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THE METHODOLOGY OF EXPLANATION OF THE PROCESSES OF THE BIOPHYSICS LESSON IN MEDICINE WITH DETERMINATION OF THE STOKES METHOD

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ABSTRACT

This scientific paper analyzes that biophysics has an important role in the development of innovative technologies at the time of scientific and technical progress, which is achieving effective results in the world. Biophysics is related to knowledge, not only science, innovative technology, but also chemical processes are not similar to any processes in non-living nature and take place under specific conditions.

KEYWORDS: *Competencies, National Qualification, Molecular Biophysics, Cell Biophysics, Integration, Trend, Declaration.*

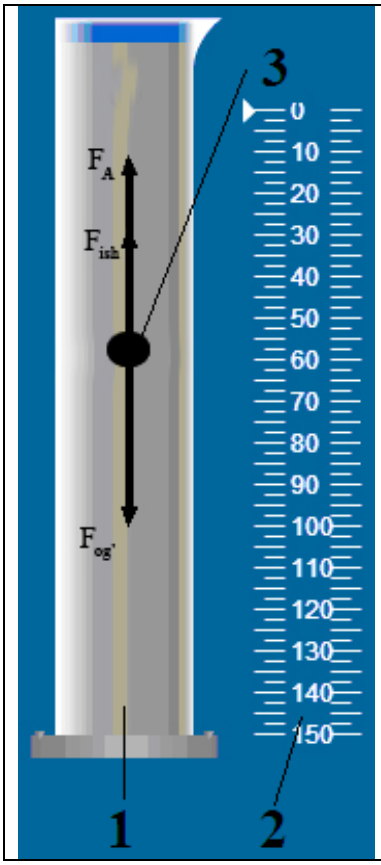
INTRODUCTION

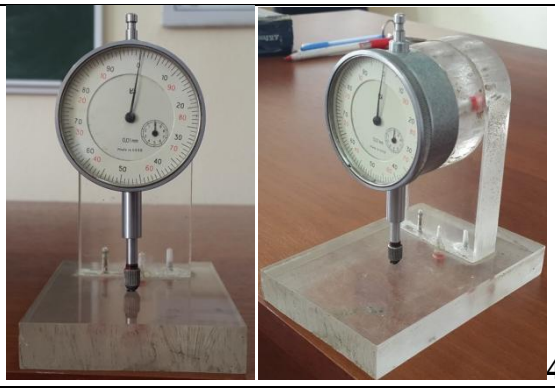
Biophysical knowledge is an important component of the modern professional activity not only of the entire society, but also of every doctor, especially in the context of medical education, which is related to science and innovative technology. In particular, the personal experience gained during the professional activity carried out in the independent education of biophysics in the trend of concrete and natural sciences, which is included in the Declaration of Inchon and the action program for the development of international education “Education-2030”, as well as the skills and qualifications of students in the study of biophysics is important in their development as a person.Decree No. PU-60 of January 28, 2022 “On the Development Strategy of New Uzbekistan for 2022-2026”, April 20, 2017 “Measures for Further Development of the Higher Education System" on measures” No. PD-2909, No. 769 of the Cabinet of Ministers of the Republic of Uzbekistan dated September 27, 2017 “On measures to further improve the training of medical personnel”, Health of the Republic of Uzbekistan Among them are the Resolutions No. 920 of November 20, 2017 on additional measures to improve the staffing of organizations of the state storage system. Resolution No. PD-3052 dated June 12, 2017 “On measures to further improve the activities of health care bodies”, Decree No. PU-5590 of the President of the Republic of Uzbekistan dated December 7, 2018 and other measures related to this activity The research of this article serves to a certain extent in the implementation of the tasks defined in the legislative documents. It was researched by U.Sh. Begimkulov, R.Kh.Dzurayev, D.Sh.Shodiyev and others with issues related to the use of innovative technologies in the teaching of physics and natural sciences in the higher education system. The problems of implementing interdisciplinary

integration in physics education were researched in the scientific works of U.E. Abdiyev, H.O.Zhorayev, E.O.Turdiqulov, K.Sh.N.I. Taylokov, R.R. Boqiyev, U.Y. Yuldashev, F.M. Zokirova, V.V. Anisimov, M. Mamarajabov and M.H. Lutfillayev, O.B. Bogomolov carried out research work.V. A. Orlov, N. M. Shakhmayev, N. A. Rodina, U. V. Usova, S. L. Rubinshteyn conducted research on improving the methodology of teaching physics in the countries of the Commonwealth of Independent States.Researches on methodological issues of physics education in developed foreign countries were researched by M. Dougiamas, J. Piaget, A. Gartung, J. Kidd, A. Bates, J. Daniel, and others.

Although various directions of teaching have been studied in the above research works, the methodology of using innovative educational technologies in teaching biophysics in medical institutions of higher education, based on the creation of interactive methods for conducting practical and laboratory training and usage issues have not been explored.

For example: Learning to determine liquid viscosity by Stokes method. Equipment needed: Cylindrical glass container, viscous liquid (glycerin), small metal balls (made of lead), micrometer, stopwatch, measuring tape or ruler.





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Tasks:

1-PART

Get acquainted with the structure of the micrometer and measure the diameter of one of the separated metal (steel) balls 3 times. Determine the radius

1. Drop a measured ball near the center of a cylinder filled with liquid (glycerin).

2. Start the stopwatch when the arrow reaches the first mark above.

4. When you reach the second mark below, stop the stopwatch and record the time.When you reach the second mark below, stop the stopwatch and record the time.

5. Measure the diameters of the rest of the ball in this way, drop it into the liquid, measure the time of descent and record the measurement results in the following table:

№	D, sm	r, sm	t, s	$v = \frac{l}{t_{o'rt}}, \frac{см}{c}$	η, Puaz	Δη, Puaz	D_η, %
1							
2							
3							
Average value							

2-PART

Based on the results obtained $\eta = \frac{2r^2 g(\rho - \rho_0)}{9v}$ using the working formula,

1. Determine the viscosity. It comes in a formula ρ, ρ_0, g the magnitudes are shown in the tables in the appendix, the speed of movement of the ball can be found from the following formula: $v = \frac{l}{t}$; in which:*l* – the path of the ball in a straight line, t – of the ball*l*the time of movement in covering the distance. $\rho; \rho_0; g$ - because they are constant quantities $\frac{2}{9}(\rho - \rho)g$ "C" marked with, $c = \frac{2}{9}(\rho - \rho_0)g$ and we write that. Now the working formula can be written in the following form: $\eta = c\frac{r^2}{v}$

2. Calculate the average of the viscosities you determined for each experiment using the following formula:

$$\eta_{ўрт} = \frac{\eta_1 + \eta_2 + \eta_3}{3}$$

3. Calculate the absolute error made in each experiment and the average absolute error over the experiments

$$\Delta\eta_1 = \left|\eta_{ўрт} - \eta_1\right|$$

$$\Delta\eta_2 = \left|\eta_{ўрт} - \eta_2\right|$$

$$\Delta\eta_3 = \left|\eta_{ўрт} - \eta_3\right|$$

$$\Delta\eta_{ўрт} = \frac{\Delta\eta_1 + \Delta\eta_2 + \Delta\eta_3}{3}$$

4. Calculate the relative error during the experiments: $D = \frac{\Delta\eta_{ўрт}}{\eta_{ўрт}} \cdot 100\%$
5. In this case, transfer the value obtained for the viscosity coefficient to the SI system of units.
6. The true value of viscosity $\eta_{хак} = \eta_{ўрт} \pm \Delta\eta_{ўрт}$ write in the form and make a **CONCLUSION**

Therefore, in the development of the medical education system, the organization of the educational process through independent education (Simulations), distance education (Moodle, Ilias, Dokeos, etc.) wide application of forms, continuity and practical orientation of medical education in the conditions of information-educational environment (e-learning) and media technologies, development of creative abilities of medical students, development of the training process based on a critical approach to professional activity, innovative technologies improvement of the method of use is gaining importance. Harmonization with levels of the International Standard Classification of Education (TXSTTXT) adopted by UNESCO;full introduction of the National qualification system into the educational process; innovative design of the content of medical education so that medical specialists in training can take a decent place in the labor market; division of professional competencies into components; it is important to pay special attention to the creation of new methodological models of medical education and their application in specific medical education practices.

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5. http://uis.unesco.org/sites/default/files/