"ЗАТВЕРДЖУЮ"
Проректор з навчально-методичної роботи

Каріна НЕМАШКАЛО

ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ

робоча програма навчальної дисципліни

Галузь знань	**29 «Міжнародні відносини»**
Спеціальність	**292 «Міжнародні економічні відносини»**
Освітній рівень	**перший (бакалаврський)**
Освітня програма	**Міжнародні економічні відносини**

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

Завідувач кафедри
інформатики та компютерної техніки   Сергій УДОВЕНКО

Харків
2021

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

"APPROVED"

Educational and methodical work vice-rector

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Karina NEMASHKALO

INFORMATION TECHNOLOGY

Syllabus of the educational discipline

Level of education	*29 International relations*
Speciality	*292 International economic relations*
Educational level	*first (bachelor)*
Educational program	*International Business*

Type of discipline	*Basic*
Language of teaching, studing and assessment	*English*

Head of the Department of
Informatics and Computer Engineering   Sergei UDOVENKO

Kharkiv

2021

APPROVED
by the Department of Informatics and Computer Engineering meeting
Protocol №1 dated on August 27, 2021

The developers are:
S.G.Udovenko, Doctor of Technical Sciences, a professor, the head of the Informatics and Computer Engineering Department
O.O.Tiutiunyk, Candidate of Technical Sciences, an associate professor, an associate professor of the Informatics and Computer Engineering Department

Renewal and reapproval list of the
academic subject curriculum

Academic year	Date of the Department meeting – the developer of ASWP	Protocol №	Signature of the Department Head

Annotation of an academic subject

With the modern development of information systems, most of the problems solved by the manager are translated into the language of algorithms and included in applications, which allows you to achieve the most economical solution in a short time. When using such technologies, the efficiency of the manager increases significantly. The use of information technology in the activities of the manager is the only way to achieve competitiveness in today's market. Information technologies are divided into different types with different tasks and depth of coverage of the subject of control. The correct idea of the types of information systems and the tasks they solve - determine the modern manager. A well-chosen information system is only a part of success. Efficiency of use is the main criterion by which the manager should differ in modern conditions. Under such conditions, it is important to train highly qualified specialists who could not only competently address the choice of information system, but also organize management processes using the selected information system and information technology, able to select and calculate the necessary parameters of the business project. All this determines the relevance of studying the discipline "Information Technology".

The discipline "Information Technology" is a basic discipline and is studied in accordance with the curriculum of students in the specialty 292 "International Business" of the first (bachelor's) level.

The curriculum includes training in the form of lectures, laboratory classes and independent work of students. For the practical mastering of the main topics of the discipline there are laboratory classes, individual work and consultations, which are conducted with the use of personal computers, local networks and the Internet in computer classes of Simon Kuznets Kharkiv National University of Economics. All types of classes are provided with the necessary printed and electronic teaching materials.

In order to increase the efficiency of studying the discipline, students have the opportunity to use the system of distance learning Simon Kuznets Kharkiv National University of Economics.

The **purpose of studying** the discipline is to form in future professionals competencies in the use of information systems and computer technology in international business.

The **task of studying** the discipline is theoretical and practical training in the use of modern information technology by future professionals in the specialty "International Business".

The **object of the discipline** is information technology in the field of international business.

The **subject of the discipline** is the study of existing and promising information technologies for automation of information processes in international business.

Characteristic of an academic subject

Year of study	1
Semester	1
Number of credits ECTS	5
Final control form	pass

Structural and logical scheme of an academic subject

Previous disciplines	Following disciplines
Basic knowledge of PC	All disciplines

Competences and results of studying under this subject

Competences	Results of studying
GC 7. Skills in the use of information and communication technologies	LR3. Use modern information and communication technologies, software packages for general and special purposes

GC 7. Skills in the use of information and communication technologies	LR 16. Demonstrate knowledge about the state of research in international economic relations and the world economy in an interdisciplinary combination with political, legal, natural sciences
GC 7. Skills in the use of information and communication technologies	LR 24. Justify the choice and apply information and analytical tools, economic and statistical methods of calculation, complex analysis techniques and methods of monitoring world markets
GC 8. Ability to abstract thinking, analysis and synthesis	LR 26. Manage international business, form, develop and implement strategies for personnel management of an international company, marketing, competition, innovation, financial activities and others, taking into account the direction of the international business entity, taking into account the priorities of start-specialization of Kharkiv region

Academic subject program

Content module 1. Technology of processing of economic materials by means of Microsoft Office

Topic 1. Modern information technologies and their use in economics and international business

1.1. Information technologies and their role in modern society.

Information technologies and their place in the field of economic process management. Types of information technology. Use of information and computer technologies in international business.

1.2. Information and its properties.

Information, data and knowledge. Forms of information presentation, measurements and quality of information. Information classification and coding systems. The concept of economic information. The concept of data. Basic data structures. Information environment, information procedures, information process. Features of obtaining, processing, analysis and use of economic information.

1.3. Technical base of modern information technologies.

Basic concepts, composition, structure of information systems software: system and application software and programming tools. Evolution of system software development and programming tools, their comparative characteristics.

Topic 2. Creating tools for presenting economic information using a word processor Microsoft Word 2010

2.1. Create and edit documents in Microsoft Word 2010.

Ways to enter the text of the document, text formatting. Saving and closing documents, updating documents. Document page layout, page numbering and footer editing. Creating a document structure, organizing automatic formatting of the document content, adding hyperlinks to the document. Checking the spelling of the document. Editing a document using the search and replace mechanism, making notes in the document. Enter the password in the document.

2.2. Working with graphics in Microsoft Word 2010.

Graphic objects as a means of presenting economic materials. Creating figures and inscriptions in documents, using a library of drawings. Using mathematical formulas when creating economic materials: using the Equation 3.0 formula editor. Creating and editing tables in Microsoft Word 2010. Formatting tables, editing table cells, inserting formulas into a table.

2.3. Search for information on the Internet.

Types of information and evaluation of information. Search engines and their classification. Search for documents and files with different extensions. Search software. Search for legislation. Job search and vacancies. Search for organizations and information about people. Creating information retrieval reports and their formatting.

Topic 3. Technology of economic data processing by means of Microsoft Excel 2010

3.1. Processing of numerical data by means of Microsoft Excel 2010.

Spreadsheets, their purpose and capabilities. Download and main window of Microsoft Excel 2010. Creating spreadsheets. Data types in Microsoft Excel 2010. Formatting data in spreadsheets. Organization of calculations in Microsoft Excel 2010. Absolute and relative references. Using cell names and ranges in formulas. Application of the function wizard for economic calculations and processing of text arrays. Working with spreadsheet data. Multi-table information processing.

3.2. Using Microsoft Excel 2010 functions in economic calculations.

Data processing technology in the environment of spreadsheets using built-in operators and functions. Organize and search data in lists. Use forms to enter and edit lists. Using filters and sorting to analyze data. Functions of processing tables as data lists, rules of their use. Construction of summary tables. Application of subtotals and delimiters for data analysis. Data consolidation. Conditional formatting of spreadsheets. Data analysis and forecasting by graphical means of a spreadsheet processor.

Content module 2. Use of integrated packages of mathematical calculations to solve international business.

Topic 4. Features of programming in integrated packages of mathematical calculations

4.1. Modeling tools.

Basic integrated mathematical packages. Modeling and programming of economic problems using mathematical packages.

4.2. Basics of work in R. Programming with the help of the R package.

R Studio system components. Fundamentals of calculation in R: numerical and symbolic output operators. Mathematical expressions and built-in functions. Variables and assignment operator. User functions. Types of numbers. Formula editor interface elements. Introduction of formulas. The principle of programming in R.

Topic 5. Solving international business problems using the R package.

5.1. Construction of graphs in R.

Types of graphs. Creating a schedule. X-Y graph of two variables. X-Y graph function. Construction of several series of data. Three-dimensional graphics. Debugging and commenting on programs. Error messages.

2. Algebraic calculations.

Operators: arithmetic, computational, logical operators, matrix operators, expression operators. Functions: elementary, auxiliary, current time output. Algebraic transformations. Decomposition of expressions. Simplification of expressions. Decomposition into factors. Calculation of the polynomial coefficient.

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 methods of access in computer networks. Basics of work in a local area network: entrance and exit from a network, identification of computers, the network interface. Principles and features of resource sharing in local computer networks.

Technology of resource allocation and sharing on LAN workstations. Integrity and protection of information in local computer networks, types of access to network resources and their installation.

6.2. The global computer network is the Internet.

General characteristics and stages of development of the Internet. Concepts of building the Internet. TCP / IP protocols. IP addressing. Domain Name System (DNS). Network service protocols. Unified Resource Index (URL). Basics of working on the global Internet.

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 information and computer security measures: user identification, authorization procedures, protection of files and electronic documents, etc. Using a proxy server and firewalls. Method of "digital signatures". Protection of information by encryption.

7.2. Cybersecurity systems.

The influence of the human factor on the preservation of information. Integrated e-business security systems. Computer crime and abuse: data manipulation, scanning, "Trojan horse". Computer viruses and methods of combating them. Computer piracy and methods of combating it.

Topic 8. Basics of Web design

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

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

8.2. Creating Web-pages.

Tools and methods for building Web-pages. Creating HTML Web Pages Editing Web pages using basic HTML elements. Formatting a Web document using CSS. Web site layout. Block and adaptive layout of sites. Using programs with visual means of creating Web-pages and Web-sites. Publishing Web sites on the Internet. Static and dynamic Web-sites. Dynamic design of Web-pages with the help of animation effects.

Content module 4. Design and use of databases and data warehouses in international business

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

9.1. The concept of a database.

Database (DB) concept. Architecture of database management systems (DBMS). DBMS functionality. Data models.

Subject area. Database architecture. The concept of the database schema, SPARS standard. Stages of database design.

9.2. Relational database.

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

Entity-connection data model. Entities, attributes, types of relationships between entities and their characteristics. Simplification of the conceptual model. Conversion of ER-diagrams into relational structures. Database design automation tools. CASE technology. Verification of normalization, integrity and user transactions.

9.3. Construction of relational database objects.

Structured SQL query language. Purpose, general characteristics, features of use and technology of creation of SQL-queries.

Tools and software tools for creating user interfaces.

Form is the main object of entering and viewing database data in the user interface. Publication of information using reports.

9.4. Data warehouses.

Software and tools for creating data warehouses. Data warehouses such as "Star" and "Snowflake". Basic operations when working with multidimensional models of data warehouses. Request processing software for retrieving information from the data warehouse.

Technology of integrated processing and collective access to information resources in the office software package. OLAP data analysis technology. Technology of using MS QUERY data

source integration programs.

The list of laboratory classes, as well as questions and tasks for independent work is given in the table "Rating-plan of the discipline".

Methods of teaching and learning

The discipline "Information Technology" uses the following methods of teaching and learning:

In topics 1-9: problem lectures and laboratory work.

In the case of distance education or the use of distance learning technologies - lectures are conducted in the online video conferencing systems: ZOOM and GoogleMeet.

Topics 1-9 use teaching methods such as discussions and small group work.

Procedure for assessing studying results

Khneu named after S. Kuznets uses a cumulative (100-point) evaluation system.

Evaluation is carried out by the following types of control:

current control, which is carried out during the semester during lectures, practical, laboratory classes and tests and is estimated by the amount of points scored (maximum amount - 100 points; minimum amount that allows a student to get credit - 60 points).

The test is set as the total amount of points scored on the results of the current control:

Laboratory classes - the defense of each laboratory work is estimated from 5 to 10 points. The grade for laboratory work is received by the student in the presence of the report on laboratory work, the executed tasks of laboratory work, the expanded answer to questions and performance of control examples. Total points 70.

Modular control is carried out taking into account the current control for the relevant content module in the form of test and control work.

Control works are performed on a computer using a distance learning system. The Control work contains five practical tasks (tasks) and is evaluated in 5 points. The grade for the test is reduced in the absence of the task, the assumption of errors in the developed requirements and diagrams, incomplete performance of the task. Total number of points 20.

The tests are performed on a computer using a distance learning system in automatic mode. The tests consist of 15 - 20 tasks and are limited in time. The student has only one attempt to complete the test tasks. For correct performance of the test task on the module the student receives 5 points. The score on the test task is reduced in the absence of an answer to the question, incorrectly provided answer, or for the provided incomplete answer (depending on the type of test task). Total number of points 10.

Final control of knowledge and competencies of students in the discipline is carried out on the basis of a semester test, the task of which is to test students' understanding of the program material in general, logic and relationships between individual sections, ability to creatively use accumulated knowledge, ability to formulate their attitude to a particular problem. disciplines, etc.

A student should be considered certified if the sum of points obtained from the results of the final / semester performance test is equal to or exceeds 60.

The final grade in the discipline is calculated taking into account the points obtained during the current control of the accumulative system. The total result in points for the semester is: "60 or more points - credited", "59 or less points - not credited" and is entered in the test "Statement of success" of the discipline.

Final control:

The final grade is set according to the scale given in the table "Grade scale: national and ECTS".

Forms of assessment and distribution of points are given in the table "Rating-plan of an academic subject".

Assessment scale: national system and European system of transfer and accumulation of points

The sum of points under all the types of studying activities	Score under the European system of transfer and accumulation of points	Score under the national system	
		for an exam, a term paper, practice for a pass-fail	For a pass-fail
90 – 100	A	Excellent	Credit
82 – 89	B	Good	
74 – 81	C		
64 – 73	D	Satisfactory	
60 – 63	E		
35 – 59	FX	Failed	not credited

Rating-plan of an academic subject

Topic		Forms and types of education	Forms of evaluation	Max point
Topic 1,2,3		*Classroom work*		
	Lecture 1	Topic 1. Modern information technologies and their use in economics. Using a spreadsheet to solve economic problems		
Topic 2	Laboratory work	Laboratory work 1. Creating tools for presenting economic information using a word processor Microsoft Office Word 2010	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Performing practical tasks on searching for information on the Internet and text formatting		
		Classroom work		
	Laboratory work	Laboratory work 2. Technology of economic data processing by means of Microsoft Excel 2010	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Search, selection and review of literary sources on a given topic		
Topic 3		*Classroom work*		
	Laboratory work	Laboratory work 3. Processing of numerical data by means of Microsoft Excel 2010	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Search, selection and review of literary sources on a given topic		

Topic 3		*Classroom work*		
	Laboratory work	Laboratory work 4. Analysis of tabular data and processing of graphic materials using Microsoft Excel 2010	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Search, selection and review of literary sources on a given topic		
		Classroom work		
	Laboratory work	Laboratory work 5. Use of Microsoft Excel 2010 functions in economic calculations	Laboratory work (protection)	10
		Individual work		
	Questions and tasks for individual study	Search, selection and review of literary sources on a given topic. Preparation for control work and test	Test	5
			Control work 1	5
Topic 4, 5		*Classroom work*		
	Lecture 2	Topic 4-5. Features of programming in integrated packages of mathematical calculations		
Topic 4	Laboratory work	Laboratory work 6. Fundamentals of work in the package R to solve economic problems	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Execution of practical tasks for studying the principles of mathematical calculations		
		Classroom work		
	Laboratory work	Laboratory work 7. Programming in package R	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Search, selection and review of literary sources on a given topic		
Tpoic 5		*Classroom work*		
	Laboratory work	Laboratory work 8. Organization of calculations with branches in economic problems using the package R	Laboratory work (protection)	5
		Individual work		
	Questions and tasks for individual study	Execution of practical tasks on development and use of user procedures and functions in package R. Preparation for control work and test	Control work 2	5
Topic 6,7,8		*Classroom work*		
	Lecture 3	Topic 6-8. Modern Web-technologies		

Topic 8	Laboratory work	Laboratory work 9. Creation and formatting of Web-documents by means of HTML	Laboratory work (protection)	5
	Individual work			
	Questions and tasks for individual study	Search, selection and review of literary sources on a given topic.		
	Classroom work			
	Laboratory work	Laboratory work 10. Creation and formatting of Web-documents by means of HTML	Laboratory work (protection)	5
	Individual work			
	Questions and tasks for individual study	Performing practical tasks to create an HTML page		
	Classroom work			
	Laboratory work	Laboratory work 11. Adaptive site layout and site placement on the Internet	Laboratory work (protection)	5
	Individual work			
	Questions and tasks for individual study	Performing practical tasks to create an HTML page. Preparation for control work and test	Control work 3	5
Topic 9	*Classroom work*			
	Lecture 4	Topic 9. Design of relational databases		
	Laboratory work	Laboratory work 12. Creating a database.		
	Individual work			
	Questions and tasks for individual study	Performing practical tasks for constructing SQL queries in the Access environment.		
	Classroom work			
	Laboratory work	Laboratory work 13. Construction of queries and reports		
	Individual work			
	Questions and tasks for individual study	Performing practical tasks for constructing SQL queries in the Access environment		
	Classroom work			
	Laboratory work	Laboratory work 14. Database administration	Laboratory work (protection)	10
	Individual work			
	Questions and tasks for individual study	Performing practical tasks for constructing SQL queries in the Access environment. Preparation for control work and test	Control work 4	5
			Test	5
Total				**100**

List of recommended resources

Basic resources

1. Shevchuk I.B. Information technology in the regional economy: theory and practice of implementation and use: a monograph. – Lviv: NNVK "ATB" Publishing House, 2018. 448 p.

2. Information technology and technical means of education: textbook. way. for students. University / O.P. Buinitskaya; Borys Hrinchenko Kyiv University. – Kyiv : 2018. 240 p.

3. Information Technology for Managers: George W. Reynolds (2019).

4. R in Action: Data Analysis and Graphics with R by Dr. Rob Kabacoff (2020).

Optional resources

5. Kiriy V.V. Research of the IT industry as a lever of economic development of the country and the Kharkiv region / V.V. Kiriy, M.E. Zinchenko, V.R. Shelefontyuk // Economics and Society. – 2018. – №19. P. 763 - 769. Mode of access to the journal: http://economyandsociety.in.ua/journal/19_ukr/116.pdf.

6. Erfan E.A. Research of the role of information technologies in modern international business / E.A. Erfan, A.A. Kushnirchuk // Scientific Bulletin of Uzhgorod National University, Series: International Economic Relations and World Economy, Issue 33, Part 1, 2020, pp. 49-54.

Information resources

7. Information Technology / O. O. Tiutiunyk //
https://pns.hneu.edu.ua/enrol/index.php?id=5332

8. Akhayan R. Effective work with DBMS. Electronic textbook / R. Akhayan, A. Gorev, S. Makasharipov [Electronic resource]. – Access mode: http://padabum.com/d.php?id=2171

9. Informatics. Computer hardware and software. Information systems (Course of lectures) [Electronic resource]. - Access mode: https://books.br.com.ua/themes/235/236

10. Microsoft Excel 2013 Tutorial – Free and Online [Electronic resource]. – Режим доступу : https://www.tutorviacomputer.com/microsoft-excel-2013-tutorial-free-and-online/

11. Microsoft Word 2013 Tutorial – Free and Online [Electronic resource]. – Режим доступу : https://www.tutorviacomputer.com/microsoft-word-2013-tutorial-free-online/

12. HTML in Visual Studio Code [Electronic resource]. – Режим доступу : https://code.visualstudio.com/docs/languages/html

13. Tutorial: Getting Started with R and Rstudio [Electronic resource]. – Режим доступу : https://www.dataquest.io/blog/tutorial-getting-started-with-r-and-rstudio/

14. Getting started with R and Rstudio [Electronic resource]. – Режим доступу : https://ourcodingclub.github.io/tutorials/intro-to-r/