ORGANIZING QUALITATIVE INTERACTIVE VIDEO COURSES IN THE HIGHER EDUCATION SYSTEM

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Abstract. *In the article, based on the materials on the fundamental, technical, and production sciences taught in the higher education system, as well as scientific materials related to today's current topics (energy, electricity, solar panels, etc.) the issue of preparing innovative interactive video courses by industry experts in the Uzbek language in a quality format and delivering them to the general public was raised. It is aimed to interest young people in science through quality education, to further improve the brand of higher education and the image of teachers in the society. The sequence and advantages of organizing interactive video lessons are shown.*

Keywords: *solar panels, physics, electronics, interactive video lesson, quality education.*

At a time when science, technics and technology are not developing with big pictures, it is necessary to organically enrich the subjects taught in the higher education system with new materials, introduce new courses, and use modern educational technologies and methods. This is one of the most important issues facing professors and teachers in the higher education system.

Currently, there is increasing interest in such sciences and fields as renewable energy sources, solar energy, hydrogen energy, nanotechnology, programming in electronics, and artificial intelligence. It is necessary to regularly deliver understandable, scientifically based, new materials to students using interactive methods.

The promising direction of the development of modern education is the organization of educational activities by creating an information-communication educational environment [1, 2]. The use of modern technologies in the higher education system has wide possibilities.

In the period when the Internet and intellectual development play a decisive role, it is possible to quickly penetrate the minds of students and interest them in science by using modern information and communication technologies in the educational process [3, 4]. In this case, it is appropriate to prepare interactive video lessons on subjects.

In addition, special emphasis is placed on the use of "blended learning" and "flipped classroom" educational technologies in the higher education system.

In general, the interactive video lesson is the most effective and methodological alternative. Video lesson is a complete, thematically and methodologically completed stage of the educational process presented in video form.

According to the presentation form and methodological content, the following types of video lessons can be distinguished [5]:

- video recording of the speaker (lecturer, teacher lecturing or teacher explaining the material in the frame);

- live video recording of the lesson (video recording of the lesson prepared in real auditorium conditions);

- studio video lesson (staged lesson recorded in the studio);

- slide film (video sequence with sound);
- interactive video tutorial.

In order to ensure high-quality education and scientific research, the Tashkent State Technical University "Digital Electronics and Microelectronics" department is preparing video lessons on subjects taught to undergraduate and graduate students. In this case, the video lessons are recorded in a high-quality (HD, 4K) format in an interactive video studio.

In this case, the sequence of organization of work is defined as follows:

1. A textbook is prepared based on modern pedagogical technologies and materials and scientific innovations that provide fundamental knowledge of science;
2. On the basis of these materials, interactive presentation materials on each lecture, practical and laboratory topic of science are prepared in the jalinga studio program;
3. Video lessons are prepared;
4. Video lessons are posted on the YouTube platform, Telegram channel (personal channel of the University, department or teacher);
5. Links to video lessons are attached to subject databases in the university's hemis system.

The advantages of organizing the use of quality video lessons in the higher education system are as follows:

- students can preview the educational programs and get acquainted with the content of the courses. Thanks to this, communication with the teacher will be more meaningful;
- visual explanation of fundamental information and technological processes through video lessons and the ability to quickly deliver them to students increases;
- students can listen to lectures in advance and come prepared for the lecture. This makes it possible to increase the efficiency of the lesson by exchanging ideas and arguing on various topics;
- creating an environment where the youth of the Republic, who are not university students, can easily acquire knowledge;
- it is also possible to prepare video lessons in foreign languages, and in turn, citizens of foreign countries may want to study in higher educational institutions of Uzbekistan after watching video content.
- Pedagogical skills of older, knowledgeable and experienced academicians and professors during lectures will be recorded on video and it will be possible to preserve them. These materials will be a ready-made guide for young pedagogues and will undoubtedly serve to improve the quality of education.

Currently, these works have been started by the author. A channel has been opened on You Tube and Telegram and more than 100 video materials have been uploaded [6], as well as attached to the Hemis system. Till this moment, video courses have been prepared in the following subjects (Fig. 1):

1. Physics and technology of solar cells;
2. Technologies for installing solar photoelectric plants;
3. Renewable energy sources;
4. Physics
5. Physics of semiconductors;
6. Technology of semiconductor devices and integrated circuits;
7. Applied electronics;

8. Nanoelectronics.

During one academic year, analytical research was conducted on the changes in students' learning and interest in science. The results showed that the use of interactive video lessons in the process of teaching students increases their interest in science and improves the quality of acquired knowledge. Organization of lesson processes in each subject using modern information technologies and video lessons creates a foundation for training quality personnel in the future.

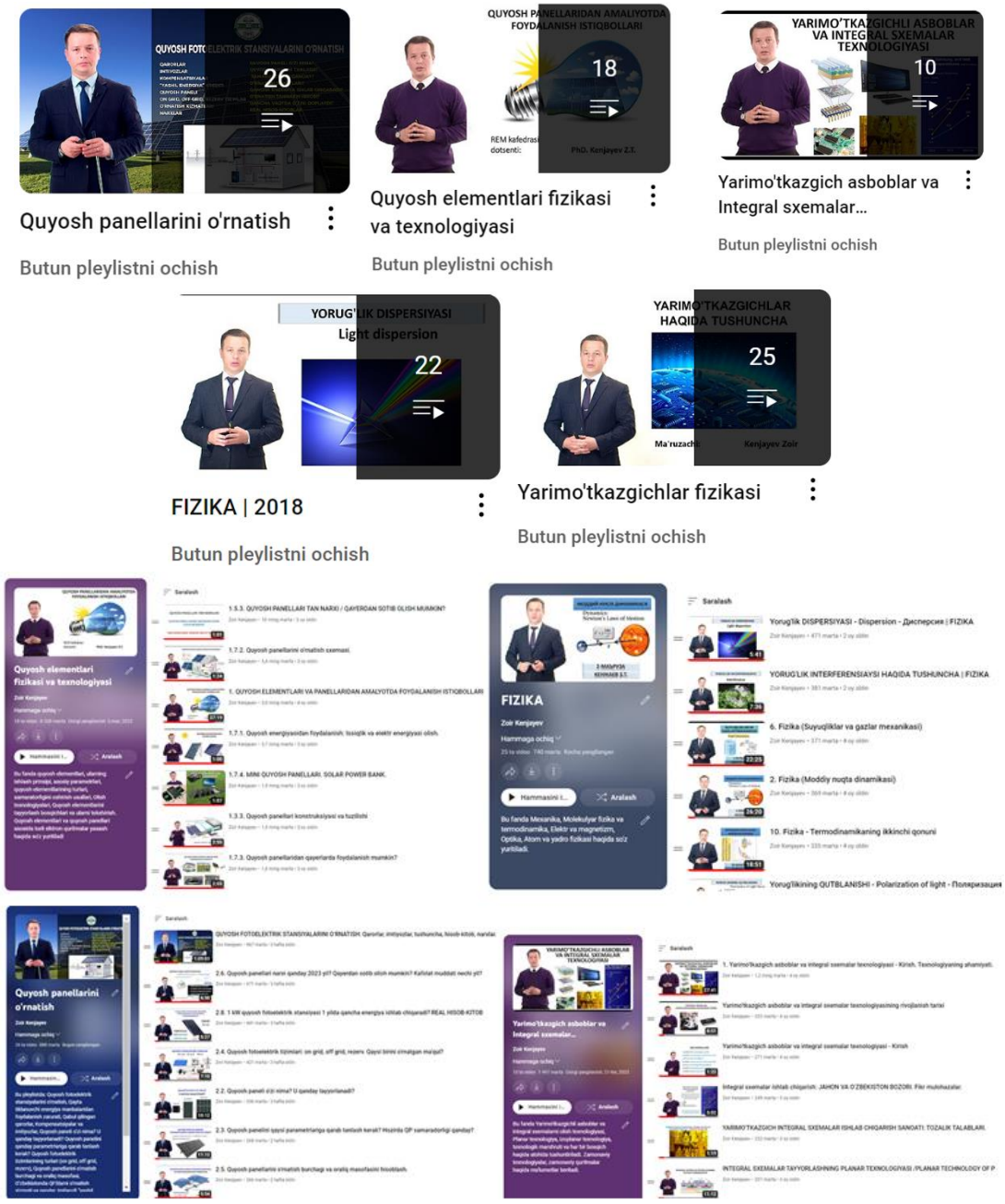

Figure 1. Information about video lessons prepared in science

Innovative interactive video materials and video courses by industry experts based on science-based materials related to the fundamental, technical, and industrial sciences taught in the higher and professional education system, as well as current topics (energy, ecosystem, scientific research, etc.) preparation in Uzbek language in a quality format and conveying to the general public, will serve to make young people interested in science in the future, to further improve the brand of higher education and the image of the teacher in the society. Our people learn science

from us, not from abroad, and it will increase the number of people interested in our country from the neighboring CIS countries.

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