DESCRIPTION OF THE COURSE

The course "Modeling of Business Processes" belongs to series of disciplines that form the profile of the future specialist, equipping him with basic knowledge of the theory and practice in the application of economic and mathematical methods and models, because economic systems can't be effectively studied without using the modern theoretical methods and practical experiment.

The purpose of studying this course is to form future specialists in modern thinking and give them a system of fundamental theoretical knowledge of economic-mathematical methods and models, and applied practical skills using information technology tools (including MS Excel, etc.); acquiring skills in research and analysis of economic processes and phenomena to make adequate management decisions.

The task of studying the discipline is theoretical and practical training of students on the methodology and methods of research of economic processes and phenomena using the tools of economic and mathematical modeling.

The discipline provides the formation of a number of competencies:

Integral competence:

Ability to solve complex specialized tasks and practical problems in the field of accounting, auditing, analysis and taxation in the process of professional activity, which involves the application of theories and methods of economics and is characterized by complexity and uncertainty of conditions.

General competencies:

ЗК 1. Ability to learn and be ready to learn and apply the acquired knowledge.

ЗК 2. Ability to analyze and synthesize as a tool for identifying problems and making decisions to solve them based on logical arguments and proven facts.

ЗК 4. Appreciation and respect for diversity and multiculturalism.

ЗК 7. Ability to think flexibly and competently apply the acquired knowledge in professional activities.

ЗК 8. Ability to communicate in state and foreign languages both orally and in writing.

ЗК 11. Ability to present the results of research.

ЗК 13. Ability to conduct research at the appropriate level.

Special (professional) competencies:

ФК 1. Ability to study trends in economic development using the tools of macro- and microeconomic analysis, to make generalizations on the assessment of the manifestation of certain phenomena that are inherent in modern processes in the economy.

ФК 2. Use mathematical tools to study socio-economic processes, solving applied problems in the field of accounting, analysis, control, audit, taxation.

ФК 11. The ability to control compliance with regulatory acts on accounting methodology and the system of taxation, preservation and efficient use of resources.

Program learning outcomes:

ПРН 1. Demonstrate basic knowledge and understanding of economic categories, laws, causal and functional relationships that exist between processes and phenomena at different levels of economic systems.

ПРН 14. Demonstrate mastery of general scientific and special methods of researching economic phenomena and processes at the enterprise.

ПРН 15. Possess and apply knowledge of a foreign language for the formation of business papers and communication in professional activities.

ПРН 18. Analyze the development of accounting systems, models and methods at the national and international levels in order to substantiate the feasibility of their introduction at the enterprise.

COURSE STRUCTURE

Topics	Hours (lectures / laboratory classes)	Learning outcomes	Tasks	Knowledge assessment
Semester # 5				
Module # 1				
Topic # 1. Bases of Mathematical Programming.	1/4	To know the main concepts of **Mathematical Programming:** the modern theory; theorems, methods; essence and history of the academic discipline; studying the main methods for solving the problems of the course; realization of formal research received by the solver.	Performing practical tasks, self-study work using information technology tools in elearn.	20
Topic # 2. Methods for solving Linear Programming Problems.	3/6			30
Topic # 3. Special Methods.	2/4			20
Topic # 4. Nonlinear Programming Problems.	2/2			Case work with Topic # 7
Test and task to Module # 1				**30**
Total (on the content of module # 1)				**100**
Module # 2				
Topic # 5. The theoretical basis of Economic Mathematical Modelling.	2/4	To know the main concepts of **Mathematical Modelling:** the modern theory, studying the main types of models for solving the problems of the course; realization of formal research received by the solver;	Performing practical tasks, self-study work using information technology	20
Topic # 6. The system of Models in Agriculture.	2/4			20

Topic # 7. Some sections of modelling (Risk, Financial etc.).	3/6	performance of the analysis of the solution.	tools in elearn.	30
Test to Module # 2				**30**
Total (on the content of module # 2)				**100**
Total for educational work	$$R_{EW} = \frac{0{,}7 \cdot (R_{MOD\ 1} + R_{MOD\ 2})}{2}$$			**70**
Certification (**Exam**)				**30**
Total	$R_{DIC} = R_{EW} + R_{CER}$			**100**

EVALUATION POLICY

Deadline and reassembly policy:	Works that are submitted in violation of deadlines without good reason are evaluated at a lower grade. Relocation of modules takes place with the permission of the teachers who provide the course, if there are serious reasons (for example, hospital).
Academic Integrity Policy:	Copying of the text during written tests and exams is prohibited. The use of mobile devices is allowed only with the permission of the teacher during online testing and preparation of practical tasks. Self-Study works in the form of abstracts, reports, presentations must have correct text links to the information sources used.
Attendance Policy:	Attendance is mandatory. For objective reasons (for example, illness, international internship) training can take place individually at a distance (online form in agreement with the dean of the faculty and the lecturer of the course).

STUDENT EVALUATION SCALE

National Grade	**Rating of the Higher Education Learners, Score**
"Excellent"	90 - 100
"Good"	74 - 89
"Satisfactory"	60 - 73
"Failed"	0 - 59

RECOMMENDED SOURCES OF INFORMATION

1. Бандоріна Л.М., Лозовська Л.І., Савчук Л.М. Моделювання економіки: навч. посібник. Дніпро: УДУНТ, 2022. 154 с. URL: http://eadnurt.diit.edu.ua/bitstream/123456789/15722/1/Bandorina.pdf
2. Благун І.С., Кічор В.П., Селюченко Н.Є. Економічне прогнозування: теоретичні та прикладні аспекти: підручник / за ред. В.П.Кічора. Львів: Растр-7, 2020. 290 с.
3. Бобровська О.Ю. Еволюція прогнозування розвитку соціально-економічних процесів: стан та напрямки удосконалення. URL: http://www.dridu.dp.ua/zbirnik/2011- 02(6)/11boysnu.pdf.
4. Веретенникова Г.Б., Омелаєнко Н.М. Методи діагностики та прогнозування розвитку підприємства: навч. посіб. Харків: ХНЕУ ім. С. Кузнеця, 2017. 190 с. URL: http://www.repository.hneu.edu.ua/bitstream.pdf.
5. Вітлінський В.В. Економіко-математичне моделювання: навч. посіб. 2018. 536 с.