

Syllabus of the educational discipline

«SYSTEM SOFTWARE»

Cycle of Higher Education	<i>First cycle of higher education (Bachelor's degree)</i>
Field of Study	<i>12 Information Technologies</i>
Specialty	<i>123 Computer engineering</i>
Educational program	<i>Computer systems and networks</i>
Discipline status	<i>Normative</i>
Teaching language	<i>English</i>
Year of studies, semester	<i>2,3 year (4 semester, 5 semester)</i>
Number of credits ECTS	<i>7 credits</i>
Distribution by types of trainings and hours of study	<i>Lectures, Laboratory studies, Independent training</i>
Form of final assessment	<i>Exam</i>
Teacher	<i>Mulesa O.Yu., Doctor of technical sciences, Professor of the department of computer systems and networks</i>
Teacher's contacts	<i>oksana.mulesa@uzhnu.edu.ua</i>
Course Schedule	<i>According to the timetable</i>

The purpose of the study of the discipline "System software" is to obtain in-depth knowledge of programming. The acquired knowledge of this discipline will allow to apply classical and modern methodologies of programming in practical work. Qualitatively plan and carry out work on the creation of software

As a result of studying the discipline the student must:

know:

- basic concepts of system software.

be able to:

- apply the acquired knowledge to software development

- plan the execution of work on the creation of software.

Prerequisites for learning

Programming, Data Structures and Algorithms, Object-Oriented Programming

Content of the educational discipline

Topic 1. Introduction to system software

Topic 2. Vectors.

Topic 3. Lists.

Topic 4. Queues.

Topic 5. Non-modifying algorithms.

Topic 6. Modifying algorithms

Topic 7. Sorting algorithms. Algorithms related to sorting

Topic 8. Algorithms related to sorting

Topic 9. Algorithms for sets and pyramids.

Topic 10. Associative containers

Topic 11. An introduction to patterns.

Topic 12. Patterns in design tasks.

Topic 13. Designing with future changes in view

Topic 14. Generating patterns.

Topic 15. Builder pattern

Topic 16. Structural patterns.

Topic 17. Pattern adapter.

Topic 18. Linker pattern.

Topic 19. Behavioral patterns.

Topic 20. Chain-of-command pattern

Course page on the Moodle platform (personal training system)	<i>Syllabus of the educational discipline, hyperlinks to electronic publications of the discipline, recommended literature, students' attendance, lecture materials, presentations, questions for self-control, methodical materials for laboratory works, tests, tasks for checking students' knowledge. https://moodle.uzhnu.edu.ua</i>
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Recommended literature

1. *Eric Freeman Head First Design Patterns: A Brain-Friendly Guide. - O'Reilly Media; 1st edition, 2004. - 694p.*
2. *Herbert Schildt C++: A Beginner's Guide, Second Edition. - McGraw Hill, 2012. - 576p.*
3. *Robert Lafore Object Oriented Programming in C++. - Sams; Subsequent edition, 2001. - 1012p.*

Assessment system of learning outcomes

The ECTS grade that a student receives after studying a credit module of a discipline is determined according to the student's rating. A student's credit module rating consists of the points the student receives during the semester for the following types of work:

1. *Modular control work (MCW) duration of 2 acad. hours each. The maximum number of points for the MCW is 50 points.*
2. *Performance of laboratory works.*

During an academic semester students perform laboratory work, which are rated a maximum of 40 points.

Scores on individual and independent work of students are awarded for: preparation of essays, modernization of tasks, creative approach to task performance, performance of tasks to improve didactic materials on the discipline: 0-10 points for each module.

Each module is assessed a maximum of 100 points. At the end of the discipline a rating score is derived as the arithmetic average of the points from the two modules.

ECTS and national grading scale

Mark scale	ECTS	Exam	Test
90 - 100	A	Excellent	Satisfied
82 - 89	B	Good	
74 - 81	C		
64 - 73	D	Satisfactory	
60 - 63	E		
35 - 59	FX	“Unsatisfactory” with possibility to pass the exam again	“Not satisfied” with possibility to pass the exam again
1 - 34	F	“Unsatisfactory” with obligatory repeated study of the discipline	“Not satisfied” with obligatory repeated study of the discipline