



MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE RUSSIAN FEDERATION
Federal State Autonomous Educational Institution of Higher Education
Far Eastern Federal University
(FEFU)
INSTITUTE OF LIFE SCIENCES AND BIOMEDICINE (SCHOOL)

VALUATION FUND
in the discipline "Medical Cybernetics"

Vladivostok
2023

List of Forms of Assessment Used at Various Stages of Competence
Formation in the Course of Mastering a Discipline (Module)
«Medical Cybernetics»

Item No.	Supervised modules/sections/topics of the discipline	Code and name of the indicator of achievement	Learning Outcomes	Valuation Tools – Name	
				Current control	Intermediate Attestation
1	History and Basic Provisions of the Theory of Control Systems. Cybernetics. Automatic Control Theory	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 1-6
2	Molecular Cybernetics	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 7-11
3	Information Systems and Automated Control Systems (ACS) of Various Levels	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 12-17
4	Cybernetic systems	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 18-24
5	Fundamentals of Physiological Cybernetics	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 25-31

6	Applications of MathCad in Life Sciences	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 32-37
7	System design of AIS of a healthcare institution	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 38-43
8	System analysis of the institution's activities. Methods presentation and processing of biomedical information	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 44-48
9	Systems Analysis Procedures in Healthcare. DEVELOPMENT OF MODELS OF MANAGEMENT, PLANNING AND FORECASTING IN HEALTHCARE	PP-5.1; PC-5.2; PC-5.3; PP-6.1; PC-6.2; PP-6.3	Knows Can Owns	Interview UO-1, abstract – PR-4, Tests – PR-1, essay PR-3, Case tasks PR-11, presentation Small Group Work, UO-3	Credit Questions 49-51

*Recommended forms of evaluation tools:

- 1) interview (MA-1), colloquium (MA-2); Report, Communication (MA-3); Round Table, Discussion, Polemics, Dispute, Debate (SW-4); etc.
- 2) tests (PR-1); tests (PR-2), essays (PR-3), essays (PR-4), term papers (PR-5), scientific and educational reports on practices (PR-6); laboratory work (PR-7); portfolio (PR-8); project (WP-9); business and/or role-playing game (PR-10); case problem (PR-11); workbook (PR-12), etc.
- 3) simulator (TS-1), etc.

Scale for assessing the level of achievement of learning outcomes for current and intermediate certification *in the discipline*
«Medical Cybernetics»

<i>Points (rating score)</i>	Levels of achievement Training		<i>Requirements for the formed competencies</i>
	Current & Intermediate certification	<i>Intermediate Attestation</i>	
100 – 86	Increased	"Passed" / "Excellent"	Freely and confidently finds reliable sources of information, operates with the information provided, has excellent skills in analyzing and synthesizing information, knows all the basic methods of solving problems provided for in the curriculum, knows typical mistakes and possible difficulties in solving a particular problem and is able to choose and effectively apply an adequate method for solving a particular problem. trouble
85 – 76	Base	"Passed" / "Good"	In most cases, he is able to identify reliable sources of information, process, analyze and synthesize the proposed information, choose a method for solving a problem and solve it. Makes single serious mistakes in problem solving, experiences difficulties in rare or difficult cases of problem solving, does not know typical mistakes and possible difficulties in solving this or that trouble
75 – 61	Threshold	"Passed" / "Satisfied"	Makes mistakes in determining the reliability of sources of information, is able to correctly decide only Typical most often Occur trouble in (process information, choose a method to solve a problem, and solve it)
60 – 0	Level Not Reached	"Failed" / "Unsatisfactorily"	Does not know a significant part of the program material, makes significant mistakes, performs practical work unconfidently, with great difficulty.

Current attestation in the discipline (module) "Name of the discipline"

Current certification of students in the discipline "*Medical Cybernetics*" is carried out in accordance with local regulations of FEFU and is mandatory.

Current certification in the discipline is carried out in the form of control measures (*defense of practical/control work, essay, essay, testing - indicate what is used in the table above*) to assess the actual results of students' learning and is carried out by the leading teacher.

For each object, a description of the assessment procedures is given in relation to the assessment tools used.

Assessment Tools for Ongoing Monitoring

1. Sample Essay Topics

Topics of abstracts and presentations

1. Structure of the Cybernetic System.
2. The Law of Necessary Diversity as Formulated by W. Ashby. The Applied Significance of the Law of Necessary Diversity.
3. Control Functions in a Cybernetic System.
4. The concept of homeostasis, its significance for the practice of health management.
5. Control characteristics: controllability, achievability, stability.

Requirements for the content and structure of abstracts

1. Title page.
2. Task.
3. Table of Contents.
4. List of symbols, symbols and terms (if necessary).
5. Introduction.
6. Main part.
7. Conclusion.
8. References.
9. Applications.

Requirements for the presentation and evaluation of materials (results):

Grade 5 is given if all the requirements for writing and defending an abstract are met: the problem is identified and its relevance is justified, a brief analysis of various points of view on the problem under consideration is made and one's own position is logically stated, conclusions are formulated, the topic is fully disclosed, the volume is maintained, the requirements for external design are met, correct answers to additional questions are given.

Grade 4 – the main requirements for the abstract and its defense have been met, but at the same time there are shortcomings. In particular, there are inaccuracies in the presentation of the material; there is no logical consistency in judgments; the volume of the abstract is not maintained; there are omissions in the design; Incomplete answers were given to additional questions during the defense.

Grade 3 – there are significant deviations from the requirements for abstracting. In particular: the topic is covered only partially; factual errors were made in the content of the abstract or when answering additional questions; There is no conclusion during the defense.

Grade 2 – the topic of the abstract is not disclosed, a significant misunderstanding of the problem is revealed.

Grade 1 – abstract not submitted

Evaluation Tools for Intermediate Inspection

1. Bank of test tasks

1. Cybernetics

- 1) Management Science
- 2) The Science of Connectivity
- 3) Science & Life

2. Medical Cybernetics

1) A branch of cybernetics that studies the processes of control and processing of information in living organisms and groups of people in accordance with the tasks of treatment and prevention of diseases, as well as health care management.

2) A branch of cybernetics that studies biochemical processes in the body

3) A branch of cybernetics that studies the structure of an organism and presents it in a visualized form

3. A model is:

- 1) simplified similarity of the object;
- 2) the object of influence;
- 3) economic phenomenon.

4. Mathematical Model:

- 1) description of material objects;

2) a system of relations describing the process under study, or phenomenon;

(3) A conscientious description of something.

5. The system is:

1) an orderly view of the object of research from the point of view of the set goal;

(2) a measure of quantitative description;

(3) the aspect of the object that makes it different or similar to other objects.

6. A subsystem is:

1) a system that is an element of this system;

2) a set of homogeneous elements of the system;

3) an object that performs certain functions.

7. The structure of the system is:

1) a type of feedback;

2) an object influencing the results of functioning;

3) stable orderliness in space and time of its elements and connections between them.

Test Evaluation Criteria

Assessment is carried out in an e-learning session on a hundred-point scale.

The test includes 100 tasks, with a maximum test score of 100.

Within the framework of the current level of knowledge assimilation in the discipline, a test result of at least 61 points is allowed.

Criteria for grading a student at the credit in the discipline "Medical Cybernetics"

MR-FFU-844/2-2022 Assessment of the test	Requirements for the formed competencies	7 of 97
"Passed"	A grade of "passed" is given to a student if he/she knows the material well, presents it competently and to the point, without making significant inaccuracies in answering the question, correctly applies theoretical provisions in solving practical issues and problems, has the necessary skills and techniques for their implementation	
"Not passed"	The grade "failed" is given to a student who does not know a significant part of the program material, makes significant mistakes, performs practical work unconfidently, with great difficulty. As a rule, a "failed" grade is given to students who cannot continue their studies without additional classes in the relevant discipline.	

Indicative List of Evaluation Tools (AP)

№	Code	Name of the appraisal means	Brief description of the evaluation tool	Presentation valuation in the fund
Written works				
1	PP-1	Test	A system of standardized tasks that allows you to automate the procedure for measuring the level of knowledge and skills Student	Test Task Fund
4	ІІД-	Abstract	A product of the student's independent work, representing is a written summary of the results of the theoretical Analysis Certain Scientific (Training-	Abstract Topics