

**DIGITALIZATION OF THE COURSE “CHEMISTRY OF POLYMERS”
FOR BACHELOR’S DEGREE STUDENTS IN THE PERIOD OF WAR***Zhylytova S. V.*¹, Eppe M.²¹Vasyl’ Stus Donetsk National University, 600-richchia Str., 21, Vinnytsia 21021, Ukraine²University of Duisburg-Essen, Universitaetsstr. 5-7, D-45117 Essen, Germany
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The period of the COVID-19 pandemic caused a total process of digitalization of the study process at all levels. One of the difficult tasks was to ensure full-fledged education in such conditions for students of natural sciences, in particular chemists. The experience gained by Ukrainian universities during that period was used after the start of a full-scale war, which was unleashed by the Russian Federation on February 24, 2022. But compared to the period of the pandemic, training during the war has several features that complicate the process of knowledge transfer. The main goal of this work was to show the main approaches that were used to organize the educational process of undergraduate students (specialty “Chemistry”) at Vasyl’ Stus Donetsk National University (Vinnytsia, Ukraine) during the war in the country.

The course “Chemistry of Polymers” was held for the bachelor’s degree students (study programmes “Chemistry”, “Biochemistry”, 4th year of study) from September to December 2022. The syllabus includes both lectures and laboratory classes. The educational process was organized in a mixed mode for students who study “Chemistry” and need real experiments to improve existing and acquire new skills for work in the laboratory.

The main difficulties caused by the war were: periodic air alarms which could sometimes last for several hours (during an air alarm, classes must be interrupted, students and lecturers must take shelters), lack of electricity and internet. To ensure the most effective process of studying the lecture material, including the period of self-training, all educational materials are placed on the following platforms: Faculty portal (Microsoft SharePoint), Microsoft Teams group, Moodle. The online lectures were conducted through MS Teams. To facilitate the assimilation of the theoretical material, the lectures were accompanied by MS PowerPoint presentations. For some topics, students watched and discussed short videos. Since sometimes, due to long blackouts in different parts of the city or air alarms, the classes could not be held online as scheduled, the lectures were also recorded in the form of videos on the MS Teams platform, with the possibility of students viewing them in an asynchronous mode.

Verification of theoretical knowledge was carried out through testing on the Moodle platform and oral colloquiums (the results of such different ways of knowledge control correlated). Students also had the opportunity to check the level of learning of the material for each topic thanks to self-monitoring test tasks at Moodle platform.

A feature of theoretical training in the discipline this academic year was the mentorship of a partner lecturer from the University of Duisburg-Essen. Professor Dr. Matthias Eppe accompanied the study process with consultations and gave the open lecture for students on the topic “Polymers as biomaterials” via ZOOM. Such approach let all the participants of the educational process get new knowledge. The implementation of the principle of “learning through research” is especially important for students, because from the examples given in the lecture, they could understand that theoretical knowledge is the basis of scientific work.

Thus, the applied approach of combining the mixed learning mode, including the possibility of asynchronous teaching of theoretical material, self-assessment through testing, teaching of the material by a guest lecturer, etc., led to the successful completion of the course by all students.

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