

**Evaluation criteria
of theoretical questions and practical skills of students
speciality 222 “Medicine” at the final control
of the discipline “Medical and Biological Physics”**

Form of the final control is examination (second semester) according to the curriculum.

Examination (exam) is a form of final control of the student's mastery of theoretical and practical material on the academic discipline. The exam takes place in written form by examination papers in accordance with the academic program. The exam is written and includes both theoretical and practical training.

The structure of the examination papers and the evaluation criteria for each type of exam tasks:

1) 40 standard test tasks, each of which has one correct answer out of five offered (format A). 40 minutes are allotted for writing the test. (40 points – 1 point for correct answer of each test task);

2) five open descriptive questions (0-6 points for each question) and two problems with professional (medical and biological) content (0-5 points for each task). Duration – 95 minutes.

In total - 80 points.

Assessment of students' knowledge, skills and abilities **at the final control (exam)** is carried out according to the following **criteria**:

Evaluation criteria of theoretical questions	Points
The student sufficiently fully knows the educational material, explains it in a reasoned way, deeply and comprehensively reveals the content of theoretical questions.	6
The student enough fully knows the educational material, explains it in a reasoned way, however permits insignificant inaccuracies during answering.	5
The student enough fully knows the educational material, however does not reproduce it sufficiently justified or mistakes are made.	4
The student does not answer the question fully enough, does not sufficiently justify his/her answer, the sequence of presentation of the material is incorrect, he/she makes mistakes in the use of conceptual apparatus or formulas.	3
The student understands the material only in a general way, the answer is incomplete and shallow; the formulation is not correct enough.	2
The student partially knows the educational material, does not reveal the content of the question, shows unsatisfactory knowledge of the conceptual apparatus.	1
The student does not know the educational material and is not able to explain it, gives the wrong answer to the question or does not answer anything at all.	0

Evaluation criteria of practical skills	Points
The logically correct solution is given. All the key points of the solution are substantiated. Correct answer is received.	5
The logically correct solution is given. Some of the key points of the solution are insufficient. 1–2 minor mistakes in calculations and transformations are possible, which do not affect the correctness of solvution. The received answer may be incorrect or incomplete.	4

The logically correct solution is given. Some of the key points are insufficiently substantiated or not substantiated. 1–2 errors or typos in calculations or transformations are possible, which slightly affect the correctness of solution. The received answer may be incorrect, or incomplete, or only a part of the task is solved correctly.	3
Some steps are omitted in the correct solution. The key points of the solution are not substantiated. Errors in calculations or transformations that affect solution are possible. The received answer is incomplete or incorrect.	2
There are only a few solution steps in the solution. The key points of the solution are not substantiated. The received answer is incorrect or the task is not completely solved.	1
The solution to the task is not started or the solution is completely incorrect.	0

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12. The scheme of calculation and distribution of points

Maximum score points which a student can obtain for the current educational activity for admission to the exam is 120 points.

Minimum score points which a student must obtain for the current educational activity for admission to the exam is 72 points.

Calculation of score points is based on grades received by student in the 4-point scale (traditional scale) (by calculation of the arithmetic mean (*AM*) rounded to two decimal places). The resulting value is converted into points by multi-points scale as follows:

$$x = \frac{AM \cdot 120}{5}$$

For convenience, a table of conversion into 200-point scale is given:

Conversion of the average grade for current educational activity to the point scale for discipline which is finished with exam

4-grade scale	200-grade scale	4-grade scale	200-grade scale	4-grade scale	200-grade scale	4-grade scale	200-grade scale
5	120	4.45	107	3.91	94	3.37	81
4.95	119	4.41	106	3.87	93	3.33	80
4.91	118	4.37	105	3.83	92	3.29	79
4.87	117	4.33	104	3.79	91	3.25	78
4.83	116	4.29	103	3.74	90	3.2	77
4.79	115	4.25	102	3.7	89	3.16	76
4.75	114	4.2	101	3.66	88	3.12	75
4.7	113	4.16	100	3.62	87	3.08	74
4.66	112	4.12	99	3.58	86	3.04	73
4.62	111	4.08	98	3.54	85	3	72
4.58	110	4.04	97	3.49	84	Less than 3	Insufficiently
4.54	109	3.99	96	3.45	83		
4.5	108	3.95	95	3.41	82		

Individual work of students is evaluated during the current control of topic on the appropriate class. Mastering topics submitted only for the individual work is controlled at the final control.

Maximum score points which a student can score in exam is 80.

Minimum score points required for passing is not less than 50.

Grade on discipline is calculated as the sum of score points for current educational activity (at least 72 points) and score points for the exam (at least 50 points).

Points on discipline are converted regardless both in ECTS scale and a 4-point scale (traditional scale). Scores of ECTS scale can not be converted into 4-point scale and vice versa. Score points of students studying in one specialty are ranked on the ECTS scale as follows

Grade in ECTS	Statistical index
A	Top 10% of students
B	The next 25% of students
C	The next 30% of students
D	The next 25% of students
E	The last 10% of students

Ranking with assigning grades of “A”, “B”, “C”, “D”, “E” is held for the students of one course, studying one specialty and successfully completed the academic discipline. Students who have received grades FX, F (“2”) are not recorded to the list of students for ranking. Students who have received grade FX after repassing get grade “E” automatically.

For students who completed the program successfully the points on discipline are converted into a traditional 4-point scale by absolute criteria, which are listed in the table below:

Points on discipline	Grade in 4-point scale
From 170 to 200 points	5
From 140 to 169 points	4
From 139 to minimum score points	3
Lower than to minimum score points	2

The ECTS score is not converted to the traditional scale, as the ECTS scale and the 4-point scale are independent. The objectivity of the assessment of students' learning activities is checked by statistical methods (correlation coefficient between grade in ECTS scale and grade in national scale).