

Stances of students on use of platform for taking exams or colloquia at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić

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Abstract: *Development of new technologies, especially Internet, creates conditions for electronic education. The paper presents effect of using Internet as one of the means for taking exams or colloquia in certain subjects in the field of electrical and computer engineering at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić. Namely, the idea for writing this paper arose due to the fact that, to some extent, this type of communication with students already existed. After taking certain subjects in the field of electrical and computer engineering, research of students was done through a questionnaire. For purposes of this research, a survey questionnaire was used, which included a sample of 58 students. The goal of this research is to examine stances of students on perceived usefulness of the platform and its upgrade for taking exams or colloquia and for other scientific areas on all study programs used in the teaching process. At the end, obtained results were analyzed, based on which conclusion was drawn that students are satisfied with this type of communication as well as with quality of the platform itself.*

Keywords: *Internet; students; platform; taking exams; taking colloquia*

1. INTRODUCTION

Information and communication technologies (ICT further in the text) during only one human generation have revolutionary changed the way of life, learning, working and fun. ICT is increasingly transforming the way people, businesses and public institutions interact. Successful development of information society presupposes an appropriate level of knowledge and skills, both among experts in various professions and among all citizens. In addition to increasing the need for ICT skills, Internet has changed the way and dynamics of disseminating knowledge and information in all areas [1].

It can be said that online education offers great opportunities, but also great challenges. It is necessary to integrate ICT in all aspects of educational process, with the aim of more effective and efficient education [1].

The changes brought about by development of technology in education, have conditioned emergence of new forms and types of tasks that virtual teachers set for students, but also new methods for conducting testing and knowledge checking of students. The issue of checking and

testing students is one of the foundations of continuous process of quality improvement of educational programs conducted in online environment. Effectively organized and implemented system of testing students' knowledge directly affects the results of learning process and affects the organization and potential improvements of online education process [2].

Education is the pillar of development of every country, and therefore represents the basis of development and success of every country [3]. The need to introduce distance learning is now widely recognized as necessary in all instances of education, both in preschool and in primary, secondary and higher education institutions around the world [4], [5].

Students see the main advantage of the traditional way of studying in face-to-face communication with professors, which they consider effective when adopting materials during their studies. However, existence of Internet has changed nature of educational process, and modern network technology has improved ability of people around the world to communicate and has become a necessary educational tool [6], [7].

Testing and grading students through a platform that can be an integral part of e-learning content can be seen as a separate process. The convenience of this approach is reflected in time and space dimension, cost-effectiveness and its flexibility.

The paper is organized as follows: the first part of the paper will show the part of platform that relates (uses) for exams or colloquia in certain subjects in the field of electrical and computer engineering. The second part of the paper will deal with attitudes and experiences of students, as well as the application of this platform at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić.

2. PLATFORM FOR TAKING EXAM OR COLLOQUIA

Computer-oriented learning is the so-called type of e-learning. With development of Internet technologies, e-education, as one of the areas of e-business, is becoming a significant component of continuing, primary, secondary and higher education [8]. E-learning is an application or set of applications that delivers educational content via computer and includes, among other things, simulations and testing. By one name such applications are called educational software [9].

The very thought of the word education in today's world implies the use of different types of platforms (whether ready-made or newly made).

This type of testing and assessment of students' knowledge in many higher education institutions is an integral part of the teaching process [2].

The paper used a platform whose creators are authors of this paper, and which was used to take exams or colloquia in field of electrical and computer engineering. Namely, at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić, classes are held on accredited study programs in the following areas: electrical and computer engineering, mechanical engineering, traffic engineering, environmental engineering and occupational safety and philological sciences.

At the very beginning of this idea, it was assumed that the best is to make a platform only for the field of electrical and computer engineering. If it turns out that this idea received a positive response from questioned students who took exams or colloquia in the mentioned field, then it is possible to proceed with upgrading platform for other scientific fields in all study programs at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić.

The platform, which was developed for the field of electrical and computer engineering, is available on the Internet on the day of taking the exam or colloquium after the permission of the

administrator and logging in the student after obtaining access codes.

After that, a dialog box will appear with the following information: name, surname, E – mail, role, date of birth, registered since, last access, as well as review of results on exams or colloquia, figure 1.

It is necessary to point out the fact that this way of taking exams or colloquia is only possible in the accredited premises of the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić.

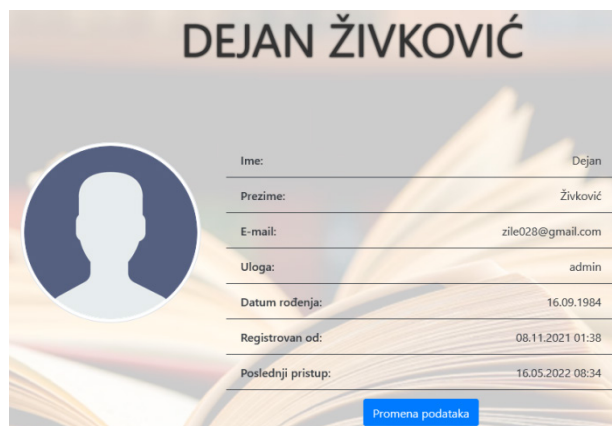
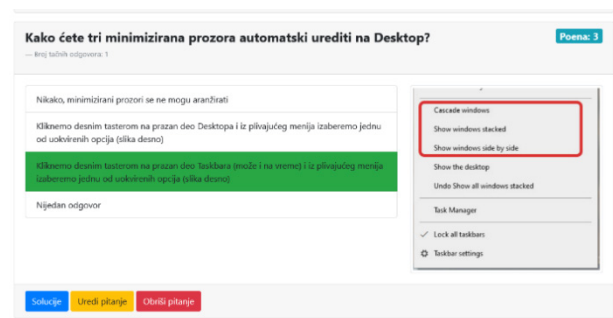
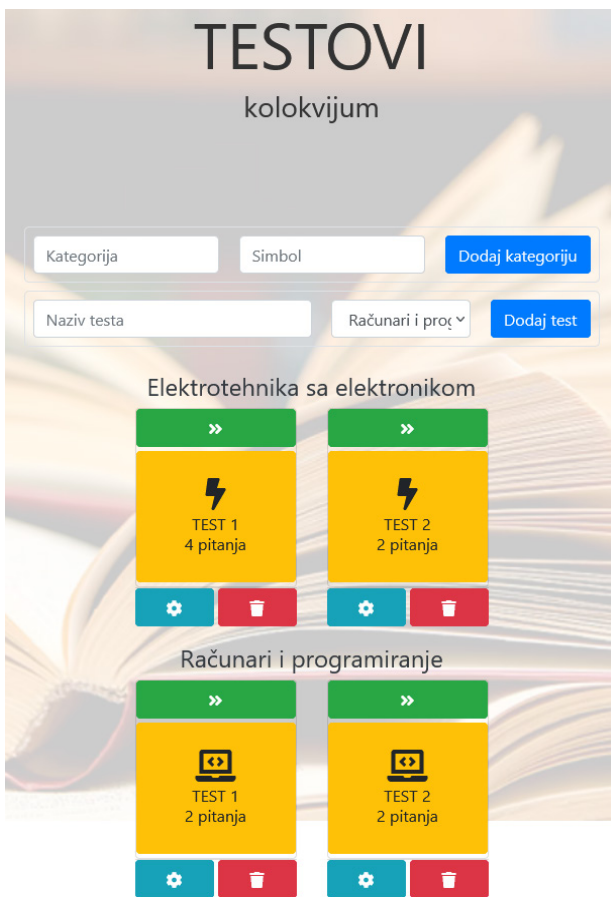
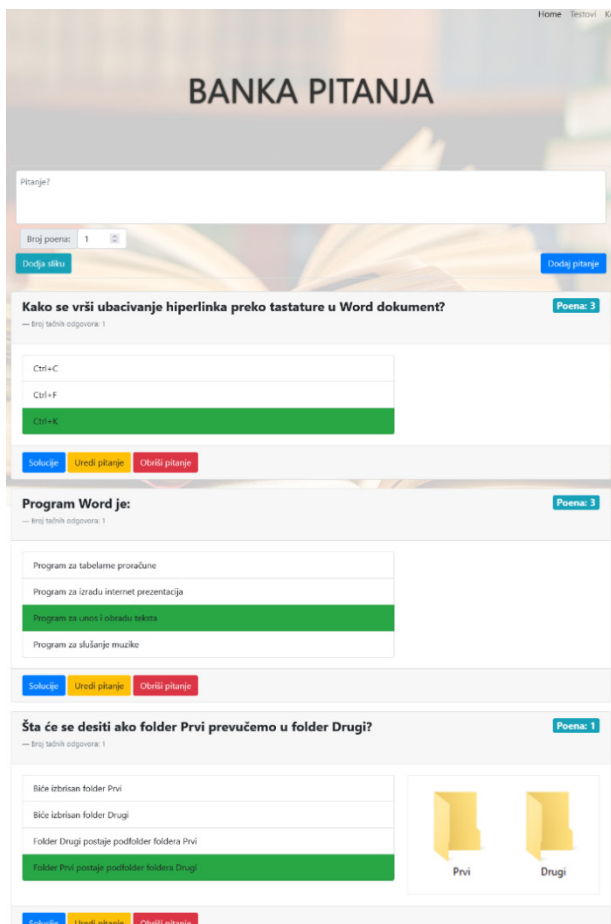
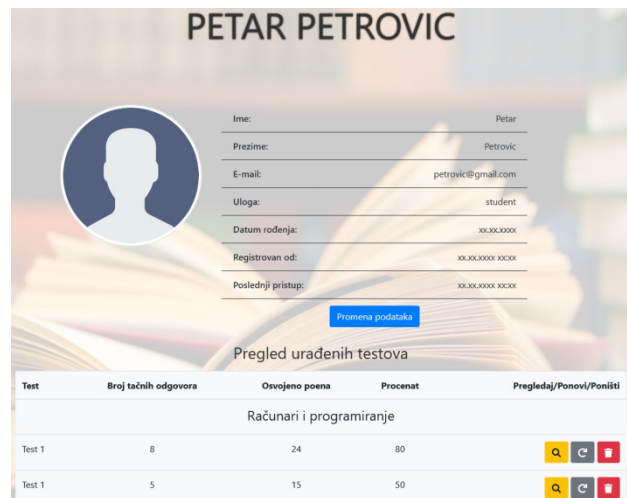


Figure 2 shows the layout of a page that contains tests to test knowledge for an exam or colloquium in a particular subject in the field of electrical and computer engineering. The process of testing knowledge is observed not only through the application of different types of tests, but also as a function of multiple assessment and student progress.

The platform can be constantly upgraded with new questions and tasks that are placed in the question bank and which are automatically redistributed by a later call to the fields of exam or colloquium and appear differently at random for each student who takes the course, figure 3. Subjects can be accessed from several computers at the same time (platform is defined so that maximum number of students to take is 20 - number of students who are allowed by the Accreditation Standards to work in computer centers).

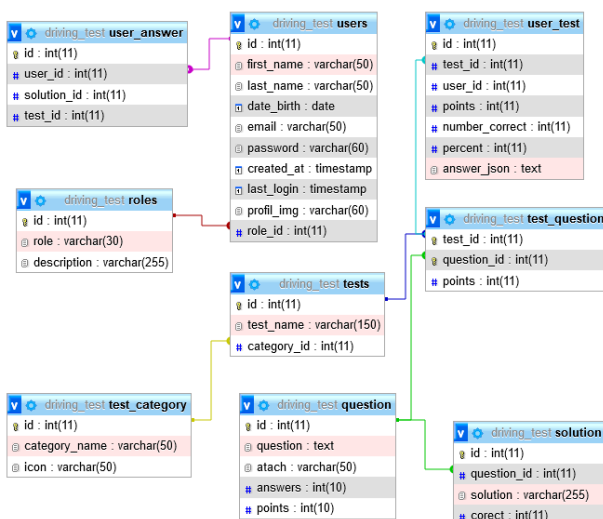


The platform can be accessed as an administrator or user. In case of access to platform as an administrator, the same has access to all parts of the platform (access to all students who took certain courses), while the user property is limited and it is possible to access only to their results of exams or colloquia, figure 4.



The exam or colloquium can be taken by filling out correct answers to questions asked (it is possible to complete one or more correct answers to the questions or tasks asked (multiple-choice questions)). After completing the exam or colloquium, clicking the END button shows results that are automatically printed on the screen of student in the form passed with or failed with a grade of five, figure 5. Exam or colloquium can be done only once in the scheduled time.

Finally, we will mention that platform was made in PHP, and MySQL was used as a database. Structure of database in which all information about users, tests, test results is stored, is shown in figure 6.



3. RESEARCH METHODOLOGY

For the purposes of this paper, a survey was conducted at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić, through a questionnaire. The survey was conducted anonymously, where respondents gave answers to questions by circling only one of the few offered answers or supplementing certain answers. The survey questionnaire was compiled on the basis of similar survey questionnaires used for this purpose [2], [7], [10].

The survey questionnaire was created with the aim of being rational (for use and understanding), reliable and structured through questions that do not require too much time to fill out. It took 5-10 minutes to fill out the questionnaire.

The research was conducted during the summer semester of the school year 2021/2022. year, and it included 58 students who took exams or colloquia in the school year 2021/2022. year in the field of electrical and computer engineering (20 students who took exams and 38 students who took

colloquia). The research was carried out directly through the printed form of survey questionnaire.

Survey questionnaire contained 17 questions and consisted of three parts.

The first part of the questionnaire contained three questions and related to questions concerning basic data about students (gender structure, age, completed high school).

The second part of the questionnaire also consisted of three questions and related to questions that define the student's study process itself (study program, year of study, subject).

The third part of the questionnaire (11 questions) was related to the effect of using platform for taking exams or colloquia and their advantages and disadvantages as a new form of communication between teachers and students.

Research conducted through a questionnaire using a platform for taking exams or colloquia will reveal students' attitudes towards e-learning and use of the platform for those purposes. It can also serve as a paradigm of e-learning related to the use of ICT, i.e. new methods for conducting testing and checking their knowledge and skills (through the platform) through digital technologies.

4. RESEARCH RESULTS AND DISCUSSION

The idea for writing this paper arose because there is already communication between teachers and students via the Internet at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić in the form of Moodle platform and Microsoft Teams platform.

The survey questionnaire consisted of questions that were formulated in the form of closed questions (yes-no questions, circling one of several offered answers) and open questions, table 1. Open questions were questions formulated in the way, to which the respondents-students gave their opinions (example: List the advantages/disadvantages of taking exams or colloquia via platform or How this way of taking exams or colloquia via the platform affected you).

The first part of the survey questionnaire, table 1, which refers, among other things the gender and age structure of students, is in full agreement with data available to the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić, which are in its information system.

Namely, of the 58 student respondents included in the survey, 82.8% were male, while 17.2% were female. It is interesting to note that age structure of students was as follows: 86.2% of students are between 18-23 years of age, 12.1% of students between 24-28 years of age and only 1.7% of students between 29 and more years of age. Based on this data, it is possible to assume that in the final report, a high percentage of student respondents

will support this way of taking exams or colloquia, given the fact that at previous levels of education they encountered communication via Internet.

Table 1. The first part of the survey questionnaire

No.	Question	Answers offered	Answers of students	
			Numerical data	Percentage data (%)
1.	Gender structure	male	48	82.8
		female	10	17.2
2.	Age of life	18-23	50	86.2%
		24-28	7	12.1%
		29 and higher	1	1.7%
3.	Finished secondary school	High school	28	48.3%
		Technical school	26	44.8%
		Other	4	6.9%

The second part of questionnaire, table 2, showed that all study programs and subjects from which exams or colloquia are taken in mentioned department are equally represented.

Table 2. The second part of survey questionnaire

No.	Question	Answers offered	Answers of students	
			Numerical data	Percentage data (%)
1.	The study program attended by the student	Opened question	-	-
2.	The year of study	The first	35	60.3%
		The second	15	25.9%
		The third	8	13.8%
3.	Subject to be taken	Opened question	-	-

The third part of survey questionnaire, table 3, was designed to deal exclusively with platform for taking exams or colloquia. From questions to which respondents- students gave an answer that is interesting for this research, we will single out a few:

To the question "Have you encountered this way of communication via computer (Internet) between teachers and students in your previous education" only 5 students (8.6%), figure 7, gave a positive answer, four of whom are satisfied with the results achieved on the test. All 5 students had a positive attitude regarding the use of computers for taking exams or colloquia.

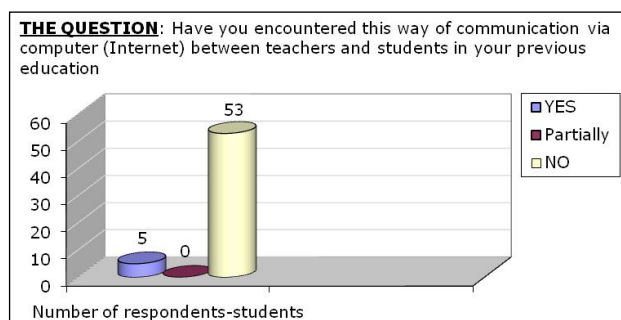


Figure 7. Communication between teachers and students using computers (Internet)

Analyzing the answers to the question: "Are you for taking exams or colloquia in the traditional (classical) way or for taking platforms", as many as 81% of student respondents said that platform gives priority to taking exams or colloquia. 19% of them voted for the traditional (classic) way of taking exams or colloquia (face-to-face or classic tests).

Also, this question was supplemented by additional scales of 1-4, namely: 1 - expression of knowledge, 2 - motivation, 3 - communication with teacher, 4 - availability of test results where respondents stated which criterion they prefer over traditional (classical) way of taking an exam or colloquium or through a platform.

Figure 8 shows the answer to this question.

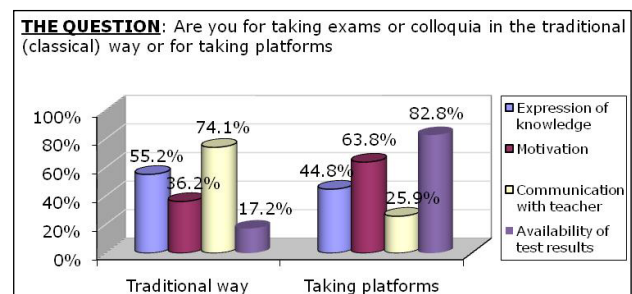


Figure 8. The relationship between traditional (classical) way of taking an exam or colloquium or through a platform

Table 3. The third part of survey questionnaire

No.	Question	Answers offered	Answers of students	
			Numerical data	Percentage data (%)
1.	Are you satisfied with the quality of the computer equipment used for taking the exam or colloquium through the platform	Yes No	41 17	70.7 29.3
2.	Have you encountered this way of communication via computer (Internet) between teachers and students in your previous education	Yes No	5 53	8.6% 91.4%
3.	Are you for taking exams or colloquia in the traditional (classical) way or for taking platforms	Traditional way Taking platforms	11 47	19% 81%
	1 - expression of knowledge	Traditional way Taking platforms	32 26	55.2% 44.8%
	2 - motivation	Traditional way Taking platforms	21 37	36.2% 63.8%
	3 - communication with teacher	Traditional way Taking platforms	43 15	74.1% 25.9%
	4 - availability of test results	Traditional way Taking platforms	10 48	17.2% 82.8%
4.	Indicate the extent to which computer skills are required to take the exam or colloquium through the platform	Open question	-	-
5.	Your suggestions on how students can be motivated for the idea of taking an exam or colloquium through platform	Open question	-	-
6.	How did this way of taking an exam or colloquium via platform affect you?	Open question	-	-
7.	List the advantages/disadvantages of taking the exam or colloquium through the platform	Open question	-	-
8.	Are you in favor of upgrading platform for taking exams or colloquia and for other scientific fields in all study programs?	Yes No	51 7	87.9% 12.1%
9.	Can this kind of examination take root in our country?	Yes No	35 23	60.3% 39.7%
10.	Are you aware that other Academies of Applied Studies in the Republic of Serbia use this way of taking exams or colloquia	Yes No	5 53	8.6% 91.4%
11.	Questions about the quality of platform-software (average value of all three parts of question)	Yes Partially No	140 14 20	80.5% 8% 11.5%
	1 - the software is fast enough	Yes Partially No	47 3 8	81% 5.2% 13.8%
	2 - the layout of software commands is logical	Yes Partially No	42 9 7	72.4% 15.5% 12.1%
	3 - it is easy to switch from one question/task to another	Yes Partially No	51 2 5	87.9% 3.5% 8.6%

Based on the obtained results, we can conclude that the biggest difference was achieved on scale 4 - the availability of test results, where as many as 82.8% of student respondents preferred the platform. What is interesting to point out is that respondents-students for scale 3 - communication with teacher gave preference to the traditional (classical way) of taking exams or colloquia (74.1%). This is not surprising because communication with the computer is unavailable in relation to the available living words of teachers and students.

Based on figure 8, we can conclude that student-respondents have largely preferred to take exams or colloquia via platforms in relation to the

traditional (classical) way. This is because online testing has significant advantages in terms of ease of use, reliability, speed of availability of test results, data management, etc.

To the question "Are you aware that other Academies of Applied Studies in the Republic of Serbia use this way of taking exams or colloquia" respondents-students in large numbers (91.4%) answered that they are not familiar, while 8.6% of respondents-students answered that they are familiar with the manner of taking exams or colloquia at other Academies of Applied Studies in the Republic of Serbia.

The last question in the questionnaire referred to the quality of platform-software used to test the

knowledge of student-respondents for taking exams or colloquia and consisted of three parts: 1 - the software is fast enough, 2 - the layout of software commands is logical and 3 - it is easy to switch from one question/task to another. Figure 9 graphically shows responses of respondents-students to this question (the graph is a sublimation of all three parts of question).

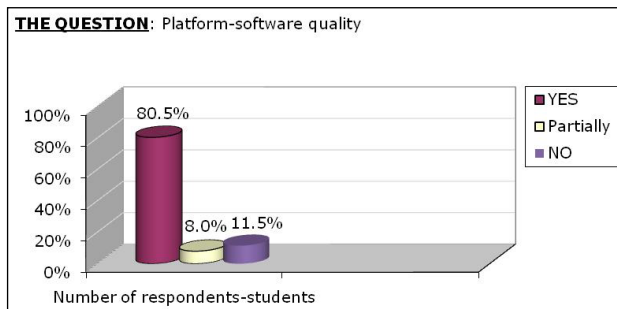


Figure 9. Platform-software quality (average value of all three parts of question)

Based on figure 9, we can conclude that respondents-students are very satisfied with the quality of platform-software because the highest percentage, 80.5% of them answered in affirmative. Only 11.5% of student respondents are dissatisfied with the quality of software platform, while 8% are partially satisfied.

Students gave similar answers to open questions. Based on given answers, we can draw conclusion that respondents-students highlighted as a special advantage the fact that they are already familiar with various software packages (platforms) and the use of Internet, which contributes to increasing their motivation in learning and taking courses in the field of electrical and computer engineering. ("I certainly spend a lot of time at the computer, so it's often easier for me to learn a lot").

Comparing the obtained results of this research with research of other authors [2], [11], [12], we conclude that the answers are in direct correlation. Almost the same conclusions are reached, the most significant of which is that today many tests have been developed to assess students' knowledge, which are performed with the help of computers.

The main advantages of this way of assessing students' knowledge are: individual test for each individual, increased test security (because it is not known which questions the student will get), the possibility of setting the time and setting a wide range of different types and difficulty of questions, faster testing while achieving of the same level of confidence, giving accurate results for students with a wide range of knowledge, etc.

5. CONCLUSION

Students' knowledge is usually tested in higher education institutions in the traditional (classical) way, either orally or through tests on paper. However, recently, the test of knowledge with help of computers has become topical, where many ready-made tests for taking exams or colloquia in various fields are available.

Based on the analysis of surveyed students who took exams or colloquia in certain subjects in the field of electrical and computer engineering through this type of platform, we can conclude that it has received a positive response and that it is necessary to hire more professionals to upgrade it for others scientific fields in all study programs studied at the Academy of Applied Studies of Kosovo and Metohija, Department Uroševac – Leposavić.

This reaffirmed the slogan that information and communication technologies are indispensable in today's era of informatics and that they have taken precedence in all spheres of education.

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