

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

Petro Mohyla Black Sea National University

*Faculty of Computer Science*

Department of automation and computer-integrated technologies



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Course Discription

«EUROPEAN STANDARD COMPUTER LITERACY»

field of knowledge 22 «Health care»  
in the specialty 222 «Medicine»

Developer

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Mykolaiv – 2019

<b>Title of indices</b>	<b>Characterization of educational discipline</b>		
	«European standard computer literacy»		
Field of knowledge	22 «Health care»		
Specialty	222 «Medicine»		
Educational program	Master of Medicine		
Higher education level	Master		
Status of discipline	Normative		
Curriculum	1, 2		
Academic year	2019/2020		
Semester number	Full-time	External form of education	
	2, 3	-	
Total ECTS credits / hours	4 / 120		
Course structure:	Full-time	External form of education	
	- lectures	10	-
	- seminars (practical)	30	
	- hours of independent work of students	80	
Percentage of classroom load	33 %		
Language of instruction	english		
Form of final control	exam		

## 2. Purpose, tasks and results of studying the discipline

The discipline "European Standard for Computer Literacy" belongs to the block of professionally-oriented disciplines of the curriculum of the specialty "Medicine".

The purpose of studying the discipline "European standard of computer literacy" is to acquire the necessary knowledge and practical skills of students, namely:

1. Demonstrate the skills of using a personal computer to solve typical problems of professional activity and personal needs:
  - Demonstrate the manipulation skills needed to work on a personal computer;
  - independently choose and use the software necessary for the decision of typical problems of professional activity and personal needs;
  - independently use external media for data exchange between machines, create backups and archives of data and programs, have anti-virus protection techniques;
  - to use in professional activity network means of search and exchange of information;
  - use help and help tools to master the software outside the mastered basic level.
2. Interpret the basic concepts, principles and methods of modern information technology for obtaining and processing information; master the main types of information resources.
3. Demonstrate skills in using local and global computer networks to solve professional problems.

According to the study of the discipline, students must **know**:

- about the peculiarities of the use and possibility of using a personal computer in solving medical and biological problems, the capabilities of operating systems and software for solving professional problems and when working with the file structure;
- about the possibility of using a Microsoft Word word processor when solving medical and biological problems, as well as when working with complex text documents;
- about the capabilities of Microsoft Excel spreadsheets during graphical data processing;
- about the capabilities of the DBMS MS Access when creating databases and working with them;
- about the features of data processing using Microsoft PowerPoint;
- about the possibilities of the World Wide Web service of the Internet to view Web-documents;

**be able:**

- demonstrate basic and manipulative skills of working with a personal computer, Windows operating system and file structure with its help, analyze and compare features of working with files and folders using Windows, evaluate the benefits of certain ways to work with files and folders in the operating system Windows system;
- demonstrate information processing skills (creation, editing, formatting of complex text documents and their printing) using Microsoft Word word processor;
- demonstrate skills in working with spreadsheets, graphical representation of data in the form of diagrams and graphs during information processing, as well as organize the storage and processing of data using Microsoft Excel;
- demonstrate skills in working with Microsoft PowerPoint;
- demonstrate basic skills in working with the Internet and its services.

## 3. The program of the discipline

The educational process is organized according to the European Credit Transfer and Accumulation System (ECTS).

The study of the discipline takes 120 hours (4 ECTS credits), 10 hours of lectures, 30 hours of semi-group classes and 80 hours of independent work.

The course program includes the following **SECTIONS**:

1. Basic concepts of information technology.
2. Using a computer and managing files.
3. The use of word processors for processing and presenting information.
4. Use spreadsheets to process, analyze and present data.
5. Using presentation programs to present data.
6. Search and processing of information using computer communications.

### **Section 1**

Basic concepts of information technology.

#### **Topic 1. PC. Structure and purpose of components.**

Introduction. Input control. Rules of work in the computer. class. Creating accounts. Basic concept of computer technology. Use in medicine and other fields.

### **Section 2**

Using a computer and managing files.

#### **Topic 2. Operating system. Working with files and folders.**

Classification and assignment of different types of memory in computer systems. Computing systems. Conversion from one system to another. Special possibilities of using computer systems. Operating System. Working with files and folders ..

### **Section 3**

Using word processors to process and present information.

#### **Topic 3. Creating and editing text documents in MS Word.**

Types of text documents. Creating a new document. Adjust font settings. Adjust paragraph settings. Saving a document. Editing a document.

#### **Topic 4. Working with MS Word. Insert menu.**

Insert footers. Page numbering. Insert symbols and formulas. Insert illustrations (drawing, picture, figures, diagrams).

#### **Topic 5. Working with MS Word. Working with tables.**

Creating a table. Filling the table. Editing a table. Add and remove cells. Merge cells. Borders and fill. Working with formulas.

### **Section 4**

Use spreadsheets to process, analyze and present data.

#### **Topic 6. Working with MS Excel. Construction of diagrams.**

The main features of spreadsheets. Basic terminology (workbook, worksheet, row, column, cell, range of cells, cell names). Create a new workbook. Saving workbooks. Working with the chart wizard. Editing charts.

#### **Topic 7. Working with MS Excel. Creating medical documentation.**

Excel functions. Formulas and ranges. Using filters and sorting. Charts and graphs.

### **Section 5**

Using presentation programs to present data.

#### **Topic 8. Working with Power Point. Creating a presentation.**

Creating a presentation. Add a slide. Add and format text. Add an image, shape, or chart. Design in Power Point (themes, use of transitions, animation effects). Start the presentation. Save the presentation.

### Section 6

Search and processing of information using computer communications.

**Topic 9. Basics of working with networks. Search for information on the Internet.**

Search engines. Ways to search for information on the Internet. Browser. Homepage.

### The structure of the discipline

Topic names	Number of hours		
	Full-time		
	including		
	lectures		lectures
<b>Section 1. Basic concepts of information technology.</b>			
Introduction. <b>Topic 1.</b> PC. Structure and purpose of components.	4	4	9
<b>Section 2. Using your computer and managing your files.</b>			
<b>Topic 2.</b> Operating system. Working with files and folders.	6	2	9
<b>Section 3. Using word processors to process and present information.</b>			
<b>Topic 3.</b> Creating and editing text documents in MS Word. <b>Topic 4.</b> Working with MS Word. Insert menu. <b>Topic 5.</b> Working with MS Word. Working with tables.		10	12
<b>Section 4. Use spreadsheets to process, analyze and present data.</b>			
<b>Topic 6.</b> Working with MS Excel. Construction of diagrams. <b>Topic 7.</b> Working with MS Excel. Creating medical documentation.		8	18
<b>Section 5. Using presentation programs to present data.</b>			
<b>Topic 8.</b> Working with Power Point. Creating a presentation.		2	15
<b>Section 6. Search and processing of information using computer communications.</b>			
<b>Topic 9.</b> Basics of working with networks. Search for information on the Internet.		2	17
<b>Together – 240 hours</b>	<b>10</b>	<b>30</b>	<b>80</b>

## 4. The content of the discipline

### 4.1. Lecture topics

№ з/п	Topic name	Quantity hours
1.	Introduction. Basic concept of computer technology. Use in medicine and other fields.	2

	1. Introduction. History of computer technology 2. Classification of computers 3. The use of computers in medicine	
2.	The structure of the computer. Assignment of separate functional blocks. 1. The structure of the computer. 2. Concepts and functions of processor, memory, input / output devices 3. External PC devices	2
3.	Classification and assignment of different types of memory in computer systems. 1. Memory classification 2. External storage devices 3. Internal storage devices 4. Random access memory 5. Permanent memory	2
4.	Computing systems. Conversion from one system to another. 1. The concept of calculation system 2. Classification of computing systems 3. Rules of transfer from one system to another	2
5.	Algorithms. Concepts, properties, classification of algorithms. 1. The concept of algorithm 2. Properties of algorithms 3. Rules for constructing algorithms 4. Classification of algorithms 5. Methods of image algorithms	2
	<b>Together</b>	10

#### 4.2. Topics of practical classes

№ з/п	Topic name	Quantity hours
<b>2 semester</b>		
1.	Introduction. Input control. Rules of work in the computer. class. Creating accounts.	2
2.	Topic 1. PC. Structure and purpose of components.	2
3.	Topic 2. Operating system. Working with files and folders	2
4.	Topic 3. Creating and editing text documents in MS Word.	2
5.	Report protection.	2
<b>3 semester</b>		
6, 7	Topic 4. Working with MS Word. Insert menu.	4
8.	Topic 5. Working with MS Word. Working with tables.	2
9, 10	Topic 6. Working with MS Excel. Construction of diagrams.	4
11, 12	Topic 7. Working with MS Excel. Creating medical documentation.	4
13	Topic 8. Working with Power Point. Creating a presentation.	2
14	Topic 9. Basics of working with networks. Search for information on the Internet.	2
15.	Report protection	2
	<b>Together</b>	30

#### Topics of laboratory classes

There are no laboratory classes planned.

### 4.3. Independent work

№ з/п	Topic name	Quantity hours
1.	The structure of a personal computer.	3
2.	Basic and system software.	3
3.	Computer security issues.	3
4.	Personal computer operating systems. Installing and configuring the operating system.	3
5.	Working with the file system by means of the Windows operating system.	3
6.	Techniques and methods of working with compressed data.	3
7.	Installation and configuration of MS Word word processor. Menu and toolbars MS Word.	3
8.	Features of creation, editing and formatting of documents by means of the MS Word word processor.	3
9.	Features of creation of complex medical documents by means of the MS Word word processor.	3
10.	Build tables, create graphical objects and formulas using MS Word word processor.	3
11.	Basic concepts of spreadsheets and standard programs for the personal computer.	3
12.	Installation and configuration of MS Excel spreadsheet. Menu and toolbars MS Excel. Features of work with MS Excel spreadsheet.	3
13.	Application of mathematical, statistical and logical functions of MS Excel for analysis of medical and biological data. Features of working with the MS Excel Function Wizard during the analysis of medical and biological data.	3
14.	Construction of graphs and charts using MS Excel spreadsheet.	3
15.	Features of working with MS Excel spreadsheet when building graphs and charts.	3
16.	Databases. Database design.	3
17.	Data types and characteristics of MS Access database fields.	3
18.	Technology of work with the program MS Access.	3
19.	Queries, forms, reports in MS Access, their purpose and use.	3
20.	Principles of construction and scope of presentation preparation programs. Create a default presentation using PowerPoint.	3
21.	Work with MS PowerPoint presentation (print formatting, sound, display).	3
22.	Internet and features of working with it.	6
23.	E-mail address. Email. Features of work with e-mail.	3
24.	Work in chat.	3
25.	Creating Web-documents. Features of working with Web-documents.	5
	<b>Together</b>	<b>80</b>

Independent work involves mastering the method of conducting a scientific search for information using Internet resources within the proposed topics, as well as processing and presenting search results using general and special purpose programs.

#### **4.4. Ensuring the educational process**

Lectures on the subject "European Standard for Computer Literacy" are held in classrooms equipped with the necessary multimedia equipment (projector, laptop), semi-groups - in computer classrooms.

#### **5. Final control**

The European Computer Literacy Standard course ends with a exam. Students receive points during the semester for completing an independent task and defending reports on laboratory work.

#### **Questions to prepare for the exam**

##### **Section 1. Basic concepts of information technology. Theoretical questions**

1. Computer system and its purpose.
2. Personal computer (PC) configuration.
3. The internal structure of the PC.
4. External PC devices.
5. PC software.
6. Operating systems (OS) of personal computers and their purpose.
7. The structure and main functions of the OS.
8. File system (file. File types, full file name; folder, folder types)
9. Windows window and its structure.
10. Data archiving. Archivers. General functions of modern archivers. Criteria for selecting a specific type of archiver.
11. Computer viruses. Classification of computer viruses.
12. Protection against computer viruses. Antivirus programs.

##### **Practical experience**

1. Boot the PC.
2. Start the Windows operating system.
3. Desktop: basic objects and controls of Windows and work with them; object shortcuts and icons.
4. The main menu of Windows: commands, their purpose and use.
5. Working with Windows help information.
6. Search and run the necessary programs in the Windows environment.
7. Working with windows (minimizing, expanding and closing the window, switching between windows, placing windows using the taskbar bar).
8. Creating an archive file and unpacking it.
9. Checking for viruses: a) in the specified files; b) on the disk. "Treatment" of files and disks from viruses.
10. Shutting down the Windows operating system.

#### **Chapter 2. Using your computer and managing your files.**

##### **Theoretical questions**

13. File structures. Means of organization and work with files and directories. Physical media.
14. Operations with the file structure.



15. The My Computer window system and its purpose.
16. The Explorer program and its purpose.

#### **Practical experience**

11. Work with folders and files (search, copy, rename, delete, create folders and shortcuts, get information about the object) using the My Computer window system and Explorer.
12. Restore and destroy objects using the Recycle Bin program.
13. Formatting floppies.
14. Backing up your data.
15. Install the printer.

### **Section 3. Using word processors to process and present information.**

#### **Theoretical questions**

17. Text preparation systems, their general functions, main features and characteristics.

#### **Practical experience**

16. General information about the word processor Microsoft Word: download MS Word; MS Word window and the purpose of its elements.
17. MS Word: document display modes; techniques for working with menu bar commands; MS Word toolbar and their purpose.
18. Creating a text file using MS Word.
19. Working with CPU windows. Preview and print the document.
20. Work with MS Word processor text editing commands.
21. Work with commands for formatting the text of the MS Word processor.
22. Work with commands for formatting MS Word processor lists.
23. Work with commands for formatting paragraphs of the MS Word processor.
24. Work with commands for formatting pages of the MS Word processor document.
25. Printing a document: preview the document; printing a document.
26. Creating tables by means of the MS Word processor.
27. Editing and formatting tables using MS Word ..
28. Creating graphic objects of MS Word using the buttons on the Drawing toolbar.
29. Working with images using MS Word processor.
30. Working with images by means of the MS Word processor.

### **Section 4. Using spreadsheets to process, analyze, and present data.**

#### **Theoretical questions**

18. Spreadsheets, their general functions and main characteristics.
19. Assignment of diagrams. The most common types of standard charts and their varieties.

#### **Practical experience**

31. General information about Microsoft Excel spreadsheet: download MS Excel; MS Excel window and the purpose of its elements.
32. Modes of displaying documents; techniques for working with menu bar commands; MS Excel toolbar and their purpose.
33. Formation of the MS Excel worksheet: selection of MS Excel objects; adjusting the size of columns and rows; text input and formatting; input of numbers and their formatting; input of data of interval type, autofill of cells; cell operations.
34. Calculation in MS Excel: entering formulas and calculating them; absolute and relative cell addresses; copying formulas by autofill method; using the Function Wizard.
35. Editing operations: editing cell data; cancellation and repetition of the last operation; move and copy worksheet objects; insert and delete columns, rows and cells; search and replace fragments of the worksheet.
36. Formatting the table frame: auto formatting; building a table frame.

37. Working with books: creating a new book; saving workbooks; opening and closing workbooks.
38. Creating charts using the Chart Wizard: data entry; choice of chart type; selection of data for plotting; setting chart parameters; choice of chart location; complete charting.
39. Editing charts: moving the chart; resizing the chart; formatting chart elements; change chart elements; change the chart type; entering additional data into the chart; delete charts.

## **Section 5. Using presentation programs to present data.**

### **Theoretical questions**

20. Administrative and demonstration graphics.
21. MS PowerPoint: basic definitions.
22. Presentations and slides.
23. Hyperlinks in presentations.
24. Animation of text and objects.

### **Practical experience**

40. Getting started with MS PowerPoint. MS PowerPoint window and the purpose of its elements.
41. Techniques for working with menu commands in MS PowerPoint.
42. Working with slides: color slides; slides in grayscale.
43. Adding new slides: slide from a numbered list; slide with object type "organizational chart"; a slide with a ClipArt graphic object.
44. Blank slide and work with it. Autofigures. Inclusion in the presentation of drawings. WordArt objects. Grouping objects.
45. Slide show.
46. Designing multimedia presentations: effects of transition from slide to slide; slide sorting; hidden slides; animation and sound that are associated with individual objects on the slide.
47. Additional techniques for managing presentations: Arbitrary demonstration, Continuous cycle, Time setting.
48. Notes of the speaker: information materials for listeners.
49. Presentation templates and work with them. Page settings. Print slides.

## **Chapter 6. Searching and processing information using computer communications.**

### **Theoretical questions**

26. General concept of computer networks and their purpose.
27. Computer information networks and their types.
28. Communication protocols.
29. World Wide Web: The structure of the Internet at the physical level. Servers and providers on the Internet. Internet addresses.
30. Tools to help use the Internet: software; Microsoft Internet Explorer package.
31. Internet services: e-mail; teleconferences; World Wide Web (www).
32. E-mail: basics of e-mail; basic operations; addressing emails.
33. WWW network: hypertext; HTTP protocol; HTML language.
34. WWW-resources viewer: WWW pages and sites; document address.
35. The main ways to access information resources of the Internet.
36. Means of searching for information on the Internet: searching for information on the Internet; general purpose search engines; specialized search engines.
37. Additional network services: file transfer; lists of teleconferences.

### **Practical experience**

50. Connecting a computer to the Internet: ways to connect; access to the Internet via modem; connection configuration.
51. Network navigation: hyperlinks; toolbar icons.

52. Search for information on the Internet. Search images. Clarification of requests. Shareware and freeware libraries. Links and selected pages.
53. Search for information on specific topics using Internet Explorer.
54. Send and receive e-mail messages using Outlook Express.
55. Work in chat.

### **Example of a exam ticket**

Petro Mohyla Black Sea National University  
 Educational qualification level - master  
 Direction of training - 222 "Medicine"  
 Semester - 4  
 Educational discipline - European standard for computer literacy

TICKET №   0  

1. Personal computer (PC) configuration. **(Max number of points - 25)**
2. Animation of text and objects in MS Power Point. **(Max number of points - 25)**
3. Practical task. Create and fill in Excel cards of two sick people who came to you as a doctor for an appointment. The card should contain personal data about the patient, the results of the doctor's examination, the results of tests and additional examinations, diagnosis and recommendations of the doctor. **(Max number of points - 30)**

Head of the Department    Professor Trunov O.M.    \_\_\_\_\_

Examiner    Senior Teacher Zhuk I.Y.    \_\_\_\_\_

### **6. Evaluation criteria and diagnostic tools for learning outcomes**

№	Type of activity (task)	Maximum number of points
<b>II semester</b>		
1.	Checking the performance of practical work (3 works of 25 points)	75
2.	Checking independent work (oral examination). The maximum number of points for the survey is 30.	30
3.	Checking the lecture notes	15
4.	Exam	80
	<b>Together</b>	<b>200</b>
<b>III semester</b>		
1.	Checking the performance of semi-group work (6 works of 15 points)	90
2.	Checking independent work (oral examination). The maximum number of points for the survey is 30.	30
3.	Exam	80
	<b>Together</b>	<b>200</b>

Students are admitted to the test who have attended all the lectures, classroom classes, performed independent work and in the process of learning scored the number of points, not less than the minimum - 70 points.

The test is conducted in a computer class. The test ticket contains 3 tasks: 2 theoretical questions and 1 practical task. For each theoretical question the number of points is 25, for a practical task - 30.

### Assessment of student performance

Type of activity (task)	Max number of points
<b>II semester</b>	
Topic 1	25
Topic 2	25
Topic 3	25
Конспект	15
Independent work	30
Exam	80
Together	200
<b>III семестр</b>	
Topic 4	15
Topic 5	15
Topic 6	15
Topic 7	15
Topic 8	15
Topic 9	15
Independent work	30
Exam	80
Together	200

### Criteria for assessing knowledge

**A student's answer is assessed with a score of 20-25 points (in the second semester) and 13-15 points (in the third semester) and 71-80 points on the exam (A on the ECTS scale and 5 on the national scale) if it demonstrates deep knowledge of all theoretical positions. and the ability to apply theoretical material for practical analysis and has no inaccuracies.**

**A student's answer is assessed with a score of 15-19 points (in the second semester) and 10-12 points (in the third semester) 61-70 points on the exam (B and C on the ECTS scale and 4 on the national scale) if it shows knowledge of all theoretical positions , the ability to apply them in practice, but some fundamental inaccuracies are allowed.**

**A student's answer is assessed with a score of 8-14 points (in the second semester) and 6-9 (in the third semester) and 50-60 points on the exam (D and E on the ECTS scale and 3 on the national scale) the student's answer is assessed provided that he knows the main theoretical provisions and can use them in practice.**

## 7. Recommended sources of information

### Basic

1. 1. Pan-European Standards of the European Computer Licensing Fund of the Council of European Professional Information Organizations (CEPIS) <http://www.ecdl.com>
2. 2. The user of the personal computer according to the European standards. ECDL version 3.0 curriculum at the European School of Correspondence Education (ESCO).
3. 3. Informatics. Basic course: Textbook for universities. Under the editorship of S.V. Simonovich. - Санкт-Петербург: Питер, 2010. - 640 с. : ил.
4. 4. Informatics: Computer technology. Computer technology: A textbook for students of higher educational institutions / Ed. OI Pushkar. - К. : Publishing Center "Academy", 2003. - 704 p. (Alma Mater)
5. 5. Dibkova LV Informatics and Computer Engineering: A Handbook for University Students. - К. : "Академвидав", 2002. - 320 с. (Alma Mater).
6. 6. Gerasevich VA Self-taught. Computer for the doctor. - Санкт-Петербург: БХВ-Петербург, 2002. - 640p.

### Additional

1. 1. Lazarev NI, Velma SV Workshop on information technology in pharmacy: Textbook. manual for students of pharmacy. universities. - H. : Izd-vo NFaU: Zolotye strani, 2002. - 264 s.
2. 2. Korolev VD Database management systems. - Kh. : NUPh Publishing House: Golden Pages, 2006. - 104p.
3. 3. Malykhina MP Databases: basics, design, use. - СПб. : БХВ-Петербург, 2004. - 512 с.
4. 4. Microsoft Windows XP. Step by step: Practice. allowance / Per. with English - M. : Izd-vo EKOM, 2002. - 352 s.
5. 5. Microsoft Word 2003. Step by Step: Practice. allowance / Per. with English - M. : Izd-vo EKOM, 2005. - 384 s.
6. 6. Microsoft Excel 2003. Step by Step: Practice. allowance / Per. with English - M. : Izd-vo EKOM, 2005. - 416 p.
7. 7. Microsoft Access 2003. Step by Step: Practice. allowance / Per. with English - M. : Izd-vo EKOM, 2004. - 432 s.
8. 8. Sutton M.J.D. Corporate document management: principles, technologies, implementation methodology. - СПб. - «Азбука», 2002. - 448 с.
9. 9. Komer D. Principles of Internet operation; trans. with English - СПб. : Питер, 2002. - 384 с.
10. 10. Medzhibovska NS E-Commerce: A Study Guide. - Kyiv: Center for Educational Literature, 2004. - 384p.