Simon Kuznets Kharkiv National University of Economics

Syllabus of the educational discipline

«*Mathematical models and methods of decision-making*»

Speciality	all specialities
Educational program	all programs
Level of education	first (bachelor)
Discipline status	contributing
Teaching language	*English*
Course / semester	*2nd course, 3rd semester*
Number of credits ECTS	*5*
Distribution by types of trainings and hours of study	*Lectures – 24.hours.* *Practices – 12 hours* *Laboratory studies – 12 hours.* *Independent training – 102 hours.*
Form of final assessment	test/pass
Department	Department of higher mathematics, economical and mathematical methods, Simon Kuznets KNUE, room 329 (main building), +38(057)702-04-05 (or 3-33), *E-mail: kafmath@hneu.edu.ua*, http://www.vm.hneu.edu.ua/
Teacher (-s)	Misiura Ievgeniia Iuriivna, PhD, associate professor
Teacher's contacts	*misuraeu@gmail.com*
Days of the classes	according to the schedule
Consultations	distance, according to the schedule

The purpose of the discipline is

forming future specialists' fundamental knowledge of single- and multi-criteria optimization and methods of decision-making for a construction of economic-mathematical models and solving of applied economic problems.

Prerequisites for learning

Assimilation of the material of the discipline "Probability Theory and Mathematical Statistics"

Content of the educational discipline

Content module 1. Fundamentals of decision making methodology

Theme 1. Basic definitions and concepts of decision making theory
Theme 2. General formulation of problems of decision-making
Theme 3. Single-criterion problems of decision-making
Theme 4. Multi-criterion decision-making problems

Content module 2. Methods of decision making

Theme 5. Methods of solving single-criterion problems
Theme 6. A statement of the multi-criteria problem of linear programming
Theme 7. Statistical methods of decision making
Theme 8. Problems of decision-making in conditions of uncertainty
Theme 9. Problems of decision-making in conditions of certainty
Theme 10. Decision-making problems at risk
Theme 11. Stochastic decision making problems
Theme 12. Game theory as a tool of decision making theory

Material and technical support (software) of the discipline

Software *MS Excel*

Course page on the Moodle platform (personal training system)	*Syllabus (working program), working plan (technological card), recommended literature, journal of students' attendance, materials of lectures (notes and presentations), questions to independent work, guidelines to conducting practical and laboratory studies, tasks for independent work, tests for checking students' knowledge, example of an examination paper and a criteria of an assessment of examination work.* https://pns.hneu.edu.ua/course/view.php?id=5077

Recommended literature

1. Катренко А. В. Теорія прийняття рішень : підручник з грифом МОН / А. В. Катренко, В. В. Пасічник, В. П. Пасько — К. : Видавнича група BHV, 2009. — 448 с.
2. Кушлик-Дивульська О.І. Основи теорії прийняття рішень / О.І. Кушлик-Дивульська, Б.Р. Кушлик. – К., 2014. – 94 с.
3. Моделі та методи прийняття рішень : навч. посіб. для студ. вищ. навч. закл. / О. Ф. Волошин, С. О. Мащенко. – 2-ге вид., перероб. та допов. – К. : Видавничо-поліграфічний центр "Київський університет", 2010. – 336 с.
4. Таха Х. А. Введение в исследование операций / Х. А. Таха ; пер. с англ. – 7-е изд. – М. : ИД «Вильямс», 2005. – 912 с.
5. Теорія прийняття рішень: підручник. / За заг. ред. Бутка М. П. [М. П. Бутко, І. М. Бутко, В. П. Мащенко та ін.] – К. : «Центр учбової літератури», 2015. – 360 с.
6. Эддоус М., Стєнсфилд Р. Методы принятия решений [Пер. с англ. под ред Член.-корр. РАН Елисеевой] / М. Эддоус, Р. Стєнсфилд. – М . : Аудит, ЮНИТИ, 1997. – 590 с
7. Taha H. A. Operations research: an introduction / H. A. Taha. – Harlow, England : Pearson, 2017. – 832 p.

Assessment system of learning outcomes

current control is carried out within a term during lectures, practical studies and laboratory works and it is assessed as a sum of accumulative points (the maximum equals 100 points; the minimum which makes it possible for a student to pass a test, equals 60 points). *More detailed information on assessment is given in the technological card of the discipline.*

Accumulation of rating points in the discipline *(example)*

Types of training	**Max points**
Homework	**18**
Competence oriented tasks	**24**
Written tests	**30**
Independent creative task	**8**
Colloquiums	**20**
Max points	**100**

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		
64 – 73	D	satisfactory	
60 – 63	E		
35 – 59	FX	unsatisfactory	not pass
1 – 34	F		

Discipline policies

Policy of academic integrity (according to the Law of Ukraine "On Education") - "Teaching discipline is based on the principles of academic integrity - a set of ethical principles and statutory rules that should guide participants in the educational process during training, teaching and conducting scientific (creative) activities to ensure confidence in learning outcomes and / or 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: re-assessment (test, etc.); re-passing the relevant educational component of the educational program. Write-off during control (modular) works is forbidden (including with use of mobile devices). *https://www.hneu.edu.ua/akademichna-dobrochesnist/*

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