References

1. Рачок Р. В. Дослідження працездатності стенду діагностики автомобільної техніки за допомогою SolidWorks / Р. В. Рачок, О. Ю. Рудик, В. С. Єрмаков // Матеріали III Всеукраїнської наук.-практ. інтернет-конф. «Ресурсно-орієнтоване навчання в «3D»: доступність, діалог, динаміка» / укл. Н. В. Кононец, В. О. Балюк. – Полтава : КУЕП ПДАА, 2019. – С. 80–85. URL: http://elar.khnu.km.ua/jspui/handle/123456789/8431.
2. Псьол С. В. Вплив кріплень у SolidWorks Simulation на працездатність деталей / С. В. Псьол, О. Ю. Рудик, Б. В. Анпоійчук // Ресурсно-орієнтоване навчання в «3D»: доступність, діалог, динаміка : зб. тез доп. І Міжнар. наук.-практ. інтернет-конф. (22–23 лютого 2021 року, м. Полтава). – Полтава : ПУЕТ, 2021. – С. 88–91. URL: http://elar.khnu.km.ua/jspui/handle/123456789/10195.
3. Rudyk O. Yu. Application of SolidWorks is for professional preparation of specialists / O. Yu. Rudyk, P. V. Kaplun, V. A. Gonchar // II Міжнар. наук.-практ. інтернет-конф. «Ресурсно-орієнтоване навчання в «3D»: доступність, діалог, динаміка» : зб. тез доп. (електронне видання) (м. Полтава, 22–23 лютого 2022 року). – Полтава : ПУЕТ, 2022. – С. 140–146. URL: http://elar.khmnu.edu.ua/jspui/handle/123456789/12794.

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INNOVATIVE TECHNOLOGIES IN THE TRAINING OF COMPETITIVE SPECIALISTS

Traditional training and its classical forms do not meet modern requirements. Therefore, it is necessary to develop and apply new methods that are closer to real professional activity and help to form and develop professional and creative thinking in students.

An important role in the development of research skills belongs to the student scientific circle (SNK) of the Department of Tribology, Automobiles and Materials Science of our university. An important feature of this SNK is that students and undergraduates come to the circle, the choice of profession of which is conscious. Their effort to increase the level of knowledge and interest in the future specialty

dictates the choice of forms of work of the circle: mastering the methodology of scientific knowledge, methods and techniques for independently solving the tasks; planning and forecasting the results of their activities; analyzing the situation; generalizing and interpreting the results obtained.

Such a variety of integration forms of work and the possibility of choice allow to maintain a steady interest of students and undergraduates in the work of the circle at the department.

The structure of the organization of the work of the SNK includes various forms of work, taking into account the issues of problem-based teaching, a differentiated approach to learning, the introduction of active learning methods, the use of technical means to improve the educational process, the motivation of the student's responsibility in the circle, and psychological culture.

At the end of each academic year, students and undergraduates participate in the preparation and conduct of the final scientific conference of the university for students and young scientists. The results of the work performed during the year are published in the form of theses or articles. The first printed work and the first independent speech at the conference stimulates a steady interest in science. Such undergraduates subsequently enter graduate school and return to the department as teachers.

Therefore, the article is aimed at generalizing the experience of applying innovative technologies and methods that contribute to improving the quality of student and undergraduates training.

Research work (R&D) of students is one of the most important forms of the educational process: scientific circles and conferences allow them to start full-fledged scientific work, find like-minded people on it, with whom they can consult and share the results of their research.

The main forms of research within the educational process are the performance of individual creative homework with elements of scientific research, scientific conferences, participation in competitions and Olympiads. The result of scientific activity is the presentation of scientific reports at scientific and practical conferences, which are a reporting form of work.

The work of the club is based on the developed methodology, which uses a single tool (software package SolidWorks) as a means of training in all technical disciplines: solid-state 3D-design in the first courses of study (SolidWorks), engineering calculations (SolidWorks applications) – on the latter.

An important reason for choosing the basic product SolidWorks is the presence of a program to support educational institutions, of which Khmelnytskyi National University is a member. The program provides regular system updates, technical support and methodological support [1].

The basic system SolidWorks allow you to improve the quality of training of engineering specialists in accordance with modern requirements.

So, the circle is organized to reveal the creative potential of students and is a continuation of the discipline "Engineering and computer graphics": after creating a solid-state model, working drawings of a part or assembly with images of the main types, projections, affixing of dimensions and designations are automatically obtained. Based on the acquired knowledge, skills and abilities at SolidWorks, there is a further in-depth study of the possibilities of 3D-design, which is used in the disciplines "Theoretical mechanics", "Resistance of materials", "Theory of mechanisms and machines", "Machine parts", implemented with strength, stable, fatigue, kinematic calculations [2].

And then – the use of SolidWorks in the study of special disciplines: "Cars", "Automobile engines", "Diagnostics and repair of cars", "Repair and restoration of machines", "Computer support of recovery processes", "Information technologies in road transport".

Mandatory elements of research are:

- static analysis [3];
- analysis of the stress state of the model to save its material [1];
- the influence of changing the size of the elements of the part and the removal of material from it on the safety factor [1];
- the possibility of replacing the material of the most loaded part [3];
- sensing of stresses at critical points [3];
- fatigue strength in dangerous cross section [1];
- possible loss of stability [1];
- maximum load (with the assumption of linear static analysis), which can withstand the simulated part at a given minimum (permissible) safety factor, without collapsing [1];
- the influence of changes in the load direction on the stability of parts and the quality of the grid on the accuracy of calculations [1].

The use of SolidWorks causes increased interest in creative tasks, the opportunity to test your knowledge and get qualified advice. In addition, SolidWorks increases the possibilities of setting educational tasks and managing the process of their implementation, involves

students in the educational process, contributing to the widest disclosure of their abilities, enhancing mental activity.

To eliminate possible "gaps" in the knowledge of students and achieve a high quality of knowledge, it is possible to participate in a permanent SNK and hold conferences remotely.

The accumulated experience of using the SolidWorks complex in the educational process makes it possible to successfully perform course and diploma projects of varying complexity. As a result, graduates receive a sufficient level of theoretical and practical training for the demand in the labor market.

References

1. Центр SolidWorks факультету інженерної механіки. URL: http://solidworks.com.ua.
2. Рудик О. Ю. SolidWorks – CAD/CAE-система технічних вузів / О. Ю. Рудик, П. В. Капитн // Science, society, education: topical issues and development prospects. Abstracts of the 2nd International scientific and practical conference. SPC "Sci-conf.com.ua". – Kharkiv, Ukraine, 2020. – P. 249–253. – URL: http://sci-conf.com.ua/ii-mezhdunarodnaya-nauchno-prakticheskaya-konferenciya-science-society-education-topical-issues-and-development-prospects-20-21-yanvarya-2020-goda-harkov-ukraina-arhiv/
3. Рудик Олександр. Підготовка висококваліфікованих фахівців автомобілебудування на базі застосування SolidWorks / О. Рудик, В. Посполіта // Актуальні проблеми в системі освіти: заклад загальної середньої освіти – доуніверситетська підготовка – заклад вищої освіти : зб. наук. пр. матеріалів VI Всеукраїнської наук.-практ. конф., 9 червня 2020 р., м. Київ. Національний авіаційний університет / наук. ред. Н. П. Муранова. – Київ : НАУ, 2020. – С. 130–135. URL: http://elar.khnu.km.ua/jspui/handle/123456789/9297.

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MODERN METHODS OF TEACHING FOREIGN LANGUAGE STUDENTS: THEORIES, PRACTICES AND VIEWS OF STUDENTS ON NEW METHODS OF CLASSROOM ACTIVITIES

In the modern world of teaching a foreign language, whatever it may be, there are problems in the mutual understanding of the student and the teacher, because the student feels that there is no