EI "ROYAL METROPOLITAN UNIVERSITY"
Department of Natural and Humanitarian Disciplines

SYLLABUS

Program:	General medicine
Qualification of the graduate:	General practitioner / Medical doctor
Year:	2025-2026
Semester:	2
Course duration:	18 weeks
Instructor/Assistant/Professor	Name: Tokoeva Burul
Department:	Humanities
Day and Time for consultation:	Tuesday at 11:30-13:30., room 211
Classroom:	211
e-mail:	*burul.tokoeva@gmail.com*
Course Title:	Information technology in medicine
Must/Elective:	
Credit/Hours:	2

Bishkek 2025

1. **Tokoeva Burul, e-mail: burul.tokoeva@gmail.com**
2. **Description of discipline:**

The discipline "Information technologies in medicine" is an introduction to the basics of information technologies with an emphasis on their application in the medical field. Studying this discipline will help future doctors when using software, when working with medical and technical equipment for the purpose of prevention, diagnostics, treatment and rehabilitation.

The purpose of studying the discipline "Information Technologies in Medicine" is to develop systemic knowledge of medical students about information technologies in medicine, as well as to develop skills in working with medical and technical equipment used in working with patients, and to apply the capabilities of modern information technologies to solve professional problems.

Objectives of the discipline:

- to master minimal theoretical knowledge in the field of information technologies in medicine necessary for a future specialist;
- to develop skills in working with a computer and software in the medical field, as well as to develop skills in working with information systems in medical practice and the Internet;
- to understand the role of information technologies in improving the quality of medical care and the security of personal information of patients;
- to master knowledge of information processing methods necessary when interacting with IT technologies in the modern world.

Competencies of students, formed as a result of mastering the discipline, planned results of mastering the academic discipline.

The place of discipline in the structure of the BEP (prerequisites, postrequisites) –

The discipline "Information Technologies in Medicine" is a mandatory discipline of the professional cycle of the curriculum in the direction 560001 General Medicine, refers to the basic part B.2.1, the mathematical and natural science cycle and contributes to the formation of the following competencies: IC-1, IC-2, SLC-2, PC-7. The knowledge gained is the basis for studying other specialized disciplines: medical biophysics, organization of public health work.

3. **Name and complexity of the discipline**

№	Name of discipline	course	semester	Week	Academic hours		Independent work	Total
					Lecture	Practice	IWS	
1	Information technology in medicine	1	2	18	18	18	24	60

4. Thematic plan for modules (indicating weeks and hours, dates)

2 semester

Course Plan	Lecture / Practice	*Topic*	Date	hours
1-2 weeks	Lecture/ Practice	***Topic 1.*** *Fundamentals of information technology in medicine.*		2/2
3-4 weeks	Lecture/ Practice	***Topic 2.*** *Electronic medical records and their role in modern medical practice.*		2/2
5-6 weeks	Lecture/ Practice	***Topic 3.*** *Standards and protocols for the exchange of medical information.*		2/2
7-8 weeks	Lecture/ Practice	***Topic 4.*** *Working with electronic medical records: creating, editing and analyzing data.*		2/2
9-10 weeks	Lecture/ Practice	***Topic 5.*** *Implementation of telemedicine consultations and remote patient monitoring.*		2/2
Module 1 (Date)				
11-12 weeks	Lecture/ Practice	***Topic 6.*** *Using databases to store medical information and analyze data*		2/2
13-14 weeks	Lecture/ Practice	***Topic 7.*** *Creating an electronic medical record for a patient using specialized software*		2/2
15-16 weeks	Lecture/ Practice	***Topic 8.*** *Analysis of the structure and content of electronic medical records from real clinical cases.*		2/2
17-18 week	Lecture/ Practice	***Topic 9.*** *Studying standards for the exchange of medical information and developing protocols for data transfer between healthcare systems.*		2/2
Module 2 (Date)				

5. Schedule of consultations

Semester	Group	Week	Time	Room
2	GM-2-1,2,3-25	Tuesday	11.30-13.30	211

6. Schedule for receiving detentions

Semester	Group	Week	Time	Room
2	GM-2-1,2,3-25	Tuesday	08.00-11.30	211

7. List of basic and additional literature

1. Informatics and medical statistics / edited by G. N. Tsarik. - M.: GEOTAR-Media, 2017. - 304 p.
2. Informatics, Medical Informatics, Statistics: Textbook / V. P. Omelchenko, A. A. Demidova. — Moscow: GEOTAR-Media, 2021. — 608 p.: ill.
3. Information Support of Pharmaceutical Activity / A. R. Badakshanov, S. N. Ivakina. — Moscow: GEOTAR-Media, 2022. — 256 p.: ill.
4. Information Technologies in Professional Activity: Practical Guide / V. P. Omelchenko, A. A. Demidova. — Moscow: GEOTAR-Media, 2019. — 432 p.: ill.
5. Information Technologies in Professional Activity: Practical Guide / V. P. Omelchenko, A. A. Demidova. — Moscow: GEOTAR-Media, 2021. — 432 p.: ill.
6. Information Technologies in Professional Activity: Textbook / V. P. Omelchenko, A. A. Demidova. — Moscow: GEOTAR-Media, 2024. — 416 p.: ill.
7. Information Technologies in Professional Activity: Textbook / V. P. Omelchenko, A. A. Demidova. — Moscow: GEOTAR-Media, 2025. — 416 p.: ill.
8. New Perspectives on Microsoft Excel 2013. Course Technology. ITP, Cambridge, Boston, Washington.
9. New Perspectives on Microsoft Access 2013. Introductory. Course Technology. ITP, Cambridge, Boston, Washington.
10. Ralph M. Stare, George W. Reynolds. Principles of Information Systems. Course Technology. ITP, Cambridge, Boston, Washington.
11. Artemov A. "Monitoring information on the Internet". Digital book. Publisher: MOO Interregional public organization Academy of security and survival, 2014
12. Bondarev V. "Introduction to information security of automated systems", Bauman Moscow State Technical University, 2016
13. Babash A., Baranova E., Larin D. "Information security. History of information protection in Russia", Publishing house "KDU", 2015
14. Baranova E., Babash A. "Information security and information protection" 3rd ed., Publishing house "RIOR", 2016
15. Biryukov A. "Information security: defense and attack" 2nd ed., Publishing house "DMK", 2016

8. Course policy and evaluation criteria:

Mandatory class attendance.

Mandatory uniform (white medical gown and slippers; during lab sessions, a cap and non-sterile gloves are also required).

Active student participation in practical classes, including preliminary preparation and completion of homework.

High-quality and timely completion of assignments for Independent Work of a Student (IWS) and Independent Work of a Student with a Teacher (IWST).

Participation in all types of assessment: current, module (midterm), and final.

Maintenance of a workbook for recording lecture material, homework, and lab results

Additional Requirements

One late arrival or leaving class early for any reason is considered one missed class and must be made up.

The following are unacceptable: using mobile phones during classes, late submission of assignments, and failure to comply with rules of conduct and subordination.

Assessment System

The maximum score for each module is 100 points, including:
Independent Work of a Student (IWS) – 20 points
Current control (assessment) – 40 points
Module (midterm) control – 40 points

The results of all modules and the exam are combined to calculate the average course grade. Students must make up missed classes and any "unsatisfactory" grades received during the course. Makeup assignments are accepted according to the faculty duty schedule in the department.

A module control (assessment) may be retaken only for a valid reason and must be completed no later than two weeks after the module date.

A student is allowed to take the final assessment (a differentiated pass/credit or an exam) if he scores 60 or more points in the course.

A student who scores less than 60 points is not allowed to take the final assessment.

A student is exempt from taking the exam if their overall course score is between 96 and 100 (excellent). This provision does not apply to medical disciplines requiring a state final examination.

Exemption from the exam is granted by order of the rector based on a report from the dean's office. The dean's office prepares a semester summary report based on submissions from department heads.

Grading System

The credit system uses a multi-point grading scale with letter grades, allowing instructors more flexibility in assessing student performance. An academic credit is considered earned if the student receives one of the following grades:
A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-. Credit is not awarded for grades outside this scale.

Scoring Policy	**Module 1**	**Module 2, etc.**
Classroom work (activity in discussions, oral questioning, working with a glossary, etc.)	40 points	40 points
Independent work: abstract, report, essay	20 points	20 points
Modular control (midterm control)	40 points	40 points
Total for the discipline:	More than 60 points	
Credit passed	The discipline is passed.	

Final assessment in the form of a pass (a credit) is carried out based on the results of the student's independent work (SIW), current control (assessment) and midterm (modular) control for all modules.

Assessment Policy

Form of interim assessment	Количество баллов					Mark
	Current control (max)	SIW (max)	Module (midterm) control (max)	Examination (max)	Total points (max)	
Examination	40	20	40	100	100	Excellent (Max)
Note: Method of calculating the sum of points	M1=CK1+SIW1+MC1; M2=CK2+SIW2+MC2;				S=(M1+M2+E)/3	

Final assessment in the form of an exam is conducted based on the student's independent work, current control (assessments) and module (midterm) control for all modules, as well as the exam itself.

The following grade-to-point scale is used to evaluate student performance:

Rating and Scoring Scale				
Maximum score	Intervals			
	«not satisfactory»	«satisfactory»	«good»	«excellent»
20	0-11	12-15	16-17	18-20
40	0-23	24-30	31-35	36-40
60	0-35	36-45	46-53	54-60
100	0-59	60-75	76-89	90-100