

**MINISTRY OF INTERNAL AFFAIRS OF UKRAINE**  
**DNIPROPETROVS'K STATE UNIVERSITY OF INTERNAL AFFAIRS**  
**DEPARTMENT OF ECONOMIC AND INFORMATION SECURITY**

**APPROVE**

Rector of Dnipropetrovs'k  
State University of Internal Affairs  
Colonel of Police

**Andriy FOMENKO**

**CURRICULUM OF THE ACADEMIC DISCIPLINE**  
**INFORMATION SYSTEMS AND TECHNOLOGIES**

Academic level	<u>Bachelor's degree</u>
Specialty	<u>073 "Management"</u>
Educational program	<u>"Financial and economic security and risk management"</u>
The status of the discipline is	<u>obligatory</u>
For academic year	<u>2020/2021</u>
Language of instruction	English

Information systems and technologies // Curriculum of the academic discipline. – Dnipro: Dnipropetrovsk State University of Internal Affairs, 2020. – 14 p.

**AUTHOR:**

Kosychenko O.O. - Associate Professor of Economic and Information Security, Ph.D. tech. Sciences, Associate Professor

**REVIEWERS:**

Kornienko V.I. - Head of the Department of Information Security and Telecommunications of the National Technical University "Dnieper Polytechnic", Doctor of Technical Sciences, Professor.

Alekseev M.O. - Dean of the Faculty of Information Technologies of the National Technical University Dnieper Polytechnic, Doctor of Technical Sciences, Professor.

Considered at a meeting of the Department of Economic and Information Security  
26.08.2020, minutes №1

Recommended by the Scientific and Methodological Council of the University  
\_\_\_\_.\_\_\_\_. 2020, minutes №\_\_

Approved by the Academic Council of the University, recommended for use in the  
educational process for \_\_\_\_\_years. «\_\_» \_\_\_\_\_ 2020, minutes №\_\_  
(up to 5 years)

**The purpose** of studying the discipline "Information Systems and Technologies" is:

**learning** - is to give students knowledge, skills and abilities to use computer technology, specific software that allows you to solve certain tasks in professional activities;

**developing** - obtaining special knowledge and practical skills in the use of modern information technologies in professional activities;

**educational** - education of students neat and conscientious attitude to information activities.

A prerequisite for the study of an academic discipline is the amount of knowledge, skills and abilities acquired during secondary education in the field of computer technology and information technology.

**Results of the training** of the discipline "Information systems and technologies".

According to the requirements of the educational program,

**must know:**

**at the conceptual level:** the main trends in the development of information and computer technologies, the components of informatics and computer technology, the place and role of the use of computer technologies in practice;

**at the fundamental level:** regulatory framework for the use of computer and telecommunications technologies in the activities of a specialist-manager, types of software and their purpose, types of databases used in professional activities, structure and operation of computers and computer networks ;

**at the practical and creative level:** the requirements of the specialist - the head, the possibility of using information and computer technology in everyday activities, information processing with special computer programs, ways to obtain, accumulate, search and use to solve specific problems.

**be able:**

**at the reproductive level:** to implement the requirements of the state and today for the formation of employees of the legal direction of high professionalism by obtaining theoretical knowledge and practical skills;

**at the algorithmic level:** adhere to the logical sequence in professional activities;

**at the heuristic level:** to form one's own point of view on making specific decisions, to follow a logical sequence in professional activity;

**at the creative level:** use their theoretical knowledge and practical skills to increase the effectiveness of professional activities.

### **Bachelor of Management competencies**

An important element of the educational program of the first level is the achievement of their planned learning outcomes by mastering the relevant modules (disciplines and practices). The formulation of program learning outcomes is carried out in accordance with the key general and professional competencies: GC1, GC2, GC4, GC8, GC9, PC7, PC11, PC8, PC9.

Learning outcomes. Bachelor's skills are defined by type of educational activity as the specification of general, general professional and special-professional competencies in the programs of disciplines, practices, individual tasks and are used as criteria for selecting necessary and sufficient knowledge (content modules) that can be identified, quantified and measured.

**Scope of the discipline: Appendices 1, 2 (updated annually).**

## **CURRICULUM**

**TOPIC 1. The current state and prospects for the use of information technology in the professional activities of the manager.**

Hardware and software for computer systems. Basic principles of creating information objects in the environment of MS Windows operating system and MS Office software, methods of working in the online service Google Docs, computer networks of local and global type. Security and protection in information systems..

**TOPIC 2. Automation of document preparation using the online service Google Docs.**

Use the online Google Docs service to automate the preparation of business documents based on the use of templates and form fields. Creating spreadsheets, working with pictures and controlling access. Collaboration with documents.

### **TOPIC 3. Using the online service Google Sheets.**

Review of modern information technologies and their role in the practical activities of a specialist manager. The concept of information project and the main stages of its implementation. The concept of information system (IS). IS classification. IS life cycle. The main types of IS. The importance of proper IS design. The concept of database (database), subject area, table, record, field, table key.

### **TOPIC 4. Working with templates and forms in MS Word.**

Use of automation tools for the preparation of business documents based on the use of templates and form fields with template protection. Creating serial documents based on "merger".

### **TOPIC 5. Creating complex documents in MS Word based on merging.**

Use of means of automation of preparation of business documents on the basis of use of footers, columns and forms. Create documents using the formula editor.

### **TOPIC 6. Creating information databases based on lists in MS Excel.**

The concept of information system (IS) and database (DB). Features and tools for working with databases in MS Excel. The concept of subject area, record, field. Sorting and filtering in MS Excel.

### **TOPIC 7. Automation of preparation of business documents.**

Use of means of automation of preparation of business documents on the basis of use of macros. Using macros to create documents in MS Word and MS Excel.

### **TOPIC 8. Use of the Internet in professional activities.**

The role of telecommunications in the work of a manager. Classification of Internet services. Overview of the main ways to use the Internet: browsing, copying files, e-mail, teleconferencing. Travel on the WWW ("World Wide Web"). Save pages and images. E-mail on the Internet, basic concepts and functions. The main threats to information security when using e-mail and the principles of protection against them. The concept of interactive communication on the Internet. Multimedia technologies on the Internet. Culture and ethics of work on the Internet. OSINT technologies.

## **TOPIC 9. Using PowerPoint and Google Presentations to create presentations in the professional activities of the manager.**

Basic concepts and tools. Create a presentation based on existing templates. View modes. Work in normal mode. Add a new slide. Work in the dialog box with a set of auto-markup. Add speaker notes. Slide mode, edit slide objects. Move slides between presentations. Design template and color scheme. Slide formatting. Creating text objects. Move and scale objects. Zoom objects. Edit a slide sample. Creating footers. Creating graphic objects. Creating an organizational chart. Preparing a presentation for publication. Organize transitions between slides. Animation of objects. Hide slides. Timing of the report. Launch a slide movie.

## **TOPIC 10. The use of information and analytical technology of intelligence maps (Mind Maps) in the activities of the manager.**

Technology of visualization of the process of thinking Mind Mapping. The concept of mental map. Advantages of mental maps. Areas of application of mental maps. Overview of Mind Mapping class visualization programs. Learning iMindMap programs. Online services for working with mental maps. Learning Xmind. Program interface. Creating a new map. Opening the card. Map search. Closing the card. Add topics. Add a central theme. Formatting options. Adding images. Adding main topics. Adding subtopics Adding statements, comments, notes, links. Attaching documents. Topic tags Task information. Coding topics with markers. Adding a legend. Background images. Add borders. Insert relationships. Insert reminders. Balancing. Using filters. Map display modes. Export maps to other formats. Card printing. Examples of mental maps. Using Xmind in the activities of managers.

## **TOPIC 11. Using MS Excel to solve optimization problems.**

Features and tools for analytical work with information in MS Excel. Construction of graphs and charts. Use of functions, automation of calculations.

## **TOPIC 12. Creation of information systems based on the database management system (DBMS) MS Access**

Using Microsoft Access as a tool for creating IS. Basic concepts, database structure. Creating tables. Copying, moving data. Insert and delete records. Search for records. Filtering records. Sort records. The concept of connection between tables. Establishing a relationship between tables. Creating and editing forms. Working with queries: creating, editing, and saving queries

## **FORM OF FINAL CONTROL OF LEARNING**

Final control is a check of the level of acquisition of knowledge, skills, abilities and other competencies for a certain period of study (academic semester, academic year).

The discipline "Information Systems and Technologies" provides:  
- for full-time study: I semester - test, II semester - test;

## **CRITERIA AND MEANS OF EVALUATION OF LEARNING SUCCESS**

The criterion for successful completion of the final assessment by the applicant may be the achievement of minimum levels of assessment for each planned learning outcome of the discipline.

The minimum level of assessment is determined using qualitative criteria and is transformed into a minimum positive assessment of the rating scale used.

Criteria for assessing classroom, independent and individual work developed by the department individually for the discipline, taking into account the general criteria defined by the Regulations on the organization of the educational process at the Dnepropetrovsk State University of Internal Affairs.

<b>Classroom work</b>	<b>Indeepended work</b>	<b>Individual work</b>	<b>Final control</b>
<b>≤30</b>	<b>≤15</b>	<b>≤15</b>	<b>≤40</b>

## CRITERIA FOR EVALUATING THE CLASSROOM WORK

POINTS	EXPLANATION
5	The issues submitted for consideration have been mastered in full; the necessary practical skills and abilities are formed at a high level; all educational tasks provided by the lesson plan are performed in full. During the lesson, stable activity and initiative were demonstrated. Answers to theoretical questions, solving practical problems, expressing one's own opinion on debatable issues are based on a deep knowledge of the educational material of the discipline.
4	The issues submitted for consideration have been mastered in full; mainly the necessary practical skills and abilities are formed; all training tasks provided by the lesson plan are performed in full with insignificant inaccuracies. Initiative was demonstrated during the lesson. Answers to questions, solving practical problems, expressing one's own opinion on debatable issues are mainly based on knowledge of the educational material of the discipline.
3	The issues submitted for consideration are generally mastered; practical skills and abilities are superficial, need further development and consolidation; educational tasks provided by the lesson plan are performed, some types of tasks are performed with errors.
2	The issues submitted for consideration are partially mastered, the gaps in knowledge are not significant; practical skills and abilities are insufficiently formed; most of the learning tasks are completed, some of the completed tasks contain significant errors that need further elimination.
1	The student is not ready for the lesson, does not know most of the program material, has difficulty completing tasks, uncertainly reproduces the terms and concepts considered during the lesson, makes meaningful mistakes, does not have the appropriate skills and abilities necessary to solve professional problems.
0	Absence from class

For the discipline "Information Systems and Technologies" the means of diagnostics of knowledge (learning success) are: tests, standardized tests, essays, presentations of the results of tasks and research; student presentations and speeches at scientific events and other types of tasks.

**Current control** in accordance with the normative acts of the Ministry of Education of Ukraine is carried out during practical training and includes the following activities:

- obtaining admission to practical work on a personal computer by checking theoretical knowledge on the topic under study;
- control of the sequence of practical exercises on the computer and protection of the completed practical work;
- oral questioning, written answers;
- computer testing for each topic;



- working off academic debts and the like.

### **Criteria for evaluating the independent work of applicants**

The following assessment of students' independent work is offered:

1. Presentations on the relevant topic for each applicant - 15 points;
2. Passing tests with questions that are subject to self-study:
  - Grade "5" - 5 points;
  - Grade "4" - 4 points;
  - Grade "3" - 3 points

### **Criteria for evaluating the individual work of students**

The following assessment of individual work of students is offered:

- Publication of the article in scientific journals of Ukraine - 15 points;
- Abstracts of reports at scientific and practical events of the university and other publications - 15 points (subject to publication).

### **Criteria for assessing the final control of students**

Final control, in accordance with the regulations of the Ministry of Education of Ukraine, is carried out in order to assess learning outcomes. In this discipline, it is carried out in the form of testing on computers. Test questions are offered in the amount of educational material defined by the curriculum. There are 80 questions in the test shell, 40 are selected. The correct answer to each question is equal to the earned point.

### **Tools, equipment and software used by the discipline**

1. Computer equipment, appropriate software.
2. Availability of Internet access.
3. Multimedia equipment.

**APPROVE****Vice-rector of Dnipropetrovsk  
State University Internal Affairs**\_\_\_\_\_ **Larysa NALYVAIKO**\_\_\_\_\_ **2020****VOLUME OF THE ACADEMIC DISCIPLINE**  
**Information systems and technologies**

Academic level Bachelor's  
 Specialty 073 "Management"  
 for academic year 2020/21  
 Form of study FULL-TIME  
 Volume 6 ECTS credits (180 academic hours)  
 Faculty Socio-Psychological Education and Management  
 Year of study 1  
 Academic groups B-M-041in

№ of the topic according to the syllabus	Title of the topic (according to the syllabus)	Total volume, hours	In-class activity				Independent and individual assignments
			Total	Lectures	Seminars	Practical classes	
1	2	3	4	5	6	7	8
1	The current state and prospects for the use of information technology in the professional activities of the manager.		2	2			4
2	Automate the preparation of documents using the online service Google Docs.	16	8			8	8
3	Use of the Google Sheets online service.	16	8			8	8
4	Working with templates and forms in MS Word.	12	4			4	8
5	Creating complex documents in MS Word based on merging.	12	4			4	8
6	Creating information databases based on lists in MS Excel.	12	6			6	6
7	Automation of preparation of business documents. (macros)	8	4			4	4
8	Use of the Internet in professional activities (information retrieval, OSINT technology, etc.)	8	4			4	4
	1 Semester, total	90	40	2		38	50
	<i>Form of final control</i>	<i>Test</i>					

№ of the topic according to the syllabus	Title of the topic (according to the syllabus)	Total volume, hours	In-class activity				Independent and individual assignments
			Total	Lectures	Seminars	Practical classes	
1	2	3	4	5	6	7	8
9	Use PowerPoint and Google Presentations to create presentations in the professional activities of a manager.	22	8			8	14
10	The use of information and analytical technology of intelligence maps (Mind Maps) in the activities of the manager.	18	6			6	12
11	Using MS Excel to solve optimization problems.	20	6			6	14
12	Creation of information systems based on the database management system (DBMS) MS Access	30	16			16	14
	2 Semester, total	90	36			36	54
	Academic year, total	180	76	2		74	104
	Form of final control	Test					

Presented and approved at the meeting of the department of Economic and Information Security 26.08.2020, minutes №1.

Head of the department \_\_\_\_\_

**Eduard RIZHKOV**

## INFORMATIONAL AND METHODOLOGICAL SUPPORT OF THE ACADEMIC DISCIPLINE

### Information systems and technologies

Academic level    Bachelor's                      Specialty    073 "Management"

for academic year 2020/2021

#### Principal legal regulatory documents:

1. Конституція України від 28.06.1996 № 254к/95-ВР (Редакція від 21.02.2019).  
(*The Constitution of Ukraine of June 28, 1996 № 254k / 95-VR (Edition of February 21, 2019)*)
2. Закон України «Про інформацію» від 02.10.1992 № 2657-XII із змінами та доповненнями (Редакція від 06.01.2011). (*Law of Ukraine "On Information" dated 02.10.1992 № 2657-XII as amended and supplemented (Edition dated 06.01.2011)*).
3. Закон України «Про доступ до публічної інформації» від 13.01.2011 за № 2939-VI. (*Law of Ukraine "On Access to Public Information" of 13.01.2011 for № 2939-VI.*)
4. Закон України «Про захист інформації в інформаційно-телекомунікаційних системах» від 31.05.2005 за № 2594-IV. (*Law of Ukraine "On protection of information in information and telecommunication systems" of 31.05.2005 for № 2594-IV.*)
5. Закон України «Про захист персональних даних» від 01.06.2010 за № 2297-VI. (*Law of Ukraine "On Personal Data Protection" of 01.06.2010 for № 2297-VI.*)

#### Textbooks:

1. Information systems and technologies : textbook / O. Pushkar, K. Sibilyev. – Kh. : Publishing House of KhNUE, 2015. – 264 p.
2. Information Systems for Business and Beyond. DAVID T. BOURGEOIS. Pressbooks – 2019 – 327 p.
3. Інформаційне забезпечення юридичної діяльності: підручник / кол. авт.; ред. В.Б. Вишня. - Дніпро: Дніпропетровський державний університет внутрішніх справ, 2018. - 245 с. (Information support of legal activity: textbook / col. avt. ; ed. V.B. Vyshnia. - Dnipro: Dnipropetrovsk State University of Internal Affairs, 2018. - 245 p.)

### **Tutorials, other didactic and methodical materials:**

1. Behrouz Forouzan Foundations of Computer Science/ Cengage Learning EMEA Cheriton House, North Way, Andover, Hampshire, SP10 5BE United Kingdom - 2018 - 706 p.
2. Introduction to Information Technology. The Institute of Chartered Accountants of Pakistan. / First edition published by Emile Woolf International Bracknell Enterprise & Innovation Hub Ocean House, United Kingdom – 2013 – 466 p.
3. Information Systems and Technology for Managers and Entrepreneurs Written by Jae K. Shim - [http://icourseplayer.360training.com/courses/course1551/pdf/IS-IT\\_PDF1\\_FTC.pdf](http://icourseplayer.360training.com/courses/course1551/pdf/IS-IT_PDF1_FTC.pdf)
4. Management Information Systems. Kenneth C. Laudon New York University Jane P. Laudon Azimuth Information Systems, Prentice Hall Boston, 2015. – 677 p. - <https://www.pdfdrive.com/management-information-systems-managing-the-digital-firm-d20208449.html>
5. Using Excel & Access 2013 for Accounting. Glenn Owen. 2015.- 386 p. - <https://www.pdfdrive.com/using-microsoft-excel-and-access-2013-for-accounting-d187443362.html>
6. Тулінов В., Уткіна Г. Навчально-методичний посібник з дисципліни «Інформаційні технології» для студентів денної та заочної форми навчання спеціальності 081 «Право». Кривий Ріг: Донецький юридичний інститут, 2020. - с. 161. (1. Tulinov V., Utkina G. Textbook on the subject "Information Technology" for full-time and part-time students majoring in 081 "Law". Kryvyi Rih: Donetsk Law Institute, 2020. - p. 161.)
7. Ситнік Б. Т. Основи інформаційних систем і технологій: Навч. посібник. – Харків: УкрДУЗТ, 2019. – 175 с. (Sitnik B.T. Fundamentals of information systems and technologies: Textbook. manual. - Kharkiv: UkrDUZT, 2019. - 175 p.)
8. Інформаційні системи і технології : навч. посіб. / [П. М. Пав-ленко, С. Ф. Філоненко, К. С. Бабіч та ін.]. — К. : НАУ, 2013. — 323 с. (*Information systems and technologies: textbook. way. / [P. M. Pavlenko, S.F. Filonenko, K.S. Babich and others]. - K. : NAU, 2013. — 323 p.)*
9. Сучасні інформаційні системи і технології: конспект лекцій/ В. Г. Іванов, С. М. Іванов, В. В. Карасюк та ін.; за заг. ред. В. Г. Іванова, В. В. Карасюка. – Х.: Нац. юрид. ун-т ім. Ярослава Мудрого, 2014. – 347 с. (*Modern information systems and technologies: lecture notes / V.G. Ivanov, S.M. Ivanov, V.V. Karasyuk, etc. ; for general ed. V.G. Ivanov, V.V. Karasyuk. - H. : Nat. jurid. Univ. Yaroslav the Wise, 2014. - 347 p.)*
10. Лізунов П. П., Івлева Н. П., Васильєва Г. Л. Інформаційні системи в менеджменті: навчальний посібник. – К.: КНУБА, 2010. –128 с. (*Lizunov PP, Ivleva NP, Vasilieva GL Information systems in management: a textbook. - K. : KNUBA, 2010. –128 c.)*
11. Косиченко О.О., Махницький О.В. Інформаційне забезпечення юридичної діяльності. – Посібник. – Дніпро, ДДУВС. – 2018, 205 с. (*Kosichenko O.O.,*

*Makhnitsky O.V. Information support of legal activity. - Manual. - Dnipro, DDUVS. - 2018, 205 p.)*

12. Вишня В.Б., Косиченко О.О. Інформаційно-бібліографічний пошук у мережі Internet: навчальний посібник. – Дніпропетровськ : ДДУВС, 2013. – 60 с., іл.. (*Vyshnya V.B., Kosichenko O.O. Information and bibliographic search on the Internet: a textbook. - Dnepropetrovsk: DDUVS, 2013. - 60 p., Ill.*)
13. Mind Map Mastery. Tony Buzan. Watkins Media Limited, London, 2018. – 167 p.
14. Mind Mapping For Dummies. John Wiley & Sons, Ltd, Chichester, West Sussex, England, 2012 – 236 p.
15. Вишня В.Б., Косиченко О.О., Мислива О.О. Методичні рекомендації до підготовки лекційних презентацій. – Дніпропетровськ: ДДУВС, 2010. – 20 с. (*Vishnya VB, Kosichenko O.O., Mysliwa O.O. Methodical recommendations for the preparation of lecture presentations. - Dnepropetrovsk: DDUVS, 2010. - 20 p.*)

#### **Other sources:**

1. Нормативні акти України [Електронний ресурс] Режим доступу: <http://www.nau.kiev.ua> (*Normative acts of Ukraine [Electronic resource] Access mode: http://www.nau.kiev.ua*)
2. Сервер Верховної Ради України [Електронний ресурс] – Режим доступу: <http://www.rada.gov.ua> (*Server of the Verkhovna Rada of Ukraine [Electronic resource] - Access mode: http://www.rada.gov.ua*)

Presented and approved at the meeting of the department of Economic and Information Security 26.08.2020, minutes №1.

**Head of the department**

\_\_\_\_\_

**Eduard RIZHKOV**