

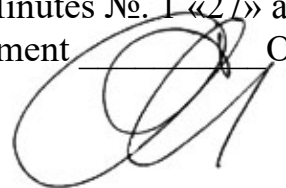
Ministry of Public Health of Ukraine
“Ukrainian Medical Stomatological Academy”

“APPROVED”

at the meeting of the Department
of Medical Informatics, Medical Biophysics
«27» august 2020

Minutes №. 1 «27» august 2020

Head of department _____ O.V.Silkova



METHODICAL GUIDANCE

for students’ self-directed work when preparing and during the practical session

Academic Subject	Medical Information Science
Module No 1	Fundamentals of Information Technology in the Health Care System. Treatment and analysis of medical and biological data
Topic	The total modular control: practical preparation and theoretical preparation
Year of study	2
Speciality	Foreign Student Training (Medicine/Stomatology)
Number of academic hours	2

1. Relevance of the topic:

Human-machine interaction is linked with some possible risks. In the case of computer there are electrical influences mainly. In professional work of the doctor are necessary knowledge on usage of computer technologies and their application in medicine for saving working hours by operation with the information, its systematization, processing. Modern doctor's professional activity is impossible without computers, computer-based methods, networks and information system using. Study of informatics bases is necessary to the future profession of students, forms professional skills and experience.

2. The specific aims:

- With basic concepts of topic;
- How to use computer correct;
- Definitions of main terms, laws, concepts, rules;
- Features of main hardware components;
- Features of main software types;
- How to use main software using for medical tasks solution.
- To use basic laws for analysis of tasks;
- To explain concept of medical computer science, a problem of information of medicine, object a subject of learning of medical computer science, the purpose of medical computer science, the main stages of implementation of a computer in domestic public health services

3. Basic knowledge and skills necessary to study the topic (inter-disciplinary integration).

<i>Previous (providing disciplines)</i>	<i>Obtainable skills</i>
The previous (providing) disciplines: Mathematics, physics	To know definitions of basic concepts. To skill basic knowledge on medical informatics. To define concept of the information, computer science as sciences
The subsequent disciplines: Social hygiene	To know software features and basic rules. To define concept of the information, and informatics as sciences; to discriminate information types; to explain properties of the information.
Inter-subject integration: Clinical disciplines	To know links of knowledge obtained at practice. To use obtained knowledge in practice.

4. The tasks for students' individual work

4.1. The list of basic term, parameters, characteristics, which student should master while preparin for the class.

Term	Definition

4.2 Theoretical questions for the class (to the topic):

1. Definition of medical computer science.
2. Tasks and methods of medical computer science.
3. Problems of medical computer science.
4. Unit of the information, measurements.
5. General classification of computers
6. Peripheral connections, their characteristics and assignment.
7. The statistics as a science. The basic concepts. Their characteristics
8. What does mathematical Statistics study?
9. What programs name as spreadsheets? What are their functions?
10. Define "data base" concept.
11. What are databases technologies?
12. What is database management system?

13. What is relational database and relational data representation?
14. List and define main objects and characteristics of database.
15. Network concept: assignment, realization, types.
16. Method of information transfer in global network. Modem functions.
17. Internet history. Principles of Internet work.
18. Hypertext features and assignment.
19. Services on the Internet
20. Teleconferences: assignment, principles of work.
21. Internet medical resources. Rules of information search.
22. Definition of concept of a network of PC, its purpose, kinds.
23. Electronic mail, principle of transfer of the data on telephone network.
24. Characteristics of a global network Internet, structure at a physical level.
25. Medical resources of a global network Internet, rule of search of the information.
26. Bases of telemedicine.

4.3 Practical tasks pertaining to the topic and to be completed during the class:

Test

- 1) The person receives the greatest information content with the help:
 - a) hearing organs;
 - b) organs of vision
 - c) organs of touch;
 - d) olfactor (smell) organs;
 - e) gustatory (taste) receptors.
- 2) Conversion of continuous images and sounds into a set of discrete values as form codes has name
 - a) encoding (enciphering);
 - b) digitization (discretization);
 - c) decoding (deciphering);
 - d) information.
- 3) A program that is used to view Web-sites is called:
 - a) word processor;
 - b) web viewer;
 - c) spreadsheet;
 - d) browser.
- 4) The most widely used communication device is a:
 - a) bus;
 - b) modem;
 - c) tuner;
 - d) coprocessor;
- 5) Database - is:
 - a) collection of data organized according to certain rules;
 - b) collection of software for storing and processing large amounts of information;
 - c) interface that supports the content and data manipulation;
 - d) defined set of information.
- 6) Most common databases in practice are:
 - a) distributed databases;
 - b) hierarchical database;
 - c) online databases;
 - d) relational databases.
- 7) How many bits have 2 bytes:
 - a) 4;
 - b) 8;
 - c) 16;
 - d) 32.

- 8) What is the least Unit of information?
- a) byte;
 - b) Mbyte;
 - c) Kbyte;
 - d) bit.
- 9) A _____ enables you to view data from a table based on a specific criterion
- a) form;
 - b) query;
 - c) macro;
 - d) report;
 - e) field.
- 10) Each column of the database called:
- a) record;
 - b) field;
 - c) file;
 - d) key attribute.
- 11) Which of the following are objects in an Access database?
- a) tables, forms, queries, reports, macros, and modules;
 - b) database, Datasheet, and Form views;
 - c) folders and Tools;
 - d) all of the above.
- 12) A database may contain:
- a) only one table;
 - b) at most two tables;
 - c) at most three tables;
 - d) all of above;
 - e) none of the above
- 13) What is the standard (protocol) used in the creation of global computer networks?
- a) TCP/IP
 - b) TOIP/IP
 - c) TOP/IP
 - d) IP/TCP
 - e) IPT/CP
- 14) Choose the Abbreviation of local network:
- a) LAN.
 - b) WAN.
 - c) WWW.
 - d) HTTP.
- 15) TCP / IP. Most common Database in practice is:
- a) distributed databases;
 - b) hierarchical database;
 - c) online databases;
 - d) relational databases.
- 16) The most accurate analog relational database can be:
- a) unordered set of data;
 - b) vector;
 - c) family tree;
 - d) two-dimensional table.
- 17) Which of the following formulas is not entered correctly?
- a) =10+50;
 - b) =B7*B1;
 - c) =B7+14;

- d) 10+50.
- 18) Which of the following formulas Excel will not be able to calculate?
- a) =SUM(Sales)-A3;
- b) =SUM(A1:A5)*.5;
- c) =SUM(A1:A5)/(10-10);
- d) =SUM(A1:A5)-10.
- 19) Which keyboard shortcut selected all text in the document?
- a) Ctrl+C;
- b) Alt+C;
- c) Ctrl+A;
- d) There is no keyboard shortcut for this operation.
- 20) Which key moves your cursor from one cell to the next in a table?
- a) Tab
- b) Shift
- c) Enter
- d) Ctrl+Enter

5. Content of the topic:

QUESTION CARD № 16

1. Solve the problem:

Department of Obstetrics and Gynecology, a sociological survey was dedicated to the quality of outpatient obstetric care among pregnant women. There was the following distribution of female respondents age.

Age of respondents, years	Number of patients
18	5
20	10
24	15
25	12
28	8
Total:	50

6. References:

- Lecture.
- L.D.Korovina. Medical information science. Vol.1. Basics of information technology.- Poltava, 2008. -146 p.

Additional textbooks, journals and references:

- Biophysics and medical informatics. - Marzeniuk V.P. et all.- Ternopil, Ukrmedkniha, 2004.-480 p.
- Abramowitz, Milton, and Irene A. Stegun, eds. *Handbook of Mathematical Functions, with Formulas, Graphs, and Mathematical Tables*. Washington, D.C.: U.S. Government Printing Office, 1972.
- Sokal, Robert R., and F. James Rohlf. *Biometry: The Principles and Practice of Statistics in Biological Research*. 2nd ed. New York: W. H. Freeman, 1995.

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1. Olenets S.Yu. Medical informatics [Text]:Tutorial guide / Olenets S.Yu.: HSEE of Ukraine "UMSA". – Poltava: TOV "ASMI", 2017. – 160 p.:im.

2. Handbook of Medical Informatics. Editors: J.H. van Bemmel, M.A. Musen. – <http://www.mieur.nl/mihandbook>; <http://www.mihandbook.stanford.edu>
3. Mark A. Musen B. Handbook of Medical Informatics // Електронний ресурс <ftp://46.101.84.92/pdf12/handbook-of-medical-informatics.pdf>
4. Edward H., Shortliffe J., Cimino J. Biomedical Informatics, 2014 // Електронний ресурс: <http://www.rhc.ac.ir/Files/Download/pdf/nursingbooks/Biomedical%20Informatics%20Computer%20Applications%20in%20Health%20Care%20and%20Biomedicine-2014%20-%20CD.pdf>
5. Коровіна Л.Д. Медична інформатика : навчальний посібник для студентів вищих медичних навчальних закладів / Л. Д. Коровіна - Полтава : РВВ УМСА, 2008. – 144 с. – англ. мовою.
6. Marzeniuk, V.P. Biophysics and medical informatics : Manual for Students of the Higher Medical Schools of the III-IV Degree of Accreditation / V.P. Marzeniuk, V.D. Didukh, D.V. Vakulenko at al. – Ternopil : Ukrmedknyha, 2004. Vol. 1: – 479 с. :

Additional.

1. www.imia.org (Міжнародна Асоціація Медичної Інформатики)
2. www.mihandbook.stanford.edu (Медична інформатика, Стенфордський університет)
3. www.ncbi.nlm.nih.gov (Національна бібліотека медицини США)
4. www.cochrane.ru (Розділ Кохранівського співтовариства)

The methodical guidance has been completed by **S.Y. Olenets**