

слово помогает лучше лекарства. Из-за техники студенту, врачу не остаётся времени для беседы с больным, или это время во много раз сокращено.

Опыт работы со студентами позволяет говорить о радикальной смене ценностных приоритетов в их среде: переориентацию студенчества с общественных на индивидуальные ценности, возрастание самооценки личности, падение престижа таких ценностей, как гражданственность, коллективизм, труд, что может служить свидетельством перестройки духовного мира современной молодёжи [3].

Воспитательная работа должна выступать в качестве одной из приоритетных задач современной высшей школы. Воспитательная работа в вузах ведётся, о чём свидетельствует введение статуса ответственных за воспитательную работу. Основные направления этой работы в вузах: духовно-нравственное воспитание, гражданско-патриотическое воспитание, профессиональное воспитание, культурно-эстетическое воспитание, развитие творческого потенциала студентов, физическое воспитание и формирование здорового образа жизни и др. [2].

**Выводы.** Сейчас преподаватель и студент находятся в разных плоскостях. Преподаватель воспринимается как человек, предлагающий определенные услуги, а студент - как потребитель услуг. Это способствует тому, что элемент воспитания практически полностью исчез из преподавательской деятельности. Преподаватель в глазах студентов только лишь предоставляет им определённые услуги, а уже не является наставником в полном смысле этого слова. Происходит духовный разрыв между преподавателем и студентом. В связи с этим, воспитание подрастающего поколения просто необходимо. Молодой человек сейчас, как никогда, нуждается в духовном воспитании и наставлении, в привитии морально-этических принципов, свойственных профессии. Одной из основных миссий педагога и профессионала является воспитание молодёжи, а не только подготовка высококвалифицированного специалиста.

#### **Литература:**

1. Никитина Л., Технология формирования профессиональной компетентности / Л. Никитина, В. Иванов // Высшее образование в России. – 2006. – № 9. – С. 125.
2. Вербицкий, А.А. Активное обучение в высшей школе: контактный подход / А.А. Вербицкий. – М., 1991. – 146 с.
3. Доровских, В.А. Формирование личности врача – задача всей воспитательной работы в медицинском вузе / В.А. Доровских, В.А. Фигурнова // Здравоохранение Рос. Федерации. – 2005. – № 1. – С. 49–51.

## **CONTENTS INDEPENDENT WORK OF STUDENTS ENROLLED IN ENGLISH ON THE DISCIPLINE «GENERAL CHEMISTRY» (THE EXAMPLE THEME «ACID-BASE EQUILIBRIUMS. BUFFER SOLUTIONS»)**

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According to the educational standards of the Republic of Belarus to the requirements of the academic competences specialist should: be able to work independently and continuously improve their professional level; be able to apply the basic scientific and theoretical knowledge to solving scientific and practical problems in the development and improvement of innovative healthcare technologies and nursing; to have the organization skills of research, information software as well as systematic and comparative analysis; be able to carry out a comprehensive approach to solving the health problems; be able to apply statistical methods in processing experimental data medical research; be able to competently execute various documents and to present results studies; be able to formulate and put forward new ideas.

In the preparation of specialists with higher medical education play an important role of independent work of students. Under the independent work of the student understood the creative work of the student, based on his ability to navigate in the new situation, the ability to think, labeling issues, problems and ways of solving them.

In this regard, the role of the teacher in the organization of independent work of students in improving the quality of training of future specialists.

Within the framework of the Bologna process, there is an increase of time for independent work and reduction of time for classroom training.

**Results and its discussion.** The department for students developed guidelines for preparation for classes on discipline "General Chemistry", which defines the main directions of independent work of students on preparation for classes. Guidelines for a particular topic include: medical and biological importance of the topic, to motivate students to study it, policy issues, literature, a description of the research work, the formulation of protocols, which students must carry out its own, as well as questions for self-preparation for classes and a summary of the theoretical material.

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Let us consider example for the theme: «*Acid-base equilibriums. Buffer solutions*» contents of the independent students work.

**Medicobiological value:** the normal vital activity of an organism is impossible without supported of constant characteristics in intracellular fluids and tissues of an organism. One of the constant characteristics an organism is the value pH of all liquid mediums of an organism. The conservation of a constancy pH of liquid mediums has for an organism the vital value, as all biochemical and physiological processes with participation of hormones and enzymes proceed only in a particular interval of pH values. The diversion pH of a blood from norm (7.36) is results in infringement of processes of vital activity of an organism.

In chemical, toxicological, sanitary - hygienic and clinical laboratories the buffer solutions are applied to support of a constancy pH of medium, for example, at study of properties of protein, enzymes, hormones and others biologically active substances; at excretion of toxins from a biological material and their analysis; for preparation injectable solutions, blood substitutes and stabilization of series of medicinal substances.

**To lesson it is necessary:**

1. TO STUDY the following program questions: autoionization of water and  $K_w$ . pH and pOH. Chemical mechanisms for maintaining of an acid-base balance in the body. Buffer systems, their classification and buffer action. Calculating the pH of buffer solutions. Buffer capacity and factors determining it. Buffer systems of a blood. Concept about acid-base equilibrium of a blood. An acidosis and alkalosis.

**Research work: «Properties of buffer solutions»**

**Experiment 1.** Establishing the pH of buffer solutions depending on the ratio of concentrations of the components and on dilution.

**Course of operation:**

1. Prepare 3 buffer solutions with the following relations of concentrations  $\text{CH}_3\text{COOH}$  and  $\text{CH}_3\text{COONa}$ : 9/1; 5/5; 1/9. Each prepared solution mix.
2. Prepare 3 buffer solutions with the same relation of concentrations but more dilute. For this purpose take on 1ml prepared before buffer solutions and add to everyone on 8ml of water. Each dilute solution mix.
3. In all prepared solutions add till 3 drops of an alcohol solution of resorcin blue. Solutions mix.
4. Compare on a white background coloring of solutions and write down. Calculate pH of the prepared solutions.
5. Results of observations and calculations present to the table:

Number of the test tube	1	2	3
Relation of concentrations CH <sub>3</sub> COOH/CH <sub>3</sub> COONa	9/1	5/5	1/9
Color of a solution after addition of resorcin blue			
№ of a test tube with a dilute buffered solution	1''	2''	3''
Relation of concentrations CH <sub>3</sub> COOH/CH <sub>3</sub> COONa in a dilute solution			
Color of a solution after addition of resorcin blue			
pH			

6. Make conclusions on the basis of comparison of coloring in 1, 2, 3 test tubes, and also 1 and 1''; 2 and 2''; 3 and 3'' also explain obtained conclusions.

**Experiment 2.** The ratio of buffer solutions in the addition of small amounts of strong acids and bases.

1. Prepare 2 identical buffered solutions, merging on 4ml 0.1M of a solution CH<sub>3</sub>COOH and 6ml 0.1M of solution CH<sub>3</sub>COONa. In the both test tubes add till 3 drops of an alcohol solution of resorcin blue. Solutions mix.

2. In one test tube add 5 drops 0.1M of solution HCl; in the second 5 drops 0.1M of solution NaOH. Solutions in both test tubes mix and write down their color.

3. Results present as the table and explain them.

Buffer solution	1	2
Color of the solution after adding resorcin blue		
Color of the solution after adding 0.1M NaOH		
Color of the solution after adding 0.1M HCl		

#### Problems for discussion:

1. What is a buffer solution? Give an example of an acid buffer solution and a base buffer solution. What is meant by «buffer capacity»?

2. Calculate the pH of ammonia buffer solution which was prepared by mixing 10 ml NH<sub>4</sub>OH and 90 ml NH<sub>4</sub>Cl with the same molar concentration, if  $K_b(\text{NH}_4\text{OH}) = 1,85 \cdot 10^{-5}$ .

3. Carbonate buffer was prepared by mixing 10 ml of 0.2M sodium carbonate and 20 ml 0.1M sodium hydrocarbonate solution. Calculate pH, pOH, C(H<sup>+</sup>), C(OH<sup>-</sup>) if the value of the  $K_a = 2.5 \cdot 10^{-4}$ .

4. Calculate the [HCO<sub>3</sub><sup>-</sup>]/[H<sub>2</sub>CO<sub>3</sub>] ratio of blood that has pH 7.40.

In the course of the controlled independent work of the students during the school year formed the ability search for the best possible answers, calculations, making situational problems in general chemistry; performing research skills training, develop skills to work with textbooks, teaching aids, modern scientific literature.

## ТЕХНОЛОГИЯ СОЗДАНИЯ БУКВЕННЫХ, БУКВЕННО-ЦИФРОВЫХ И БУКВЕННО-ЧИСЛОВЫХ МНЕМОНИЧЕСКИХ АББРЕВИАТУР

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**Актуальность.** Слово «мнемоника» происходит от греческого mnemonika или mnemonikon (искусство запоминания; память) и представляет собой совокупность методов и правил, а также различных приемов, которые улучшают производительность памяти путем систематизация информации, создания мысленных образов и ассоциаций, и способствуют запоминанию информации. Слово образовано от имени древнегреческой богини памяти Мнемозины – матери девяти муз [2, 4, 5]. Если информация имеет смысл, она легко запоминается с помощью логических ассоциа-