



## Syllabus of the course «Discrete Mathematics»

<b>Specialty</b>	<i>F2.010 Software engineering</i>
<b>Study Programme</b>	<i>F2 Software engineering</i>
<b>Study cycle (Bachelor, Master, PhD)</b>	<i>the first (Bachelor) level of higher education</i>
<b>Course status</b>	<i>mandatory</i>
<b>Language</b>	<i>English</i>
<b>Term</b>	<i>first year, second semester</i>
<b>ECTS credits</b>	<i>5</i>
<b>Workload</b>	<i>Lectures – 24 hours. Practical studies – 18 hours. Laboratory studies – 18 hours. Self-study – 90 hours.</i>
<b>Assessment system</b>	<i>Grading</i>
<b>Department</b>	<i>Department of Economic and Mathematical Modelling, auditorium 329 of the main building phone: (057)702-04-05 (add. 3-33) website: <a href="http://www.vm.hneu.edu.ua/">http://www.vm.hneu.edu.ua/</a></i>
<b>Teaching staff</b>	<i>Misiura Ievgeniia Iuriivna, PhD in Technics, Associate professor</i>
<b>Contacts</b>	<i>Ie. Iu. Misiura: <a href="mailto:ievgeniia.misiura@hneu.net">ievgeniia.misiura@hneu.net</a></i>
<b>Course schedule</b>	<i>Lectures: according to the schedule Practical studies: according to the schedule Laboratory studies: according to the schedule</i>
<b>Consultations</b>	<i>At the Department of Economic and Mathematical Modelling, offline, according to the schedule, individual, PNS chat.</i>
<b>Learning objectives and skills:</b>	
<i>forming future specialists' mathematical knowledge for solving theoretical and practical economic problems in any sphere of a professional activity</i>	
<b>Structural and logical scheme of the course</b>	
<b>Prerequisites</b>	<b>Postrequisites</b>
Higher mathematics	Object-oriented programming
<b>Course content</b>	
<b>Module 1: Set theory and combinatorial analysis. Graph theory</b>	
<b>Topic 1. Set theory and relations</b>	
<b>Topic 2. Combinatorial analysis</b>	
<b>Topic 3. Graph Theory</b>	
<b>Module 2: Mathematical logic. Elements of the theory of finite automata</b>	
<b>Topic 4. Algebra of statements. Logical formulas</b>	
<b>Topic 5. Boolean functions</b>	
<b>Topic 6. Predicates and quantifiers</b>	
<b>Topic 7. Elements of the theory of finite automata</b>	
<b>Teaching environment (software)</b>	
<i>Multimedia projector, S. Kuznets PNS, Corporate Zoom system, MatLab, Octave, Excel</i>	



### **Assessment system**

The University uses a 100-point cumulative system for assessing the learning outcomes of students. Current control is carried out during lectures, practical, laboratory and seminar classes and is aimed at checking the level of readiness of the student to perform a specific job and is evaluated by the amount of points scored:

– for courses with a form of semester control as grading: maximum amount is 100 points; minimum amount required is 60 points.

The final control includes current control and grading.

Semester control is carried out in the form of grading.

The final grade in the course is determined:

– for disciplines with a form of grading, the final grade is the amount of all points received during the current control.

During the teaching of the course, the following control measures are used:

Current control: colloquiums (the total maximum number of points – 20); written tests (the total maximum number of points – 30); homework (the total maximum number of points – 24 points); laboratory works (the total maximum number of points – 18 points); an independent creative task (maximum score – 8 points).

Semester control: Grading (100 points).

***More detailed information on assessment and grading system is given in the technological card of the course.***

### **Course policies**

Teaching of the academic discipline is based on the principles of academic integrity.

Violation of academic integrity includes academic plagiarism, fabrication, falsification, cheating, deception, bribery, and biased assessment.

Educational students may be brought to the following academic responsibility for breach of academic integrity: repeated assessment of the corresponding type of learning activity.

***More detailed information about competencies, learning outcomes, teaching methods, assessment forms, self-study is given in the Course program***