# USING THE FRAME MODEL TO ASSESS DISTANCE EDUCATION STUDENTS IN PHYSICS

**Khalilov S.S.**
Department of Physics of the Tashkent University of Information Technologies named after Muhammad al-Khorazmiy (TUIT). Ministry for the Development of Information Technologies and Communications of the Republic of Uzbekistan
***https://doi.org/10.5281/zenodo.11402778***

***Abstract****. Information technologies are widely used in the teaching of physical and natural sciences in distance education. We will talk about the problems and their solutions in monitoring and evaluating students' knowledge using the frame model in the teaching of electromagnetic vibrations and waves of physics.*

***Keywords****: distance education, Frame model, frame, electromagnetic vibrations and waves, technology.*

Introduction. Order No. 233 of the Ministry of Higher and Secondary Special Education dated March 27, 2020 "On the introduction of distance education in higher education institutions", Education of the Republic of Uzbekistan was approved by the legislative chamber on August 7, 2020, which is information and communication of the necessary knowledge, skills and skills of learners in accordance with curricula and training programs in distance education aimed at remote access using technologies and the Internet global information network [1-3].

It has become the center of the legal foundations of fundamental changes in the field of education in Uzbekistan. According to this law, the creation of new higher educational institutions in the regions, the opening of modern education and specialization areas for personnel training, as well as the forms of correspondence, evening and distance education, and the increase of admission quotas became important reforms. Now, in the field of education, the introduction of modern forms of teaching, including modern mixed forms, is becoming more and more important [4-6].

The main part and discussion Based on our observations, interviews and question-and-answer, we divided the problems faced by distance learning students in the process of mastering physics into the following groups:

Low interest in attending online classes.

Making various errors when uploading given tasks to the elms.tuit.uz system.

- Cases of not being able to master tasks within the specified period.

To do this, we have developed the following measures to eliminate problems and shortcomings. Online physics classes for students studying in distance education are aimed not only at physics, but also at preparing them for the profession in their chosen fields, and in the future, they can apply the knowledge they have acquired from these subjects in the fields, and the formation of independent thinking skills. we paid attention. Since the first-year students do not have the skills to work with the system created for distance education, a person responsible for each course is attached. If students do not master the tasks within the specified period, they are given the opportunity to re-study the subject they failed to master, and the student can master this subject.

Distance learning students can be divided into the following categories:

Employees who have a permanent job, but do not have a higher education;

Women with young children;

Citizens with limited capacity (with disabilities);

Citizens temporarily deprived of liberty;

Foreign citizens:

In the 2022-2023 academic year, along with full-time and extramural forms of education, a form of distance education was introduced at the Tashkent University of Information Technologies named after Muhammad al-Khorazmi. Students were accepted for distance education in the computer engineering ("Computer engineering", "IT-service", "Multimedia technologies") and software engineering courses available at the university [7].

In this regard, a separate distance education faculty was established at the university, and educational programs (syllabus, video lectures, practical, virtual laboratories, e-textbooks, e-library, etc.) were developed by the professors of each subject. [8]. All educational content has been created and placed on the elms.tuit.uz system for students enrolled in distance education.

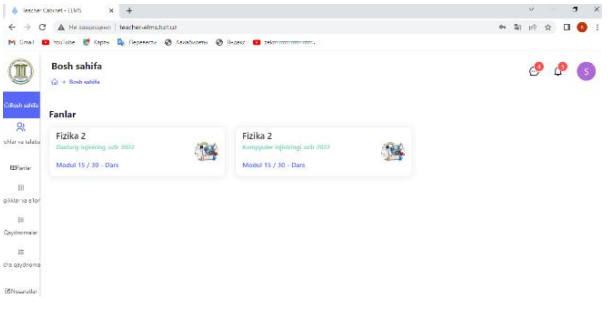


***Figure 1. working window of the professor-teacher.***

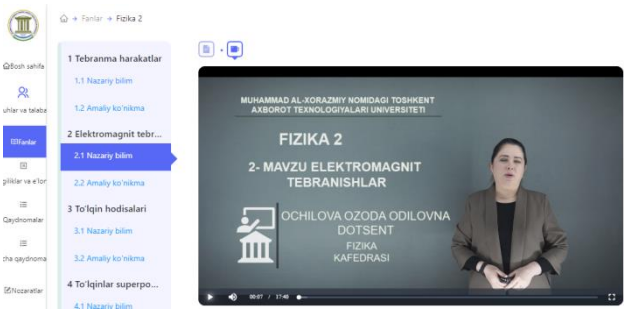


***Figure 2. A sample lesson organized on an online platform.***

Through this system, students have opportunities for independent study of each subject, and can download, read, and analyze information on their personal computers or smartphones. In order to control the students from each subject in the section of topics, the tasks of practical exercises for intermediate and current control are mastered in a row.

This creates an online environment, that is, communication between professors and students. At the end of a meaningful and interesting lesson, our students will have the opportunity to ask questions about topics that are interesting to them and that they have not mastered. If the rate of mastery of each subject by the students is high, it is natural for us to come to the conclusion that the classes were conducted by professors and teachers of high quality or that the educational information was made understandable and easy [9-10].

When introducing the frame model in the lesson, it is very important to be able to understand its essence and apply it. To do this, let's give information about what this model is and in what situations we can see its positive effect when it is used. Frame model (stands for frame, framework, table, and generalized block set). In this case, after mastering the topics, the student will feel as if he has fallen into a different environment for a while and remember his basic knowledge during the performance of theoretical questions and given tasks [7].

In the section of topics given to students in accordance with the Frame model, the tasks loaded into the system are placed in the system as a table, frame and a generalized block set. Researching theoretical and practical issues in teaching the "Electromagnetic Oscillations and Waves" section of physics in distance education. In the process of teaching the topic "Electromagnetic vibrations and waves", recommendations and concepts are given on how to use the Frame model in the lesson using modern pedagogical and information technologies. Using the

Frame model of given tasks, it is necessary to create a problem situation in the minds of students and independently think about its solution and find solutions to questions.

The use of innovative technologies and the effective use of the Frame model in the teaching of "Electromagnetic Vibrations and Waves" guarantee the following:

1. Achieving a technological approach in teaching the topic "Electromagnetic vibrations and waves".

2. Increasing the effectiveness of organizing lectures, seminars, distance learning independent education in teaching the topic "Electromagnetic vibrations and waves".

3. The following should be followed when using the Frame model to cover the topic "Electromagnetic vibrations and waves". In the frame model, the student tries to think in order to master the given topic. The table and the scheme of the frame model describe the data related to the subject in the following form.

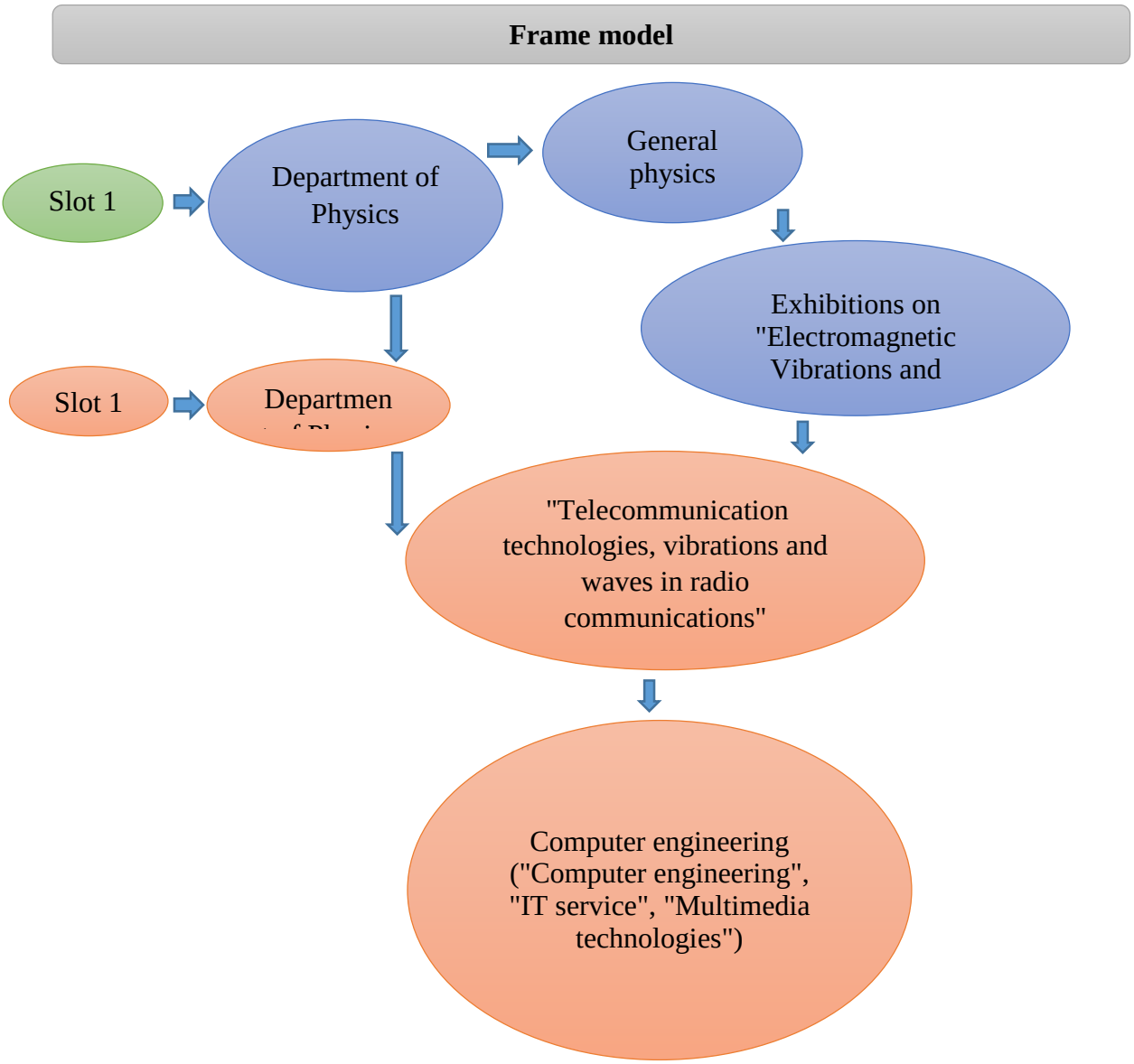


***Figure 3. Dependence of Frame model on physics***

| | | | | |
|---|---|---|---|---|
| Slot 1 | Department of Physics | General physics course | Professors and teachers of the Department of Physics | Exhibitions on "Electromagnetic Vibrations and Waves". |
| Slot 2 | Technical education directions | Computer engineering ("Computer engineering", "IT service", "Multimedia technologies") | Students | "Telecommunication technologies, vibrations and waves in radio communications" |
| | | Software engineering | | |

The slot 1 is explained to the professors and teachers of the Department of Physics by means of exhibitions related to the subject to the extent of students' independent thinking, knowledge and mastery of science.

Slot 2: Computer engineering ("Computer engineering", "IT-service", "Multimedia technologies") and software engineering faculty students of the subject of physics "Electromagnetic vibrations" and "Electromagnetic waves" Frame model is interesting to explain through. It is a convenient opportunity for distance learning students to learn physics independently based on the table and scheme in the Frame model. Students studying in the form of distance education significantly increase the efficiency of knowledge acquisition, which is relevant [6].

Conclusion: In conclusion, it should be said that in the above table and scheme, the main goal was to draw the attention of students of technical education by reflecting their interest in physics in the Frame model. The direction of technical education is given to students as a logical task in teaching physics, using the Frame model in the form of tables and diagrams. According to the table and scheme given in the frame model, the student should pay attention to the content of the given topic and independently think, analyze and master it while performing the tasks step by step.

**REFERENCES**

1. Xalilov S.S., Suyarov K.T. “Strengthening students' knowledge of physics in the conditions of distance education through the Freim model”. Science and innovation international scientific journal volume 1 issue 7 uif-2022: 8.2 | issn: 2181-3337. Toshkent -2022. №7. –P. 1570-1573.
2. Xalilov S.S. “Organization of independent education through modern information technologies in physics in distance education” Progressive academic Publishing, UK page 56 https://www.idpublications.org/wp-content/uploads/2023/11/Full-Paper-Organization-of-independent-education-through-modern-information-technologies-in-physics.pdf European Journal of Research and Reflection in Educational Scienal Vol. 11 No.4, 2023 ISSN 2026-5852
3. Xalilov S.S. “Organization of virtual laboratory learning with using the Frame model”. Science and innovation international scientific journal volume 2 issue 3 march 2023 uif-2022: 8.2 | issn: 2181-3337 Toshkent -2023. №2. –P. 567-573.

4. Xalilov S.S. “Evaluation of students using Frame model in teaching physics in distance education”. Galaxy international interdisciplinary research journal (giirj)issn (e): 2347-6915vol. 11, Issue 04, April(2023).
5. Xalilov S.S. "Organization of independent education using modern educational technologies" Bulletin of Gulistan State University. Humanities - social sciences series, 2023. № 4 (105). “Universitet” publishing house, Culiston -2023. ISSN 2181-7367 E-ISSN 2181-1172. 25.12.2023 -P.(26-29)
6. Xalilov S.S. "Development of students' independent thinking skills" "Education and Innovative Research" Bukhara 2023 https://www.interscience.uz/index.php/home
7. № 12 (18.12.2023) B -323-327
8. K.P.Abduraxmanov, Sh.X.Ismoilov, B.Ibragimov, S.S.Xalilov, "Using the Oberbeck Pendulum as a Physical Pendulum in the Study of Oscillating Motion." "Physics, Mathematics and Informatics" magazine. 2020 year. Number 1.-P. 99-103
9. Э.З. Имамов, Х.Н.Каримов, С.С.Халилов, А.Э.Имамов // Будущее за обучением с активным процессом самообразования студентов // “Science and innovation” International scientific journal. (ISSN: 2181-3337) 2022. № 5.-С. 479-482. URL: //cyberleninka.ru/article/n/buduschee-za-obucheniem-s-aktivnym-protsessom-samoobrazovaniya-studentov/viewer
10. Xalilov S.S. "Improving students' knowledge of electromagnetic oscillations and waves using the Frame model". Tashkent University of Information Technologies named after Muhammad al-Khorazmi. Issues of application of innovative teaching technologies in conditions of digitization of higher education (ICT Edu 2024) Republican scientific and methodical conference, Tashkent, January 4-5, 2024, Collection of lectures Tashkent 2024. –P. 470-473
11. Xalilov S.S. "Independent mastery of physics for students of distance education technical direction". Tashkent University of Information Technologies named after Muhammad al-Khorazmi. Issues of application of innovative teaching technologies in conditions of digitization of higher education (ICT Edu 2024) Republican scientific and methodical conference, Tashkent, January 4-5, 2024, Collection of lectures Tashkent 2024. –P. 473-476