Academic programme component　　　**31.05.01 General Medicine**
　　　　　　　　　　　　　　　　　　　　programme

　　　　　　　　　　　　　　　　ФТД.01
　　　　　　　　　　　　　　discipline code

SYLLABUS

**Discipline
(course)**　　　**Introduction to Artificial Intelligence**

Author:
Lyash A. A.

Associate Professor
at the Informational Technologies Department
Ph.D. in Pedagogy

Approved at the meeting of
the Informational Technologies Department
Record № 6 dated 01.02.2024

Head of the department

_____　　Lyash O.I.
　　　signature　　　　　　　　　name

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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 **ИД-2ук-1** Collects, systematises and analyses the information necessary to develop a strategy for solving a problem situation **ИД-3ук-1** Evaluates the practical consequences of possible solutions to the set tasks	**To know:** main ways of information search; **To be able to:** critically analyse the collected information on a given issue; **To have:** skills of summarising the results of information analysis to solve the task;
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	**To know:** main directions of artificial intelligence development, possibilities of applying artificial intelligence algorithms to address professional tasks, principals of legal regulation of AI. **To be able to:** apply a systematic approach to address professional tasks, apply neural networks within professional engagement; **To have:** skills of choosing ways to address specific professional tasks.

2. Discipline contents

Topic 1. The history of artificial intelligence (AI) development. The background of AI theory. The concept of "artificial intelligence". Modern research areas in AI. Modern theoretical problems of AI.

Topic 2. Machine learning. The concept of "machine learning" and its main components. Supervised learning. Classification and regression problems. Linear models. Unsupervised learning. The clustering task. Classification and clustering algorithms.

Topic 3. Deep machine learning. Neural networks: the concept and structural components. Convolutional neural networks. Computer vision. Application of neural networks in computer vision

Topic 4. Legal regulation of AI. The development of legal regulation of AI. International regulation of AI. AI and public law. AI and private law.

3. Training support materials

- methodological guidelines are available on MAU LMS Moodle;
- methodological guidelines for laboratory classes are 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. Smolin, D. V. Vvedenie v iskusstvennyi intellekt / D. V. Smolin. – 2-e izd., pererab. – Moskva : Fizmatlit, 2007. – 292 s. – Rezhim dostupa: po podpiske. – URL: https://biblioclub.ru/index.php?page=book&id=76617. – ISBN 978-5-9221-0862-1. – Tekst : elektronnyi.

2. Levashova, A. V. Pravovoe regulirovanie iskusstvennogo intellekta v sovremennom mi-re : realii i perspektivy / A. V. Levashova ; Dal'nevostochnyi federal'nyi universitet (DVFU). – Vladivostok : b.i., 2020. – 61 s. – Rezhim dostupa: po podpiske. – URL: https://biblioclub.ru/index.php?page=book&id=597349. – Tekst : elektronnyi.

Supplementary literature:

1. Osnovy iskusstvennogo intellekta : uchebnoe posobie / Yu. A. Antokhina, A. A. Ovodenko, M. L. Krichevskii, Yu. A. Martynova. – Sankt-Peterburg : GUAP, 2022. – 169 s. – ISBN 978-5-8088-1720-3. – Tekst : elektronnyi // Lan' : elektronno-bibliotechnaya sistema. – URL: https://e.lanbook.com/book/263933. – Rezhim dostupa: dlya avtoriz. pol'zovatelei.

6. Professional databases and information reference systems
1. Reference legal system. Consultant Plus http://www.consultant.ru/;
2. LLC «Modern media technology in education and culture» http://www.informio.ru/;
3. Unified content of general education / Curriculums. Methodological guidelines. Curriculum designer. – Access mode – https://edsoo.ru/;
4. Electronic library system "Lan'" [Electronic resource] – Access: https://e.lanbook.com/;
5. Electronic library system "Yurait" [Electronic resource] – Access: https://biblio-online.ru/;
6. Electronic library system "University Library Online" [Electronic resource]: electronic periodical; a software package for providing online access to licensed materials – Access: https://biblioclub.ru/.

7. The list of licensed and openly distributed software, including domestic software
1. Licensed domestic software: N/A.
2. Licensed international software: MS Office, Windows 7 Professional, Windows 10.
3. Openly distributed domestic software: 7Zip.
4. Openly distributed international software: Adobe Reader, Google Chrome, LibreOffice.org, Mozilla FireFox.

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.

It is allowed to replace the equipment with its virtual alternatives.

10. Study load distribution by type of educational activity

Table 1 - Study load distribution

Type of educational activity	The discipline (module) study load distribution by the forms of training			
	Full-time			
	Semester			Total hours
	4	–	–	
Lectures	8	–	–	8
Laboratory classes	4	–	–	4
Self-study work	60	–	–	60
Total hours for the discipline	**72**	**–**	**–**	**72**
/in the form of seminars	4	–	–	4

Interim and formative assessment

Credit	x	–	–	–
Essays	1			

List of laboratory classes

№	Topics
1	**2**
	Full-time
1	Studying the principles of neural networks functioning
2	Applying neural networks within professional engagement