

В данной работе мы приводим типичные тестовые задания, которые могут быть использованы учителями математики при подготовке к внешнему независимому оцениванию. К каждому из этих задач приведены полное решение и методические комментарии, в которых мы делаем акцент на их характерных особенностях. Особое внимание при этом уделено задачам на установление соответствия и задачам с полным объяснением, поскольку по статистике при выполнении задач именно этих типов учеников допускают наибольшее количество ошибок. Мы считаем, что предложенные в данной работе методические рекомендации будут способствовать обеспечению качественной подготовки к ВНО по математике учеников украинской старшей школы.

**Ключевые слова:** ВНО по математике, ГИА по математике, ученики старших классов, учебные достижения по математике, задания на установление соответствий, задачи с полным объяснением.

**Shkolnyi O., Zakhariychenko Y. Solving of typical test items during the preparation to IEA in mathematics.**

*In connection with returning for EIA function of the SFA the preparation for it has become more actuality under modern conditions. Furthermore, the items with full explanation are returned to IEA test in mathematics, which were absent for a long time. As a result, many teachers have changed his method of preparation for IEA in mathematics, and is now forced to look for new ways to restore the lost positions. In this paper we present typical test items, which can be used by teachers of mathematics in preparation for independent external assessment. Complete solution and methodical comments for each of these tasks are given. In the mentioned above comments we pay much attention to their especial characteristics. Particular attention is paid to the items for finding of logic pairs and problems with a full explanation, because according to statistics in meeting the objectives of these types of students allow the greatest number of errors. We believe that the guidelines proposed in this paper will help to ensure quality training for IEA in mathematics for Ukrainian pupils of senior school.*

**Keywords:** IEA in mathematics, SFE in mathematics, pupils of senior school, learning achievements in mathematics, items for finding of logic pairs, items with full explanation.

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## **INTERACTIVE APPROACHES FOR EDUCATION THROUGH WEB - BASED METHODOLOGICAL PLATFORM**

*This paper presents an approach concerning the application of the Internet platform in training students acquire teaching qualifications Teacher of Mathematics, Informatics and IT. The approach is linked to the implementation of several active method through which students develop lessons, work files and didactic materials. Develop their knowledge and skills in individual and group tasks, they probed various assumptions, opinions and ideas related to the presentation of educational content. In the author's platform published at web-palatform.info realized major opportunities for synchronous and asynchronous training, supporting the learning process. Presented are a few images from the app and shared some of the future plans for the development of the platform.*

**Keywords:** education, math, informatics, IT, e-learning

Educational reforms and constantly changing curriculum, the lecturers are placed in a situation of continuously improvement of its own skills and competences. In recent years, apart from statutory changes, there are highlighted many changes related to the digitization of the classrooms at school. Many schools have developed new computer labs and mounted interactive boards, but for many teachers it was provide assistive technologies to facilitate the work.

This rapid innovation in education, provides premises to the university professor to change parts of the educational content related to the disciplines of pedagogical rate [1, 2, 6]. Also having abroad overview of the educational tools of the most preferred publishing among teachers. And to be fully prepared for the teaching profession, it has to have the necessary dose of technical and methodological expertise, teaching in traditional classroom and in modern computer lab as well [7]. The aim of the article is to show that the implementation of a web based platforms of students with teaching qualifications and novice teachers will contribute to their professional growth.

The ability to learn using modern approaches is the key to success in the modern generation. Behind this statement there are many authors [4, 5, 7]. This article offers original web platform [3, 8] supporting the learning processes between students, teachers and methodologists, through which we could develop methodological lessons and to solve some of the aforementioned problems. The platform successfully integrated into the learning process among students of Mathematics and Informatics, students qualification “Teacher” in part-time and full-time type of education, and students from the master’s pedagogical courses. In a survey of 31 students, we study and analyse their attitude about using the methodological platform in their practices. Pooled results showed that almost 100% of students would use e-learning in education. On the question of whether it would be useful platform in tasks, didactic instructions and work files in their practice, most of them 94% would benefit from it. The majority of students (Fig. 1) also believes that if there is a platform with unified plan – lecture notes, will facilitate their pedagogical training.

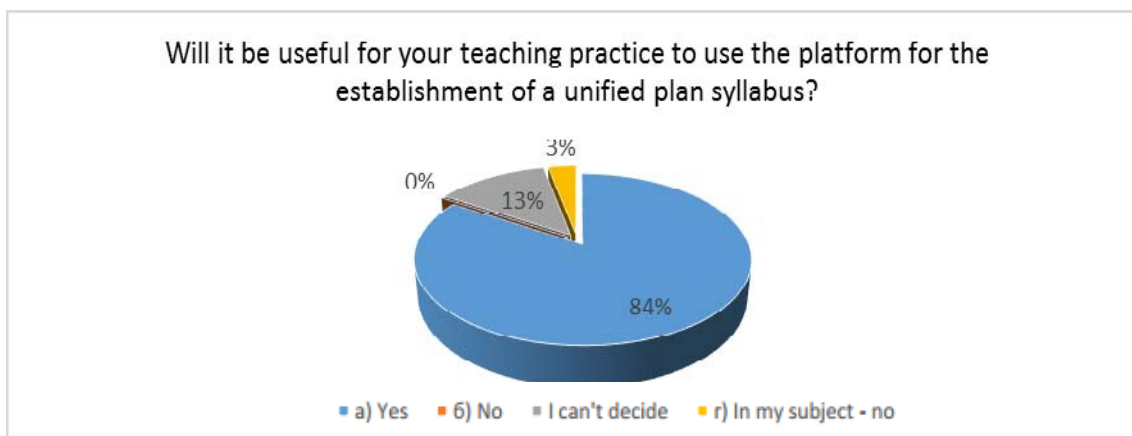


Figure 1. The requirement of the platform to create a plan synopses

Each student develops lessons to be tailored to the specific requirements of both the methodology and the underlying teacher. They set goals, objectives and concepts enshrined in state requirements.

The approaches used in methodological platform can be two. The first is the development of lessons personally placed for each student. The theme of lessons can be set from both university teacher, and the base teacher in school, mentoring students in their internship practice. Here the emphasis is placed on verification and the note from the independent preparation of the student. System is tracking the methodological knowledge and the ability to draw different types of teaching tasks.



Figure 2. Communications messages between users of the Web platform

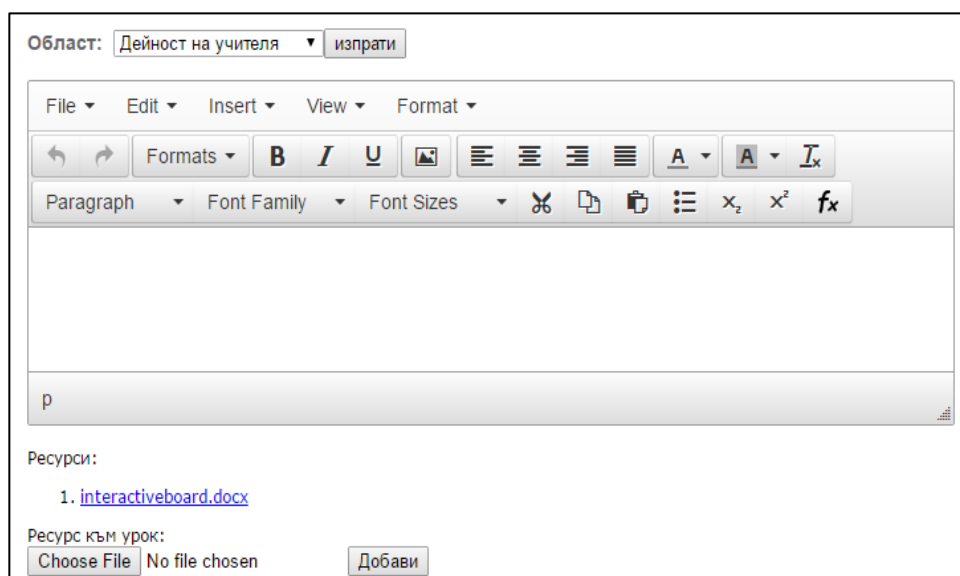


Figure 3. The main editor for entering/writing a lesson

From the perspective of students, the possibilities of a web platform provides:

- 24 hour access to educational resources;
- Online contact with the teacher or teacher;
- Work on their development through personal computer or mobile device;
- Create lesson plans with pace and time convenient for the student;
- Add e-resources to the lesson;
- Teamwork with other students;

On the other hand, basic teachers and professors could:

- Create templates for plan – lecture notes;
- Powered constant monitoring of student developments;
- Supporting students with practical tasks and teaching resources;
- Communication with students viaonline mode or through messages;

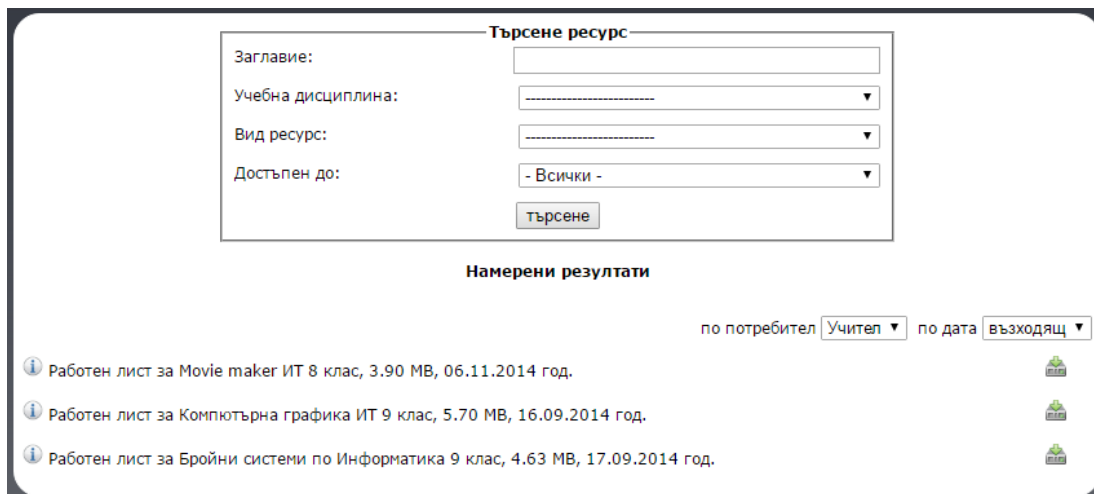


Figure 4. Search for electronic resources

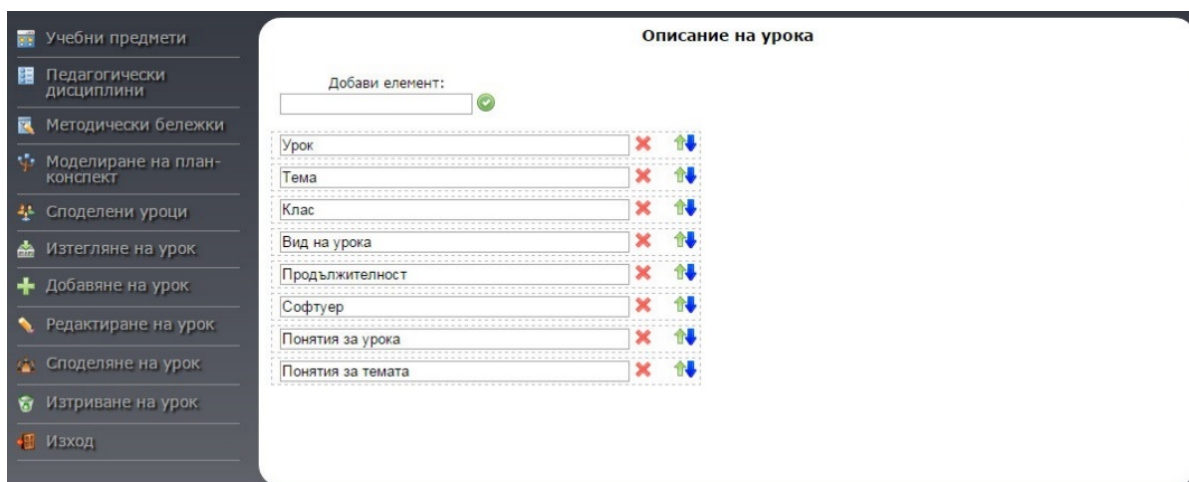


Figure 5. Modeling the structure of the lesson for selected discipline

The second approach is associated with the preparation of this lesson by a group of students. They are separated in a team which methodology assign tasks associated with different challenges. In general, it is a parallel development of the same thematic lesson placed in different didactic situation that students must cope. They develop parallel plan synopses as preparation, content and objectives for each lesson to be specific. Students independently examine and analyze additional scientific literature related questions situations. Find exemplary solutions to artists working in a particular learning environment and discuss them within the default group.

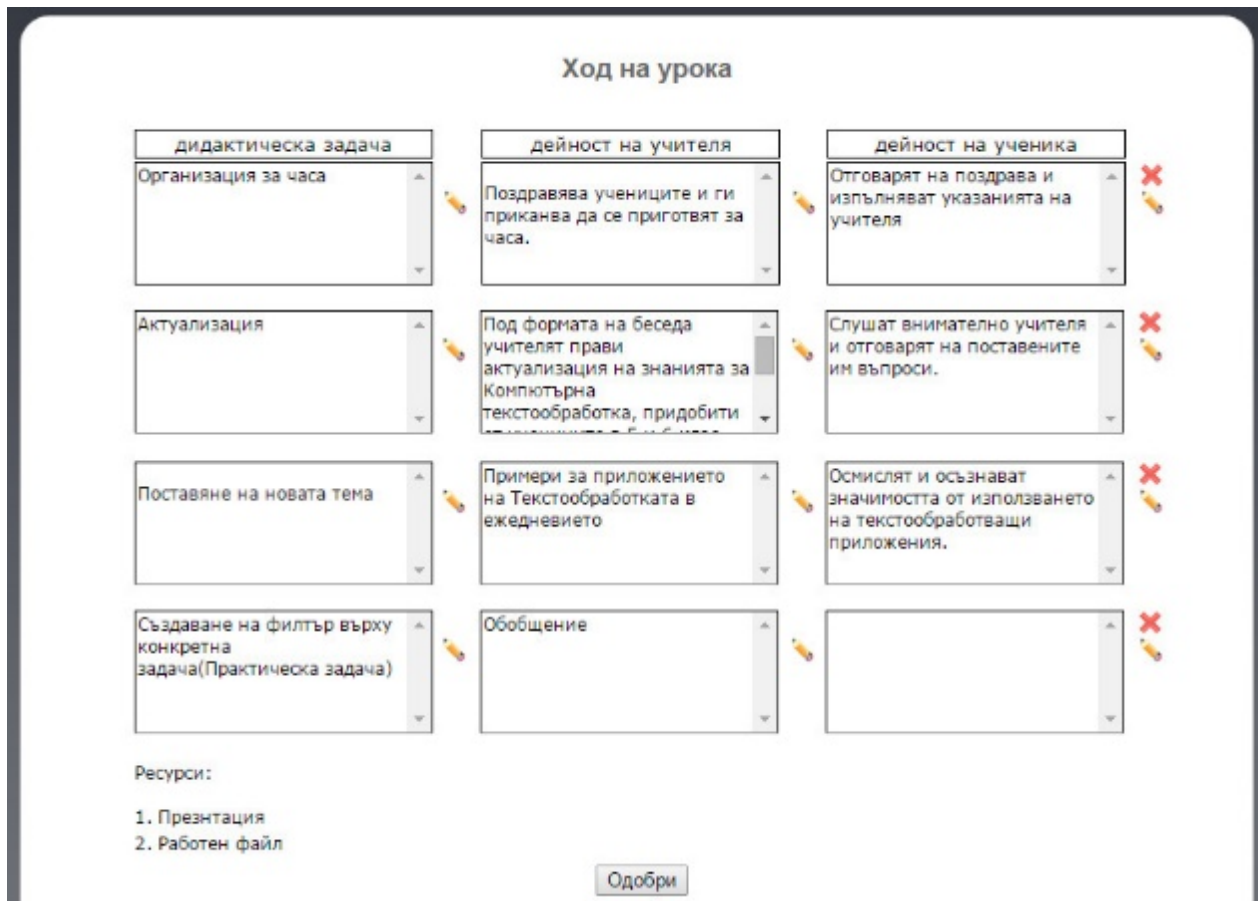


Figure 6. Edit student lessons and its resources

The creation of parallel lessons allows students to see different options for presenting a lesson. They can share with the difficulties accompanied each stage of development and what their appropriate solutions. Parallel lessons could be used to create lesson compilation (Fig. 7) of its various options. Combining various factors (technical, methodical and psychological) associated with a particular class or school practice would moglo to create lesson structure to support student interns.

In the future this approach will be used with existing teachers from teaching graduate programs at the Faculty of Mathematics and Informatics of Konstantin Preslavsky – University of Shumen.”, which will establish a base from various lessons developed by teachers acting so that their attempt to approbate among students.

A integrate new functionalities and promote the platform among teachers and students from different disciplines willing to use it in their work during the pedagogical practices.

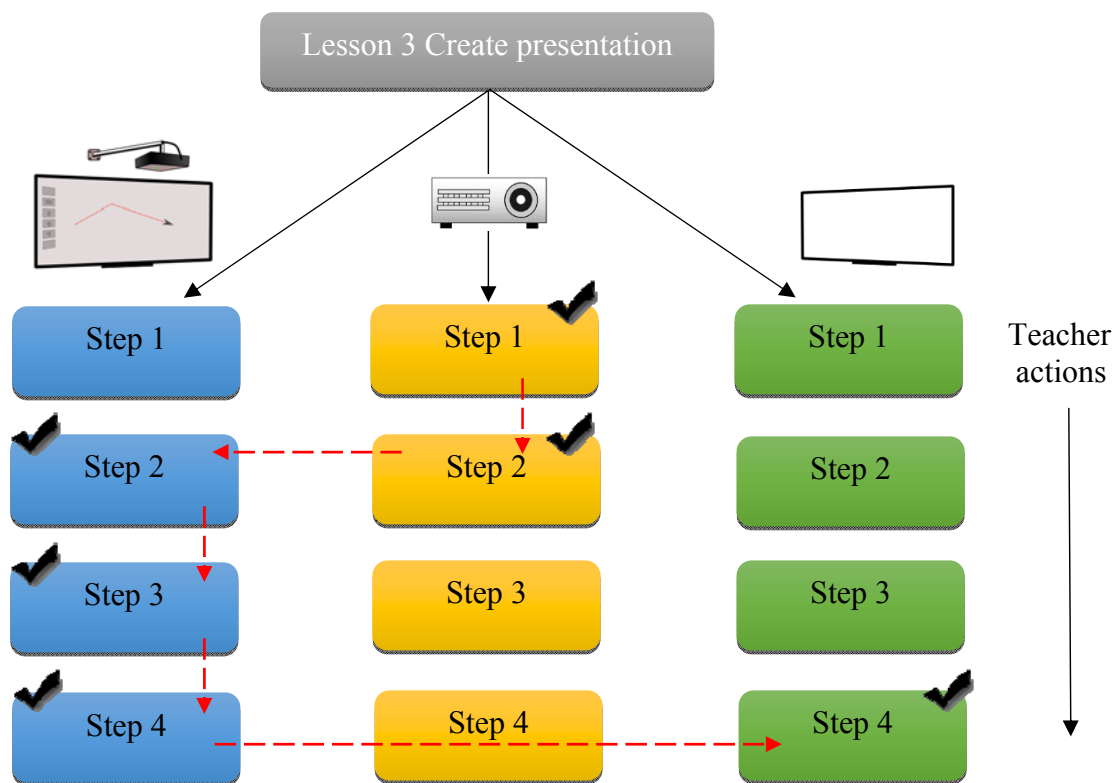


Figure 7. Development of a parallel plan - syllabus

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**Харизанов К. В. Интерактивные подходы к обучению через web-основанную методическую платформу.**

Статья показывает подход, связанный с приложением web-платформы в обучении студентов – будущих учителей математики, информатики и ИТ. Подход связан с использованием активных методов, с помощью которых студенты создают уроки. Показаны возможности развивать способность работать индивидуально и в группе. Платформа опубликована на [web-palatform.info](http://web-palatform.info). Там реализованы возможности синхронного и асинхронного обучения.

**Ключевые слова:** обучение, математика, информатика, информационные технологии, электронное обучение.

**Харізанов К. В. Інтерактивні підходи до навчання через web-засновану методичну платформу.**

Стаття показує підхід, пов'язаний з додатком web-платформи в навчанні студентів – майбутніх вчителів математики, інформатики та інформаційних технологій. Підхід пов'язаний з використанням активних методів, за допомогою яких студенти створюють уроки. Показано можливості розвивати здатність працювати індивідуально і в групі. Платформа опублікована на [web-palatform.info](http://web-palatform.info). Там реалізовані можливості синхронного і асинхронного навчання.

**Ключові слова:** навчання, математика, інформатика, інформаційні технології, електронне навчання.