ІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ХАРКІВСЬКИЙ НАЦІОНАЛЬНИЙ ЕКОНОМІЧНИЙ УНІВЕРСИТЕТ ІМЕНІ СЕМЕНА КУЗНЕЦЯ

ЗАТВЕРДЖЕНО
на засіданні кафедри
інформатики та комп'ютерної техніки
Протокол № 1 від 29.08.2023 р.

ПОГОДЖЕНО
Проректор з навчально-методичної роботи

Каріна НЕМАШКАЛО

ІНФОРМАТИКА

робоча програма навчальної дисципліни (РПНД)

Галузь знань	**07 "Управління та адміністрування"**
Спеціальність	**073 "Менеджмент"**
Освітній рівень	**перший (бакалаврський)**
Освітня програма	**"Логістика"**

Статус дисципліни	**обов'язкова**
Мова викладання, навчання та оцінювання	**англійська**

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Завідувач кафедри
інформатики та комп'ютерної
техніки   Сергій УДОВЕНКО

Гарант програми   Тетяна КОЛОДІЗЄВА

Харків
2023

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
SIMON KUZNETS KHARKIV NATIONAL UNIVERSITY OF ECONOMICS

APPROVED
at the meeting of
Informatics and Computer
Engineering department
Protocol № 1 on 29.08.2023.

AGREED
Vice-rector for educational and
methodical work

_____ Karina NEMASHKALO

INFORMATICS

program of the course

Field of knowledge	**07 "Management and administration"**
Specialty	**073 "Management"**
Study cycle	**first (bachelor)**
Study programme	**"Logistics"**

Course status	**mandatory**
Language	**English**

Developers:
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Kharkiv

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INTRODUCTION

Informatics in the life of modern society acquire an exceptional importance and exerts a serious influence on the intensification of the economics, primarily by ensuring optimal connections between industries, individual enterprises, as well as by improving management with information systems and technologies.

One of the characteristics of modern economic specialists is the ability to apply information technologies to solve a wide range of management tasks. At the same time, it is important for such specialists not only to be able to apply software tools and general-purpose products in practice, but also to be competent in algorithmization, programming in solving various economic problems, creating and maintaining information systems based on database management systems.

The educational discipline "Informatics" is a mandatory educational discipline and is studied in accordance with the curriculum for the learning of specialists of the educational degree "Bachelor" for the specialty 073 "Management" of "Logistics" educational program of all forms of education.

The program of the academic course provides the learning in the form of lectures, laboratory classes and independent work of applicants. For the practical assimilation of the main topics of the discipline, laboratory classes, individual work and consultations are performed with the use of personal computers, local networks and the Internet in the computer classrooms of S. Kuznets KHNUE. All types of classes are provided with the necessary printed and electronic methodical materials.

The goal of teaching the educational discipline is the formation of a system of competences for future specialists in matters of architectural principles of building and functioning of personal computers and computer networks, algorithmization and organization of computing processes, software, as well as acquiring competence in working with the help of modern computer technology and effective use of modern technologies in professional activities to solve various economic problems.

The task of studying the discipline is the theoretical and practical training of future specialists in the use of modern information technologies by future specialists in the specialty 073 "Management".

The object of the course is the use of information systems and technologies in management and economics.

The subject of the course is software application technology for solving managerial and economic tasks.

The learning outcomes and competencies formed by the course are defined in table 1.

Table 1

Learning outcomes and competencies formed by the course

Learning outcomes	Competences
LO2	GC8
LO3	GC8

LO7	SC4
LO8	SC7
LO11	GC8
LO19	GC8

where:

GC8. Skills in using information and communication technologies.

SC4. The ability to determine the functional areas of the organization and the connections between them.

SC7. Ability to choose and use modern management tools.

LO2. To preserve moral, cultural, scientific values and multiply the achievements of society, to use various types and forms of physical activity to lead a healthy lifestyle.

LO3. Demonstrate knowledge of theories, methods and functions of management, modern concepts of leadership.

LO7. Demonstrate organizational design skills.

LO8. Apply management methods to ensure the effectiveness of the organization's activities.

LO11. Demonstrate skills in situation analysis and communication in various areas of the organization.

LO19. To apply a logistic approach to the management of organizations' resources and to ensure an increase in their competitiveness. Demonstrate skills in optimizing the organizational and technological aspects of the main functions of logistics using communication and information support.

COURSE CONTENT

Content module 1. Using the MS Office package to solve economic problems
Topic 1. Theoretical foundations of economic informatics
1.1. Information and its properties.

Information, data and knowledge. Forms of information presentation, dimensions and quality of information. Information classification and coding systems. Concept of economic information. The concept of data. Basic data structures. Information environment, information procedures, information process. Peculiarities of obtaining, processing, analyzing and using economic information.

1.2. Technical base of modern information technologies.

Basic concepts, composition, structure of information systems software: system and application support and programming tools. The evolution of the system software and programming tools development, their comparative characteristics. Classification of information systems.

Topic 2. Technologies for creating and editing text documents
2.1. Creating and editing documents in MS Word.

Ways of input text of the document, text formatting methods. Saving and closing documents, updating documents. Document page layout, page numbering and editing of footers. Creation of a document structure, organization of automatic formatting of document content, adding a hyperlink to a document. Check the spelling of the

document. Editing the document using the search and replace mechanism, making notes in the document. Entering a password in a document.

2.2. Work with graphic objects in MS Word.

Creating shapes and inscriptions in documents, using the drawing library. Creating and editing formulas. Creating and editing tables in MS Word. Formatting tables, editing table cells, inserting formulas into the table.

2.3. Searching for information in the Internet.

Types of information and evaluation of information. Search engines and their classification. Search for documents and files with different extensions. Search for software. Search for legislative acts. Search for work and vacancies. Search for organizations and information about a person. Creation of information search reports and their formatting.

Topic 3. Using a spreadsheet processor to solve economic problems

3.1. Use of MS Excel functions in calculations.

Creation of electronic tables. Data types in MS Excel. Data formatting in spreadsheets. Organization of calculations in MS Excel. Absolute and relative references. Using cell and range names in formulas. Application of the wizard of functions for economic calculations and processing of text arrays. Working with spreadsheet data. Multi-table information processing. Graphic presentation of information when solving economic problems

3.2. Analysis of tabular data using MS Excel.

Data processing technology in the environment of table processors using built-in operators and functions. Sorting and searching data lists. Using forms to enter and edit lists. Using filters and sorting for data analysis. Table processing functions as lists of data, rules for their use. Construction of summary tables. Application of subtotals and slices for data analysis. Data consolidation. Conditional formatting of spreadsheets. Analysis and forecasting of data using graphical means of a spreadsheet processor.

Content module 2. Algorithmization of economic information processing problems. Basics of office programming

Topic 4. Algorithmization of economic information processing problems

4.1. The concept of an algorithm. Basic properties of algorithms. Forms of recording algorithms: informal language and logical schemes. The main types of blocks used in algorithm schemes.

4.2. Concept of computational process.

Stages of preparation and organization of solving problems on the computer. Typical types of computing processes and their features. The main constructions of algorithms and their display using graphic schemes: conditional design; conditional cycle; cycles with a counter. Examples of classical algorithms.

Topic 5. Basics of office programming

5.1. Characteristics of the visual programming language.

Data types. Features of programming linear processes and branching processes. Use of cyclical processes in solving economic problems. Object-oriented programming. The main properties of the VBA language. Structure of the VBA editor. Characteristics

of the built-in application development environment. The main elements of form management.

5.2. Custom (user defined) procedures and functions.

Creating and using custom procedures and functions. Operator processing priorities. Data type conversion functions. Date and time processing functions. Data formatting functions. Technology of working with data arrays. Technology of working with files. Using functions in worksheet formulas. Using the controls in the MX Excel workbook. Using add-ins in MX Excel.

Content module 3. Basics of Web design.

Topic 6. Network technologies

6.1. Computer networks.

General information about computer networks and their classification. Topology and access methods in computer networks. Basics of working in a local network: logging in and out of the network, identification of computers, network interface. Principles and features of sharing resources in local computer networks. Technology of distribution and joint use of resources on local network workstations. Integrity and protection of information in local computer networks, types of access to network resources and their settings.

6.2. Global computer network - Internet.

General characteristics and stages of Internet development. The concept of building the Internet. Basics of work in the global Internet network.

Topic 7. Organization of computer security and information protection

7.1. Informational security.

The main directions and purpose of information protection: confidentiality of information, integrity of information and related processes, access to information. General measures for the protection of information and computer equipment: identification of users, authorization procedures, protection of files and electronic documents, etc.

7.2. Information protection systems.

Comprehensive electronic business security systems. Computer viruses and methods of combating them. Antivirus programs. Computer piracy and methods of combating it. Using firewalls while surfing the Internet. Information encryption methods.

Topic 8. Basics of Web-design

8.1. The essence and social aspects of Web-design.

General information about Web-technologies, the concept of construction. E-mail, mailing lists and means of business communication, postal services. Online news.

8.2. Creation of web pages.

Tools and methods of building Web-pages. Creating Web-pages with HTML. Editing of Web-pages using basic HTML-elements. Formatting a Web-document using CSS. Layout of Web-sites. Block and adaptive layout of sites. Using programs with visual means of creating Web-pages and Web-sites. Publication of Web-sites on the Internet. Static and dynamic websites.

Content module 4. Design and use of databases and data warehouses in the economics

Topic 9. Software tools for working with databases and data repositories

9.1. The concept of a database.

The concept of a database (DB). Architecture of database management systems (DBMS). Functional capabilities of DBMS. Data models. Subject area. Database architecture. Concept of database scheme, SPARS standard. Stages of database design.

9.2. A relational database.

Logical and physical independence of data in the database. The main objects of the database and their characteristics. Relational algebra and relational calculus. Normalization of relations. Data processing anomalies. Rules for the formation of normal forms. Design stages of relational databases. Database planning. Analysis of database requirements. Conceptual, logical and physical design.

The entity-relationship data model. Entities, attributes, types of relationships between entities and their characteristics. Simplification of the conceptual model. Transformation of ER-diagrams into relational structures. Tools for automating database design.

9.3. Construction of relational database objects.

Instrumental and software tools for creating user interfaces. A form is the main object of entering and viewing database data in the user interface. Publication of information using reports.

9.4. Data repositories.

Software and tools for creating data warehouses. Star and Snowflake data stores. Basic operations in the course of working with multidimensional models of data warehouses. Software tools for processing requests for extracting information from a data warehouse.

Topic 10. Prospects for the development of information technologies

Development of technologies for integration of heterogeneous information resources. Development of user application development technologies. Technologies of distributed processing of information and software for the organization of cloud computing.

The list of laboratory classes / tasks in the course is given in table 2.

Table 2

The list of laboratory classes / tasks

Name of the topic and/or task	Content
Topic 1-2. Task 1	Learn to create documents of a complex structure, work with them, edit and navigate effectively
Topic 3. Task 2	Learn how to use the built-in functions of MS Excel of various categories to solve problems of an economic nature
Topic 3. Task 3	Master the method of creating the simplest databases (DB) of an economic nature, as well as the organization of data search and selection using an autofilter and an advanced filter
Topic 3. Task 4	Learn to build diagrams and graphs of various types, edit them, and

	use them in solving economic problems
Topic 4. Task 5	Learn to build and edit three-dimensional diagrams of various types when solving economic problems
Topic 5. Task 6	Master the methodology of developing and launching simple linear programs when solving problems of an economic nature
Topic 5. Task 7	Acquire the skills and abilities to create and analyze applications based on branching algorithms
Topic 6-8. Task 8	Learn the basics of HTML. Create the first HTML page
Topic 9. Task 10	Learn how to work with tables in HTML. Create a site using a tabular layout
Topic 9. Task 11	Database project development. Development of the database structure. Construction of tables. Creating a data schema. Loading the database
Topic 10. Task 12	To acquire practical skills in the formation and use of queries of various types using MS Access tools

The list of self-studies in the course is given in table 3.

Table 3

List of self-studies

Name of the topic and/or task	Content
Topic 1 - 10	Studying lecture material
Topic 2 - 9	Preparation for laboratory work
Topic 2 - 9	Work on the individual tasks

The number of hours of lectures, laboratory classes, and hours of self-study is given in the technological card of the course.

TEACHING METHODS

In the process of teaching an educational discipline, in order to acquire certain learning outcomes, to activate the educational process, it is envisaged to use such learning methods as:

- verbal (lectures on all topics), elements of problematic lectures (on all topics of the course);

- visual (demonstrations are included in all lecture and practical materials);

- practical (laboratory classes on all topics of the course). In the conditions of the mixed form of education, the presentation of lecture material and/or the conduct of laboratory classes and group and individual consultations takes place using the Zoom platform, in the conditions of the usual classroom form, the classes are held face-to-face, in classrooms and computer rooms.

FORMS AND METHODS OF ASSESSMENT

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 assessment of the student.

Semester control is carried out in the form of a 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: laboratory works (36 points), self-studies work (24 points), written control works (20 points), tests for current work (20 points).

Semester control: Grading.

More detailed information on the assessment system is provided in technological card of the course.

RECOMMENDED LITERATURE

Main

1. Інформатика в сфері комунікацій [Електронний ресурс]: навчально-практичний посібник: у 3-х ч. Частина 2 : Обробка та аналіз даних / С. Г. Удовенко, О. В. Тесленко, Н. О. Бринза [та ін.]; за заг. ред. С. Г. Удовенка; Харківський національний економічний університет ім. С. Кузнеця. - Електрон. текстові дан. – Харків : ХНЕУ ім. С. Кузнеця, 2019. – 249 с. – [Електронний ресурс]. – Режим доступу : http://repository.hneu.edu.ua/handle/123456789/23347

2. Microsoft Access 2016: навчальний посібник в електронному вигляді / Укладачі В.О. Нелюбов, Ю.Ю. Білак. Ужгород: ДВНЗ "УжНУ", 2019. 73 с.

3. Інформатика в сфері комунікацій [Електронний ресурс]: навч.-практ. посіб. : у 3-х ч. Ч. 3 : Використання web-технологій у сфері комунікацій / С. Г. Удовенко, В. А. Затхей, О. В. Гороховатський [та ін.] ; за заг. ред. С. Г. Удовенка; Харківський національний економічний університет ім. С. Кузнеця. – Електрон. текстові дан. (10.5 МБ). – Харків: ХНЕУ ім. С. Кузнеця, 2020. – 154 с. – [Електронний ресурс]. – Режим доступу: http://repository.hneu.edu.ua/handle/123456789/24506.

4. Word 2013-2016: навчальний посібник / Укладач: Дячук С. Ф. – Тернопіль: Тернопільський національний технічний університет імені Івана Пулюя, 2021. – 294 с. – [Електронний ресурс]. – Режим доступу: http://elartu.tntu.edu.ua/handle/lib/40760.

Additional

5. Табличний процесор MS EXCEL: просунутий рівень. Практикум [Електронний ресурс] / уклад. А. А. Гаврилова, Н. О. Бринза, О. Г. Король; Харківський національний економічний університет ім. С. Кузнеця. - Електрон. текстові дан. (7,92 МБ). – Харків: ХНЕУ ім. С. Кузнеця, 2021. – 242 с. – [Електронний ресурс]. – Режим доступу: http://repository.hneu.edu.ua/handle/123456789/26813.

6. Федько В. В. Технології баз даних [Електронний ресурс]: лабораторний практикум / В. В. Федько ; Харківський національний економічний університет ім. С. Кузнеця. - Електрон. текстові дан. (10,2 МБ). – Харків : ХНЕУ ім. С. Кузнеця, 2020. – 343 с. : іл. – Загол. з титул. екрану. - Бібліогр.: с. 340. [Електронний ресурс]. – Режим доступу: http://www.repository.hneu.edu.ua/handle/123456789/24099.

7. Microsoft Word 2010 Bible / H. Tyson. – Wiley, 2010. – 987 p.

8. The complete reference HTML & CSS, fifth edition / T. Powell. – McGraw Hill, 2010. – 864 p.

9. Microsoft Excel 2019 Bible, First edition / M. Alexander, D. Kusleika, J. Walkenbach. – Wiley, 2018. – 1074 p.

Information resources

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12. Excel 2019 Data Analysis. – [Electronic resource]. – Access mode: https://www.tcworkshop.com/data/Downloads/TCW_Courseware/Excel/DataAnalysis.pdf

13. Microsoft Word 2016 step-by-step guide. A MC-NPL Computer Lab Lesson [Electronic resource]. – Access mode: https://www.tcworkshop.com/data/Downloads/TCW_Courseware/Excel/DataAnalysis.pdf

14. 11. How To Code In HTML5 And CSS3 / Damian Wielgosik. – [Electronic resource]. – Access mode: http://howtocodeinhtml.com/HowToCodeInHTMLAndCSS.pdf