

**Academic programme
component**

31.05.01 General Medicine, specialisation General Medicine

B1.O.13
discipline code

SYLLABUS

**Discipline
(course)**

Health Information Technology

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**Murmansk
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Clarification

Discipline volume: 2 credit points

1. Discipline (module) training results correlated with the indicators of competencies achievement determined by the educational programme

Competency	Indicators of competency achievement	Discipline (module) training results
УК-1 Can design action plans and apply systematic approach to critical analysis of problem situations	ИД-1ук-1 Applies a systematic approach for searching and analytical activities to solve the set tasks	<p>To know:</p> <ul style="list-style-type: none"> - theoretical foundations of collection, storage, transformation, dissemination of information in health information systems; - possibilities of using computer information systems in healthcare and public health service; - basics of searching for medical information on the Internet; - technologies for processing various types of information using appropriate application software. <p>To be able to:</p> <ul style="list-style-type: none"> - use educational, scientific, popular science literature, the Internet to address tasks within professional engagement; - use various application software for addressing professional tasks, in particular, text processors and spreadsheets, printed products and presentation graphics development tools. <p>To have:</p> <ul style="list-style-type: none"> - skills of using search engines, analysing and critically interpret information from the Internet; - skills of appropriate selection and application of modern information technology tools to address tasks within professional engagement.
ОПК-10 Can fathom the principles of modern IT and apply them to fulfil professional tasks	ОПК-10.1. knows possibilities and principles of modern information technologies and uses them to address tasks within professional engagement	

2. Discipline contents

Topic 1. *Using information technologies in healthcare.*

Main concepts of digital world and trends in its development: cloud technologies, artificial intelligence and neural networks, robotics, virtual and augmented reality and the possibilities of their application in medical science. Main concepts of Health informatics.

Topic 2. *Hardware of computer information systems.* Input/output devices, information storage in computer information systems. The trunk modular principle of building computer systems. A block diagram of a computer information system.

Topic 3. *Types of software and Internet resources for healthcare and public health service.* System software: operating systems, their purpose, types and functions. Application software: purpose and types. Operational software: antiviruses and archivers. Application software tools for solving Health informatics problem. Comprehensive analysis of medical data applying mathematical statistics methods. An overview of Russian medical decision support systems. An overview of programs for clinics and medical centers. Using Internet resources in

medical practice.

Topic 4. Main types of application software for solving information processing problems.

Text processors: integrated documents; templates and electronic forms; creating macros; using styles, creating a table of contents and lists of illustrations in documents, working with the structure of documents. Spreadsheets: calculations, calculation of subtotals, creation of linked and pivot tables. Printed products development tools. Presentation graphics, creating navigation and using triggers in presentations.

3. Training support materials

- multimedia presentations on the discipline are available on MAU LMS Moodle;
- methodological guidelines for laboratory/practical/test classes available on MAU LMS Moodle;
- learning materials are available on MAU official website at «Информация по образовательным программам, в том числе адаптированным».

4. Discipline assessment materials

Discipline assessment materials is a separate document within the educational programme, it includes:

- a list of competencies indicating the stages of their achievement within the discipline;
- formative assessment tasks;
- interim assessment tasks;
- tasks for internal assessment of education quality.

5. The list of main and supplementary literature (printed, electronic and (or) electronic library resources)

Main literature:

1. Obmachevskaya, S. N. Meditsinskaya informatika. Kurs lektsii : uchebnoe posobie dlya vuzov / S. N. Obmachevskaya. — 4-e izd., ster. — Sankt-Peterburg : Lan', 2022. — 184 s. — ISBN 978-5-507-44389-5. — Tekst : elektronnyi // Lan' : elektronno-bibliotechnaya sistema. — URL: <https://e.lanbook.com/book/226475> (data obrashcheniya: 05.05.2024). — Rezhim dostupa: dlya avtoriz. pol'zovatelei.
2. Safronova, I. V. Meditsinskaya informatika: standartnye prikladnye programmnye sredstva v professional'noi deyatel'nosti : uchebno-metodicheskoe posobie / I. V. Safronova, A. A. Mukasheva. — Chelyabinsk : YuUGMU, 2023. — 384 s. — ISBN 978-5-94507-260-2. — Tekst : elektronnyi // Lan' : elektronno-bibliotechnaya sistema. — URL: <https://e.lanbook.com/book/379409> (data obrashcheniya: 05.05.2024). — Rezhim dostupa: dlya avtoriz. pol'zovatelei.
3. Shandrikov, A. S. Informatsionnye tekhnologii : uchebnoe posobie : [16+] / A. S. Shandrikov. — 3-e izd., ster. — Minsk : RIPO, 2019. — 445 s. : il., tabl. — Rezhim dostupa: po podpiske. — URL: <https://biblioclub.ru/index.php?page=book&id=463339> (data obrashcheniya: 05.05.2024). — Bibliogr.: s. 426-430. — ISBN 978-985-503-887-1. — Tekst : elektronnyi.
4. Karpenkov, S. Kh. Tekhnicheskie sredstva informatsionnykh tekhnologii : uchebnoe posobie / S. Kh. Karpenkov. — 5-e izd., ispr. i dop. — Moskva : Direkt-Media, 2023. — 376 s. : il., skhem., tabl. — Rezhim dostupa: po podpiske. — URL: <https://biblioclub.ru/index.php?page=book&id=707511> (data obrashcheniya: 05.05.2024). — Bibliogr. v kn. — ISBN 978-5-4499-3938-8. — DOI 10.23681/707511. — Tekst : elektronnyi.

Supplementary literature:

1. Egoshina, I. L. *Informatsionnye sistemy i tekhnologii v zdravookhranении : uchebnoe posobie* : [16+] / I. L. Egoshina ; Povolzhskii gosudarstvennyi tekhnologicheskii universitet. – Ioshkar-Ola : Povolzhskii gosudarstvennyi tekhnologicheskii universitet, 2021. – 90 s. : il. – Rezhim dostupa: po podpiske. – URL: <https://biblioclub.ru/index.php?page=book&id=690804> (data obrashcheniya: 05.05.2024). – Bibliogr.: s. 85. – ISBN 978-5-8158-2229-0. – Tekst : elektronnyi.

2. Topol', E. *Iskusstvennyi intellekt v meditsine : kak umnye tekhnologii menyayut podkhod k lecheniyu* : [16+] / E. Topol' ; nauch. red. A. Gusev ; red. L. Makarina ; per. s angl. A. Anvaera. – Moskva : Al'pina Publisher, 2022. – 400 s. : il. – Rezhim dostupa: po podpiske. – URL: <https://biblioclub.ru/index.php?page=book&id=707464> (data obrashcheniya: 05.05.2024). – ISBN 978-5-9614-2920-6 (rus.). – ISBN 978-1-5416-4463-2 (angl.). – Tekst : elektronnyi.

3. Graetskaya, O. V. *Informatsionnye tekhnologii podderzhki prinyatiya reshenii : uchebnoe posobie* : [16+] / O. V. Graetskaya, Yu. S. Chusova ; Yuzhnyi federal'nyi universitet. – Rostov-na-Donu ; Taganrog : Yuzhnyi federal'nyi universitet, 2019. – 131 s. : il., tabl., skhem. – Rezhim dostupa: po podpiske. – URL: <https://biblioclub.ru/index.php?page=book&id=577758> (data obrashcheniya: 05.05.2024). – Bibliogr. v kn. – ISBN 978-5-9275-3123-3. – Tekst : elektronnyi.

4. Gilyarova, M. G. *Informatika dlya meditsinskikh kolledzhei : uchebnik* / M. G. Gilyarova. – Rostov-na-Donu : Feniks, 2017. – 528 s. : il., tabl., skhem. – (Srednee meditsinskoe obrazovanie). – Rezhim dostupa: po podpiske. – URL: <https://biblioclub.ru/index.php?page=book&id=713546> (data obrashcheniya: 05.05.2024). – ISBN 978-5-222-25187-4. – Tekst : elektronnyi.

6. Professional databases and information reference systems

1) *The state system of legal information – official legal information web portal* - URL: <http://pravo.gov.ru>

2) «Единое окно доступа к образовательным ресурсам» *information system* - URL: <http://window.edu.ru>

3) *Reference legal system. Consultant Plus* - URL: <http://www.consultant.ru/>

7. The list of licensed and openly distributed software, including domestic software

1) *Microsoft Office 2007*

2) *Optical character recognition system ABBYY FineReader*

8. Ensuring mastering the discipline for people with special needs

Students with special needs are provided with printed and (or) electronic educational resources adapted to their needs.

9. The material and technical support of the discipline (module) is presented in the appendix to the academic programme "Material and technical conditions for the implementation of the educational programme" and includes:

- classrooms for conducting training sessions provided for by the specialty programme, fitted with technical equipment;

- spaces for self-study work fitted with computer equipment with the Internet connection and access to MAU LMS Moodle;

- Information and communication systems laboratory (furniture, PCs, hardware for showing presentations, educational and visual aids corresponding the syllabus);

10. Study load distribution by type of educational activity

Table 1 - Study load distribution

Educational activity	The discipline (module) study load distribution by the forms of training											
	Full-time				Part-time				Distant			
	Semester			Total hours	Semester			Total hours	Semester/Year			Total hours
	3											
Lectures	10			10								
Seminars												
Laboratory classes	24			24								
Self-study work	38			38								
Preparation for interim assessment												
Total hours for the discipline	72			72								
/ in the form of seminars												

Interim and formative assessment

Exam											
Credit/ graded credit	+			+							
Course paper (project)											
Calculation and graphic papers											
Tests											
Term papers											
Essays											

List of laboratory classes

№	Topics
1	2
	Full-time
1	Creating integrated documents.
2	Text tables. Calculations in text tables. Formulas editor.
3	Creating templates for electronic forms. Using macros in documents.
4	Using styles in documents. Working with document structure.
5	Creating a table of contents, a list of illustrations in a document.
6	Calculations in spreadsheets.
7	Work on multiple sheets of a spreadsheet book.
8	Calculating subtotals and creating pivot tables.
9	Developing printed products.
10	Creating a guided presentation.
11	Overview of Russian medical decision support systems.
12	Overview of software for clinics and medical centers.