-3 Ability to use basic methods, methods and means of obtaining, transmitting, processing and storing information; FC-4 Ability to perform computer modeling of devices, systems and processes using universal application packages; FC-8 Willingness to promote the introduction of advanced technologies and standards; FC-15 Ability to perform calculations in the process of designing structures and means of information and telecommunication networks, telecommunication and radio systems, in accordance with the terms of reference using both standard and self-created methods, techniques and software automation designing.
The quality of the educational process	Educational-methodical and material-technical resource provision of the educational program, within the framework of which the discipline is studied, meets the licensing requirements and accreditation conditions of the educational activity of the university. Annual monitoring and revision of the curriculum of the discipline in accordance with the requirements and recommendations of the Ministry of Education and Science, state certification of acquired competencies of graduates, standards of cooperation with employers to ensure a competitive level of training. Adherence to the principles of academic integrity (https://lib.nure.ua/plagiat). Contains public information on the requirements, competencies, level of education within the current educational program.

Description and content of the discipline

The purpose of the discipline is to provide students with knowledge, skills and abilities in programming in Java. Java is also one of the main languages for developing applications used in network software. Therefore, knowledge of the Java language is required for specialists in the field of infocommunications.

Content

Content module 1. Basic principles of building software in the Java programming language

Topic 1. Software support for the Java programming language. Basic data types.

Topic 2. Basic operators of the Java programming language. The concept of application methods in Java.

Content module 2. The concept of object-oriented programming language Java

Topic 1. The concept and structure of the Java programming language class.

Topic 2. Inheritance of classes. Reboot methods.

Topic 3. Abstract classes and interfaces.

Content module 3. Basic object types of Java programming

Topic 1 Arrays, strings, collections.

Topic 2. I / O data. Working with files, the concept of exceptions.

Content module 4. Basics of building software based on application of the Java graphical user interface

Topic 1. Basic requirements for building programs with a graphical interface.

Topic 2. Swing package tools.

Topic 3. JavaFX package tools.

Topic 4. Building computer graphics programs.

Learning outcomes of higher education

As a result of studying the discipline, students must:

- know: the specifics of building an application in Java; Java syntactic requirements; the concept of algorithm, types of algorithms; Java program elements; syntax, semantics, and data types; basic operations of the Java language; governing structures; what are arrays, structures, collections;

- be able to: develop the structure of the application in Java; write texts of program code in Java on the basis of the task; debug Java application; check the results of the application developed in Java;

- to own: PRN1. Knowledge of theories and methods of basic and general engineering sciences to the extent necessary to solve specialized problems and practical problems in the field of professional activity; PRN3. Ability to apply knowledge in the field of informatics and modern information technologies, computer and microprocessor technology and programming, software for solving specialized problems and practical problems in the field of professional activity; PRN4. Ability to participate in the creation of application software for elements (modules, blocks, nodes) of telecommunication

systems, infocommunication, telecommunication networks, radio systems and television and radio broadcasting systems, etc .; PRN12. Ability to use systems for modeling and automation of circuit design for the development of elements, components, units of radio and telecommunications systems.

Assessment system according to each task for passing the test / exam

To evaluate the student's work during the semester, the final rating Qsem calculated as the sum of grades for different types of classes and tests measures.

Type of lesson / control measure	Rating
Lb № 1, 2	$(10...16) \times 2 = 20...32$
Checkpoint 1	20...32
Lb № 3, 4, 5	$(10...16) \times 3 = 30...48$
Individual task №1	10...20
Checkpoint 2	40...68
Total for the semester	60...100

Qualitative evaluation criteria in the national scale and ECTS

Satisfactory, D, E (60-74). Have a minimum of knowledge and skills. Work out and defend all laboratory work and PrW.

Well, C (75-89). It is firm to have a minimum of knowledge and skills. Work out and defend all laboratory work and R / P. Be able comment on the basic tasks and principles of Windows administration.

Excellent, A, B (90-100). Firmly know all the topics. Navigate the official sources of information about Windows. Work out and defend all laboratory work and PrW. Thoroughly know the tasks, principles and tools of Windows administration. Be able to configure and administer Windows, including AD DS administration.

Assessment scale: national and ECTS

The sum of points for all types of educational activities	ECTS assessment	Score on a national scale	
		for exam, course project (work), practice	for offset
90 – 100	A	perfectly	credited
82-89	B	fine	
74-81	C	satisfactorily	
64-73	D		
60-63	E		
35-59	FX	unsatisfactory with the possibility of reassembly	not credited with the possibility of re-assembly
0-34	F	unsatisfactory with mandatory re-examination	not credited with compulsory re-study of the discipline

Methodical support

Basic literature

- 1 Shyldt, Herbert, Java rukovodstvo dlia nachynaiushchykh, 5-e yzdanye. : Per. s anhl. – M. : Yzdatelskyi dom "Vyliams", 2012. – 626 s.: yl. – Paral. tyt. anhl.
- 2 Berd Baryy, Java dlia chainykov, 5-e yzdanye. : Per. s anhl. – M. : Yzdatelskyi dom "Vyliams", 2013. – 368 s.: yl. – Paral. tyt. anhl.
- 3 Nymeir Patryk, Prohrammyrovanye na Java. – Moskva.: Эksmo, 2014, 1216 s.

Supporting literature

- 1 Flenahan D., Java v prymerakh, 2-e yzdanye, Per. s anhl. –SPb.: Symvol-Plius, 2003. – 664 s.
- 2 Flenahan D., Java. Spravochnyk v prymerakh, 4-e yzdanye, Per. s anhl. – SPb.: Symvol-Plius, 2004. – 1040 s.