



## Syllabus of the educational discipline « Discrete Mathematics »

<b>Specialty</b>	<i>121 Software engineering</i>
<b>Educational program</b>	<i>Software engineering</i>
<b>Level of education</b>	<i>First ( bachelor)</i>
<b>Discipline status</b>	<i>Base</i>
<b>Teaching language</b>	<i>English</i>
<b>Course / semester</b>	<i>1 course, second and third semesters</i>
<b>Number of credits ECTS</b>	<i>4</i>
<b>Distribution by types of trainings and hours of study</b>	<i>Lectures – 24 hours</i>
	<i>Practical studies (seminars) – 12 hours</i>
	<i>Laboratory studies – 12 hours</i>
	<i>Independent training – 72 hours</i>
<b>Form of final assessment</b>	<i>Credit</i>
<b>Department</b>	<i>Department of Higher Mathematics and Economics and Mathematical Methods, S. Kuznets Kharkov National University of Economics, main building, room 329. Phone +38(057)702-04-05 ( or 3-33), <a href="http://www.vm.hneu.edu.ua/">http://www.vm.hneu.edu.ua/</a></i>
<b>Teacher</b>	<i>Stiepanova Kateryna Vadumivna, associate professor of department of HM and EMM, PhD</i>
<b>Teacher's contacts</b>	<a href="mailto:stepanova.ekaterina@hneu.net">stepanova.ekaterina@hneu.net</a>
<b>Days of the classes</b>	<i>According to the schedule</i>
<b>Consultations</b>	<i>According to the consultations schedule.</i>

**The purpose** of the discipline is forming future specialists' basic mathematical knowledge for solving practical problems in professional activity of competent specialist in the field of information technology, to acquaint with the basic concepts, ideas and methods of logical analysis, to teach to use them in solving specific problems of professional orientation

### **Prerequisites for learning**

*High School Mathematics Course and the discipline "Higher Mathematics"*

### **Content of the educational discipline**

#### **Content module 1. Theory of Set and combinatorial analysis. Graph theory**

**Topic 1.** Theory of sets and relations

**Topic 2.** Combinatorial analysis

**Topic 3.** Graph theory

#### **Content module 2. Mathematical logic. Elements of the theory of finite automata**

**Topic 4.** Mathematical logic

**Topic 5.** Elements of the theory of finite automata

### **Material and technical support (software) of the discipline**

*MatLab (Octave Online)*

#### **Course page on the Moodle platform (personal training system)**

*Work program of the discipline, work plan (technological card), hyperlinks to electronic publications of the discipline, recommended literature, students' attendance, lecture materials, presentations, questions for self-control, methodical materials for seminars and laboratory works, tests, task for checking students' knowledge, COTasks, examples of controls*  
<https://pns.hneu.edu.ua/course/view.php?id=5372;>  
<https://pns.hneu.edu.ua/course/view.php?id=6917>

### **Recommended literature**

1. Дискретна математика [Електронне видання] : навчальний посібник / Т. В. Денисова, В. Ф. Сенчуков. – Харків : ХНЕУ ім. С. Кузнеця, 2019. – 288 с.



2. Дискретна математика : методичні рекомендації до лабораторних робіт для студентів галузі знань 12 "Інформаційні технології" першого (бакалаврського) рівня / уклад. Т. В. Денисова, В. Ф. Сенчуков. – Харків : ХНЕУ ім. С. Кузнеця, 2018. – 114 с.

3. Контрольні роботи та методичні рекомендації до їх виконання з навчальної дисципліни "Основи дискретної математики" для студентів напряму підготовки "Комп'ютерні науки" заочної форми навчання / уклад. В. Ф. Сенчуков, Т. В. Денисова. – Харків : Вид. ХНЕУ, 2010. – 52 с.

4. Аляев Ю. А. Дискретная математика и математическая логика / Ю. А. Аляев, С. Ф. Тюрин. – Москва : Финансы и статистика, 2006. – 368 с.

#### Assessment system of learning outcomes

*Current control carried out during semester (during lectures, seminars and laboratory works) and evaluated by the amount of points (max is 100 points). Current control takes place during the semester during lectures, practical, laboratory classes and is assessed by the sum of points scored. Modular control is conducted in the form of a colloquium 2 times per semester. The final / semester control is conducted in the form of a differentiated test and consists in assessing the level of student mastery of the educational material by the sum of points gained as a result of current and modular control (maximum amount - 100 points; minimum amount that allows students to get credit - 60 points). A student should be considered to have passed the test if the sum of points obtained by him as a result of the final / semester performance control is equal to or exceeds 60 points. More detailed information on assessment is given in the technological card of the discipline.*

#### Accumulation of rating points in the discipline

Types of training	Maxpoints (2 semester)	Maxpoints (3 semester)
Homework	35	35
Written Control works	24	24
Colloquiums	14	14
Independent creative work	7	7
Competent-oriented Tasks	20	20
<b>Max points</b>	<b>100</b>	<b>100</b>

#### Transference of Simon Kuznets KHNUE Characteristics of Students' Progress into the System of the ECTS Scale

Total score on a 100-point scale	ECTS assessment scale	Assessment on the national scale	
		for exam, differentiated test, course project (work), practice, training	for pass
90 – 100	A	excellent	pass
82 – 89	B	good	
74 – 81	C	satisfactory	
64 – 73	D		
60 – 63	E	unsatisfactory	not pass
35 – 59	FX		
1 – 34	F		

#### Discipline policies

*Policy of academic integrity according to the Law of Ukraine " About Education" tells that teaching discipline should be based on the principles of academic integrity, they are a set of ethical principles and statutory rules that should guide participants in the educational process during training, teaching, conducting scientific (creative) activities to ensure confidence in learning outcomes and scientific (creative) achievements. Violations of academic integrity are: academic plagiarism, self-plagiarism, fabrication, falsification, write-off, deception, bribery, biased evaluation. For violation of academic integrity, students may be held subject to the following academic liability: reassessment (test, exam, etc.); re-passing of the relevant educational component of the educational program. Rewriting during control is prohibited (including with using electronic devises)*  
<https://www.hneu.edu.ua/akademichna-dobrochesnist/>



*Simon Kuznets Kharkiv National University of Economics*

***More detailed information about competencies, learning outcomes, teaching methods, assessment forms, independent training is given in the Program <https://pns.hneu.edu.ua/course/view.php?id=6917>***

Syllabus approved at the meeting of the Department «*Higher Mathematics and Economics and Mathematical Methods*»  
Protocol № 1 from 20.09.2020