



CD 8.5.1 DISCIPLINE SYLLABUS FOR
UNIVERSITY STUDIES

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FACULTY OF STOMATOLOGY

STUDY PROGRAM 0911.1. STOMATOLOGY

DEPARTMENT OF HUMAN PHYSIOLOGY AND BIOPHYSICS

APPROVED

at the meeting of the Commission for Quality Assurance and Evaluation of the Curriculum in Stomatology

Minutes No. 6 of 28.06.2022

Chairman Chairman, PHD, professor,

Elena Stepco [Signature]

APPROVED

at the Council meeting of the Faculty Stomatology

Minutes No. 1 of 06.09.2022

Dean of the Faculty Stomatology,

doctor of medicine, assoc. professor,

Oleg Solomon [Signature]



APPROVED

approved at the meeting of the chair Human Physiology and Biophysics

Minutes No. 31 of 06.06.2022

Head of chair PHD, professor,

Victor Vovc [Signature]

SYLLABUS

DISCIPLINE INFORMATION TECHNOLOGY

Integrated studies

Type of course: **Optional course**

Syllabus developed by the team of authors:

Chiriac Tatiana, lecturer

Dobrovolschi Veronica, lecturer

Chisinau, 2021



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I. INTRODUCTION

II. General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program

Information technologies are developing rapidly and it is obvious that they are widely applied in different fields like scientific, industrial, medical, etc. For this reason, informational technologies represent a fundamental field, the study of which at the university stage will allow the future specialist in stomatology to study of the technological tools necessary to facilitate professional activities.

Information technologies will allow medical specialists to create skills which will be applied and understand IT, develop practical skills in software handling, data transfer, database creation and data processing, etc. applied in the medical fields. Learned at the first year of studies, IT set the basis for the study of data transfer techniques that will later allow the data acquisition and application of these techniques in many specialized fields that students will learn, such as biophysics, anatomy, physiology, and so on. In order to understand the discipline, are necessary knowledge in the field of information technologies and data processing.

III. Mission of the curriculum (aim) in professional training

The purpose of the discipline is to develop basic practical skills in IT data analysis, database creation, data transfer, information processing, information transmission, etc. However, the discipline aims is to develop abstract, logical and critical thinking and ability to reflect critically on basic activities.

IV. Language of the discipline: English.

V. Beneficiaries: students of the 1st year, faculty Stomatology.

II. MANAGEMENT OF THE DISCIPLINE

Code of discipline	G.01.A.011		
Name of the discipline	Information technology		
Persons in charge of the discipline	Chiriac Tatiana, lecturer Dobrovolschi Veronica, lecturer		
Year	I	Semester/Semesters	I
Total number of hours, including:			30
Lectures	10	Practical/laboratory hours	10
Seminars	-	Self-training	10
Form of assessment	E	Number of credits	1



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III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

- **at the level of knowledge and understanding:**

- To acquire basic knowledge in the field of IT.
- To develop skills in the use of electronic communication techniques in healthcare.
- To acquire basic knowledge regarding the practical use of IT networks and the computer.
- To be able to demonstrate basic skills in data information processing.

- **at the application level:**

- To establish the correlation between the structure of medical systems and communication systems.
- To be able to apply the theoretical knowledges in solving of practical problems.
- To use IT for data collection, processing and data transfer.
- To apply knowledge of IT to solve a variety of problems.

- **at the integration level:**

- To appreciate the importance of IT in the context of medical activities.
- To be aware of the need of continuously assimilation of new knowledge in the field.
- To appreciate that role of IT as a dynamic field rooted in many fields of sciences.
- To use the theoretical-practical knowledge obtained during the studying of the given course by correlating them with the field of professional activity as well as with other study disciplines.

IV. PROVISIONAL TERMS AND CONDITIONS

The first year students have to know the following:

- knowledge of the language of instruction;
- confirmed competencies in sciences that are studied at high school level (basic computer knowledge);
- digital skills (internet use, processing of documents, electronic tables and presentations);
- ability to communicate and work in a team;
- Qualities - tolerance, autonomy, responsibility.

V. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-trening

Nr. d/o	THEME	Number of hours		
		Lecture s	laborator y hours	self- training
1.	Medical informatics. Basic concepts	1		
2.	Basic computer components. Data acquisition systems.	1		
3.	Computer networks. Database.	1		
4.	The use of informatics technologies in scientific research in the dental	1		



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Nr. d/o	THEME	Number of hours		
		Lecture s	laborator y hours	self- training
	field.			
5.	Databases.	1		
6.	Computer systems applied in medical structures.	1		
7.	Acquire and process images methods.	1		
8.	Methods of acquisition and processing of biological signals.	1		
9.	Use of computers in electronic patient monitoring equipment.	1		
10.	Telemedicine.	1		1
11.	Files and folders. Text editor. Using Microsoft Word.		2	
12.	Spreadsheet programs. Microsoft Excel.		2	1
13.	Database. Microsoft Access.		1	1
14.	Electronic presentations. Microsoft Powerpoint.		1	1
15.	Biological signal processing.		1	1
16.	Medical image processing.		1	1
17.	Biomedical Databases: Acquisition and Use of Biomedical Data.		2	1
18.	Basic concepts in biomedical computing techniques.			1
19.	Informatics management in medical institutions.			1
20.	Information system regarding patient monitoring.			1
Total		10	10	10

VI. PRACTICAL TOOLS PURCHASED AT THE END OF THE COURSE

VII. OBJECTIVES AND CONTENT UNITS

Objectives	Content units
Theme 1. Computer - Getting Started Microsoft Office Package.	
<ul style="list-style-type: none"> • To define the basic notions regarding informatics; • know the basic components of a computer; 	Medical informatics. Basic concepts
	Basic computer components. Data acquisition systems.
	Computer networks. Database.



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Objectives	Content units
<ul style="list-style-type: none"> • demonstrate skills in using text editors; • to demonstrate skills in the use of spreadsheet programs; • to demonstrate skills in the use of databases; 	The use of informatics technologies in scientific research in the dental field.
	Databases.
	Files and folders. Text editor. Using Microsoft Word.
	Spreadsheet programs. Microsoft Excel.
	Database. Microsoft Access.
	Electronic presentations. Microsoft Powerpoint.
Theme 2. Information systems used in medicine	
<ul style="list-style-type: none"> • to define an IT system; • to know the ways of acquiring and processing images; • to know the methods of acquisition and processing of biological signals; • to demonstrate image processing skills obtained as a result of imaging diagnostics; • to apply the methods of processing biological signals in medical practice; 	Computer systems applied in medical structures.
	Acquire and process images methods.
	Methods of acquisition and processing of biological signals.
	Biological signal processing.
	Medical image processing.

VIII. PROFESSIONAL (SPECIFIC (SC)) AND TRANSVERSAL (TC) COMPETENCES AND STUDY FINALITIES

✓ **Professional (specific) (SC) competences**

- CP1 – Culture, ethics and values. Responsible execution of professional tasks with the application of the values and norms of professional ethics, as well as the compliances of available laws.
- CP2. – Professional teamwork efficiency. Carrying out the activities and exercising the specific roles of teamwork in various medical institutions. Promoting the spirit of initiative, dialogue, cooperation, positive attitude and respect towards others, empathy, altruism and continuous improvement of one's own activity.

✓ **Transversal competences (TC)**

- CT1. – Effective communication. Ability to understand written/spoken texts, to express concepts, thoughts, feelings, facts and opinions both orally and in written form (listening, speaking, reading and writing) and to interact linguistically in an appropriate way and creatively in a full range of social and cultural contexts.

✓ **Study finalities**

- To be able to assess the place and role of IT in the training of medical students.
- To be able to apply specialized software to the medical field regarding IT.



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- To be competent to use the knowledge and methodology of computerized data transfer in medical practice;
- To be competent in finding, structuring and synthesizing information with the application of IT.
- To be able to implement the gained knowledges in medical and scientific research.
- To be competent to use critically and reliably the scientific information obtained using new information and communication technologies.

Note. Discipline finatities (are deduced from the professional competences and the formative valences of the informational content of the discipline).

IX. STUDENT'S SELF-TRENING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with information sources and applying the studied software	<p>Each student will receive at the beginning of the semester a list of tasks to complete, which the student will have to solve by the end of the semester. The list will contain tasks for the course topics and practical work. For each topic, there will be a detailed description of the tasks to be performed by the student, so the student will have no ambiguities in performing the tasks.</p> <p>In order to complete the tasks the student will have to: study the topic of the lecture or the material from the textbook on the respective topic; to learn about the sources further information on this topic; to select the source of additional information on the respective topic; to read the entire text carefully and write the essential content; to solve the problems based on the studied topics; to have practical skills for using the software studied in the practical work.</p>	<p>Ability to extract the essential; interpretive skills;</p> <p>Skills of task analysis and working with the use of the studied software; ability to apply and correct manipulation of the studied software, with the application of the fundamental notions from different studied topics; ability to understand and apply information techniques in other disciplines studied.</p>	During the semester



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2.	Preparation of presentations, posters and papers	Selecting the research topic, establishing the plan and the deadline. Establishing the components of the PowerPoint presentation project, poster or paper - theme, purpose, results, conclusions, practical applications, and bibliography.	The volume of work, the degree of understanding of the essence of the project theme, the level of scientific argumentation, the quality of conclusions, elements of creativity, the formation of personal attitude, coherence of exposition and scientific correctness, graphic presentation.	By the end of the semester
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X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

✓ **Teaching and learning methods used**

Discipline IT is an optional subject and it is studied in accordance with the classical university standard: lectures and practical hours. The theoretical course at the lectures is given by the course holders. At the practical lessons is studied work with different computer software. At the initial seminar, the basic theoretical notions are discussed and the application of information management in medical practice is analyzed. It allow the student to apply in practice under his own coordination the acquired theoretical notions.

✓ **Applied (specific to the discipline) teaching strategies / technologies**

- Creating databases;
- Finding, structuring and synthesizing information;
- Data acquisition and processing;
- Manipulation of software in the Microsoft Office package;
- Creating text files, structuring scientific papers;
- Creating presentations.

Methods of assessment (including the method of final mark calculation)

Current: frontal and / or individual control through:

- applying computerized tests,
- solving exercises.

Final: Exam.

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the examination stages)	National Assessment System	ECTS Equivalent
1,00-3,00	2	F



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3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-9,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations in the failed exam.

XI. RECOMMENDED LITERATURE:

A. Compulsory :

1. Biomedical Informatics. Computer Applications in Health Care and Biomedicine (Health Informatics). Edward H. Shortliffe, James J. Cimino, third edition 2006.

B. Additional

1. Hospital-Based Emergency Care: At the Breaking Point. Committee on the Future of Emergency Care in the United States Health System. Institute of medicine of the National Academies.
2. Information and Communication Technologies in Healthcare. Stephan Jones and Frank M. Groom.