

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SUMY NATIONAL AGRARIAN UNIVERSITY**

**Cybernetics and Informatics Department
Faculty of Economics and Management**

MODULE SYLLABUS

Economic Informatics and empirical and social research' methods
(compulsory)

Implemented in the “_Administrative Management” Academic Program

Area of specialization _073 “Management”

at the second (master's) level of higher education

Sumy-2023

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Module syllabus agreed at the Cybernetics and Informatics Department meeting	Minutes No <u>16</u> dated June <u>6</u> , 2023
	Head of Cybernetics and Informatics Department <u><i>S. Ahadzhanova</i></u> (S. Ahadzhanova)

Approved by:

Guarantor of the Academic program *L. Kalachevska* (Larisa KALACHEVSKA)

Dean of the Faculty *M. Lyshenko* (Margarita LYSHENKO)

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Syllabus review data:

The academic year in which changes are made	The Academic program attachment number with changes description	Changes revised and approved		
		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program

1. MODULE OVERVIEW

1.	Title	Economic Informatics and empirical and social research' methods		
2.	Faculty/Department	Economics and Management		
3.	Type (compulsory or optional)	compulsory		
4.	Program(s) to which module is attached (to be filled in for compulsory types)	Administrative management/ 073 Management		
5.	Module can be suggested for (to be filled in for optional types)			
6.	Level of the National Qualifications Framework	7-th		
7.	Semester and duration of module	1 semester, 1-15 weeks		
8.	ECTS credits number	5-th		
9.	Total workload and time allotment	Directed study		Self-directed study
		Lectures	Practicals	Labs
		14	16	120
10.	Language of instruction	english		
11.	Module leader	Svitlana Ahadzhanova, Associated Pofessor, Ph.D		
12.	Module leader contact information	svitlana.ahadzhanova@snau.edu.ua; room 307e.		
13.	Module description	<p>The course "Economic Informatics" highlights the main principles and methods of applying modern information technologies in solving economic problems. The purpose of the course is to form in future professionals the necessary level of information and computer culture, the acquisition of practical skills in PC and the use of modern information technology to solve various problems in the process of learning and working in the specialty. The acquired skills of working on a personal computer with an operating system and major software packages such as MS Word, MS Power Point, MS Excel and online systems will enhance the performance of the tasks by future specialists.</p>		
14.	Module aim	To get theoretical and practice knowledge of modern information technology, which will give the opportunity to work on a personal computer, rapidly and properly solve the problem for future profile specialty.		
15.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	<p>1.The educational component is based on educational component Informatics and computer technologies, Mathematical Programming.</p> <p>2. The educational component is the basis for the following educational component – Business Management.</p>		
16.	The policy of academic integrity	The student must follow the rules of academic integrity during the performing practical work, writing essays, attestation, test and examination papers. If the facts of write-off or academic dishonesty are revealed, the work done by the student is		

		canceled.
17	Link in Moodle	https://cdn.snau.edu.ua/moodle/course/view.php?id=3908

2. CORRELATION BETWEEN MODULE LEARNING OUTCOMES (MLOs) AND PROGRAM LEARNING OUTCOMES (PLOs)

MLOs:	PLOs				How assessed
	PLO 1. Critically comprehend, select and use the necessary scientific, methodical and analytical tools for management in unpredictable conditions.		PLO 8 Apply specialized software and information systems for solving problems of organization management		
On successful completion of the module the learner will be able to:					
MLOs 1. Ability to abstract thinking, analysis and synthesis.	+				Calculation tasks, multiple choice tests,
MLOs 2. Ability to apply conceptual and basic knowledge, understanding the subject area and the profession of manager.			+		Calculation tasks, multiple choice tests,
MLOs 3. Skills in the use of information and communication technologies to search, process, analyze and use information from various sources.			+		Calculation tasks, multiple choice tests,
MLOs 4. Ability to create and organize effective communications in the management process.			+		Calculation tasks, multiple choice tests,

3. MODULE INDICATIVE CONTENT

Autumn semester

Topics	Distribution of hours				Learning resources
	Directed study			Self-directed study	
	Lectures	Practicals	Labs		
Topic 1. <i>Concept of economic</i>	2	2		10	Basic: 1(pp. 5-38)

<i>information. Multilevel structure of economic information, its types, general characteristics, and regularities. Features of economic information transformation. Information environment, information procedures, information process. Representation and encoding of information in computers. Data structure. Algorithm and its properties. Concept of information modeling. Principles of algorithm and program development for solving applied problems. Concept of artificial intelligence. Classification of information technologies by type of information. Information environment and information systems. Types of information systems.</i>					Additional: 1(pp. 17-22)
Topic 2. <i>Automation of data entry and processing, analysis.</i> Tools for automation of data entry and processing. Creating and using links in formulas and calculations. Use of add-in subprograms. Analysis of economic data. Data consolidation.	2	2		10	Basic: 1(pp. 40-48) Additional: 1(pp. 27-32)
Topic 3. <i>Automation of data entry and processing, their analysis.</i> Tools for automation of data entry and processing. Creating and using links in formulas and calculations. Use of add-in subprograms. Analysis of economic data. Pivot tables	2	2		20	Basic: 1(pp. 55-68) Additional: 1(pp. 37-42)
Topic 4. <i>Regression and correlation analysis of data.</i> Using Analysis ToolPak to build regression functions and assess model adequacy. Correlation analysis of data.	2	2		20	Basic: 1(pp. 70-88) Additional: 1(pp. 47-52)
Topic 5. <i>Solving linear programming problems.</i> Building linear models. Methods of calculation for linear models. Analysis of calculation results. Use of application software for solving linear programming problems.	2	2		20	Basic: 1(pp. 82-88) Additional: 1(pp. 57-62)
Topic 6. <i>Simplex method.</i> Solving linear problems using the simplex method with the use of spreadsheet tools.	2	2		20	Basic: 1(pp. 82-88) Additional: 1(pp. 57-62)
Topic 7. <i>Transportation problem.</i> Solving linear problems using the simplex method with the use of spreadsheet tools.	2	4		20	Basic: 1(pp. 88-98) Additional: 1(pp. 60-62)
Total hours	14	16		120	

4. TEACHING AND LEARNING METHODS

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	Hours
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MLOs 1. Ability to abstract thinking, analysis and synthesis.	Lecture, practical lesson, discussion of topical issues	6	Elaboration of theoretical material, solution of calculation tasks	20
MLOs 2. Ability to apply conceptual and basic knowledge, understanding the subject area and the profession of manager.	Lecture, practical lesson, discussion of topical issues	10	Elaboration of theoretical material, solution of calculation tasks	40
MLOs 3. Skills in the use of information and communication technologies to search, process, analyze and use information from various sources.	Lecture, practical lesson, discussion of topical issues	10	Elaboration of theoretical material, solution of calculation tasks	40
MLOs 4. Ability to create and organize effective communications in the management process.	Lecture, practical lesson, discussion of topical issues	14	Elaboration of theoretical material, solution of calculation tasks	20
Total hours		30		120

5. ASSESSMENT

5.1. Diagnostic assessment

5.2. Summative assessment

5.2.1. Intended learning outcomes methods:

No	Summative assessment methods	Grades	Deadline
Autumn semester			
1.	Practical Work 1-4	40 points / 40 %	7 week
2.	Practical Work 5-8	45points / 45 %	14 week
3.	Test	15 points / 15 %	During semester

5.2.2. Grading criteria

Summative assessment method	Unsatisfactory	Satisfactory	Good	Excellent
Practical Works 1-4.	<i>0 балів</i>	<i>1-10 балів</i>	<i>11-30 балів</i>	<i>31-40 балів</i>
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes missing
Practical Works	<i>0 балів</i>	<i>1-10 балів</i>	<i>11-30 балів</i>	<i>31-45 балів</i>

5-8	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes missing
Multiple choice test	<i>0-3 балів</i>	<i>3-5 балів</i>	<i>5-9 балів</i>	<i>10-15 балів</i>
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes Missing

5.3. Formative assessment

Formative exercises are designed to enable students to develop particular aspects of their learning, prior to summative assessments. Formative exercises are designed to help students use feedback and self-reflection to manage and develop their learning so that they can see how to improve their work.

No	Formative Assessment elements	Date
Autumn semester		
1.	Oral interview after studying each topic	After completing the study of the topic
2.	Passing the test on certification and modular control with feedback from the teacher	According to the schedule of the educational process
3.	Passing the test after the end of the study of each topic for independent control of knowledge and preparation for the test (exam)	Regulated by the student independently
4.	Protection of practical works	One week after their delivery
5.	Oral feedback from the teacher while working on practical work during classes	Throughout the semester

Self-assessment can be used both an element of formative and summative assessment.

6. LEARNING RESOURCES

6.1. Key resources

1. Agadzhanova, S., Barchenko, N., Lecture notes for English-speaking Students of Economics and Management Faculty, 1st year study master's degree, specialty: 073 Management, EP "Administrative management". September, 2018. - 96 p.
2. Kenneth C. Laudon and Jane Price Laudon. Management Information Systems: Organization and Technology, 6th edition, by Kenneth C. Laudon and Jane Price Laudon, produced by Prentice-Hall, a division of Pearson Education.
3. Rainer, R. Kelly and Cegielski, Casey G. (2019). "Introduction to Information Systems: Enabling and Transforming Business, 3rd Edition".

6.2 Methodical resources

1. S.Ahadzhanova Economical Informatics(e-course in Moodle:Address – <https://cdn.snau.edu.ua/moodle/course/view.php?id=3908>

6.3. Additional resources

1. Lindsay, John (2016). Information Systems – Fundamentals and Issues. Kingston University, School of Information Systems.
2. Dostal, J. School information systems (Skolni informacni systemy). In Infotech 2017 - modern information and communication technology in education. Olomouc, EU: Votobia, 2017. p. 540 – 546. ISBN 978-80-7220-301-7.
3. O'Leary, Timothy and Linda. Computing Essentials Introductory 2018. McGraw-Hill on Computing 2018.com.

6.2. Soft ware

1. R-programming. URL: <https://www.r-project.org/> (дата звернення – 25.05.2023р.)
2. MS Excel URL: <https://www.microsoft.com/en-us/microsoft-365/excel> (дата звернення – 25.05.2023р.)