



## Syllabus of the educational discipline «Fundamentals of Algorithmization»

<b>Specialty</b>	<i>121 Software engineering</i>
<b>Educational program</b>	<i>Software engineering</i>
<b>Level of education</b>	<i>The first (Bachelor) level of higher education</i>
<b>Discipline status</b>	<i>Mandatory</i>
<b>Teaching language</b>	<i>English</i>
<b>Course / semester</b>	<i>1 course, 1 semester</i>
<b>Number of credits ECTS</b>	<i>6</i>
<b>Distribution by types of trainings and hours of study</b>	<i>Lectures – 24 hours. Practical studies (seminars) – 0 hours. Laboratory studies – 36 hours. Self-study – 120 hours.</i>
<b>Form of final assessment</b>	<i>Grading including Exam</i>
<b>Department</b>	<i>Information Systems, 61166, Kharkiv, Nauky av., 9a, S Kuznets Khneu, 412, 413., <a href="http://www.is.hneu.edu.ua/">http://www.is.hneu.edu.ua/</a></i>
<b>Teacher (-s)</b>	<i>Gryzun L.E., Doctoral Degree in Pedagogical Science, Professor, Full Professor</i>
<b>Teacher's contacts</b>	<i>Lgr2007@ukr.net</i>
<b>Days of the classes</b>	<i>Lectures: <a href="#">Due to the schedule</a> Laboratory studies: <a href="#">Due to the schedule</a></i>
<b>Consultations</b>	<i>Online consultations via <a href="#">PNS chat</a></i>
<b>The purpose of the discipline is</b> to provide students' understanding of efficient algorithms, methods of their investigation and analysis as well as students' skills of basic algorithms developing.	
<b>Prerequisites for learning</b> The list of the preliminary learnt disciplines: Pre-university Mathematics, Pre-university Informatics.	
<b>Content of the educational discipline</b> <b>Content module 1. Algorithm concept and its formalization</b> Theme 1. Algorithm concept. Its main attributes and properties Theme 2. Universal computation models. Post machine. Theme 3. Turing machine. <b>Content module 2. Fundamental algorithms of data processing</b> Theme 4. Normal Markov's algorithms. Theme 5. Algorithms of integers processing. Theme 6. Search and sorting algorithms. Theme 7. Dynamic programming.	
<b>Material and technical support (software) of the discipline</b> (software <a href="https://www.101computing.net/flowchart/">https://www.101computing.net/flowchart/</a> , <a href="#">repl.it.</a> )	
<b>Course page on the Moodle platform (personal training system)</b>	<a href="https://pns.hneu.edu.ua/">https://pns.hneu.edu.ua/</a>
<b>Assessment system of learning outcomes</b> The system of assessment of formed students' competencies takes into account the types of classes, which according to the curriculum of the discipline include lectures, laboratory classes, as well as independent work. Assessment of the formed competencies of students is carried out according to the accumulative 100-point system. Control measures include: current control, which is carried out for the semester during lectures, laboratory classes and is estimated by the amount of points scored. Maximum amount for current control is 60 points, the minimum amount that allows	



a student to take the exam is 35 points. Maximum grades for the exam are 40 points, minimum grades are 25.

The procedure for conducting current assessment of students' knowledge include: the tasks doing at the laboratory classes, presentations and test papers.

More detailed information on assessment is given in the technological card of the discipline.

#### **Discipline policies**

Policy of academic integrity is kept during the course studying. Students have to attend lectures and laboratory classes on the discipline. If there are proper reasons, they have to inform the teacher of their absence. Regular studying of lecture material and doing laboratory tasks due to deadlines are obligatory. The tasks of independent work are to be passed in the established terms. The presence of students at the modular and final tests is mandatory. A student studies successfully if he consistently scores the grades during the term and obtain not less than 25 grades at the exam as a form of final control.

*More detailed information about competencies, learning outcomes, teaching methods, assessment forms, independent training is given in the working plan of the discipline..*

Syllabus approved at the meeting of the Department «Information Systems».

Protocol № 7 of 10.06.22