constraints, provide high-quality educational resources to remote areas and weak schools, narrow the urban-rural and inter-school gaps, so that every child can enjoy the light of quality education. To sum up, in-depth study and effective application of modern educational technology is a sure way to lead the modernization of education, improve the quality of education, and cultivate composite talents who can adapt to the needs of the future digital society.

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UDC 37.02

The role of modern information technology in education

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Abstract:

The value of PowerPoint, micro-lessons, Artificial Intelligence, Flash animation and online learning in education is emphasized in order to increase teachers' awareness of information technology and promote their deeper integration into education.

Information technology (hereinafter – IT) is playing an increasingly important and significant role in education. Nevertheless, there are still teachers who stick to old ways of teaching and fail to fully utilize the potential of technology. Modern information technology profoundly affects education, improves teaching methods and enhances quality and efficiency. It provides direction and impetus for educational reform. Also helps teachers optimize teaching arrangements and build an efficient teaching mode.

The introduction of multimedia technology significantly enhances the interest and interactivity of teaching, attracts students through rich visual and auditory elements, and improves learning interest and efficiency. In addition, modern information technology facilitates exchanges between teachers and students, improves communication, and stimulates students' willingness to take the initiative in learning, transforming them from passive recipients to subjects of learning.

1. Apply PowerPoint teaching to improve teaching efficiency.

PowerPoint (hereinafter – PPT) has a wide range of applications and significant roles in the field of educational activities. As a multimedia presentation tool, PPT can integrate text, pictures, audio, video and other elements, providing educators with an intuitive, vivid and efficient way of teaching.

In the teaching process, the application of multimedia technology teaching is a form of combining information technology with classroom teaching activities, which greatly enriches the means of classroom teaching activities and expands the teaching methods.

In the teaching activities, teachers use PPT multimedia technology, which can present the content in the textbook in a diversified manner, diversify the teaching content, and realize the enrichment of the teaching form, which can promote students to better learn knowledge, develop students' abilities, improve teaching efficiency and ensure teaching quality. For example, when the teacher is conducting a new lesson, the teacher can use PPT multimedia technology to put a picture related to the teaching content of the lesson before the new lesson starts, which can attract students' attention, stimulate students' interest in the lesson, and give full play to students' imagination.

In the teaching process, the teacher can present the thinking framework of the lesson in the PPT multimedia technology, so that students have a

general understanding of the course and improve the logic of the students. It can be seen that the combination of PPT and classroom teaching can not only promote the diversification of knowledge, ensure the logic of knowledge, enrich classroom teaching, improve the efficiency of teaching, and achieve efficient learning [1].

2. Apply micro-course teaching to promote self-directed learning.

As an emerging teaching mode, micro-class teaching plays an increasingly important role in the process of modern education due to its characteristics of short, concise, focused content and flexible form. It not only helps students better understand and grasp knowledge, but also effectively promotes students' self-directed learning.

Micro-lessons, also known as "micro-videos", are developed from online teaching resources. Its design has a close connection with people's lives, so as to achieve the role of linking theory with practice. Teachers use micro-class teaching in the teaching process, and control the time of micro-class within a few minutes, which can enable students to make breakthroughs in important and difficult knowledge in a very short period of time, improve students' understanding of important and difficult knowledge, not only stay on the surface of knowledge, but also better understand the essence and connotation of knowledge.

Teachers can also create a good learning environment, design micro-lesson teaching, and enable students to watch micro-lessons repeatedly to deepen their memory of knowledge. For example, in the course of a teaching activity, the teacher can use the micro-lesson to design the difficulties and key points of knowledge, and control the time of the micro-lesson within 10 minutes. Before teaching, students can be guided to learn independently of the micro-lessons, so that students can have a general understanding, which can improve students' learning autonomy and ability to independently find and solve problems.

After the end of this teaching activity, the teacher can also let the students use the micro-lesson for after-class review, which can promote the students to review the important and difficult knowledge of the lesson in a timely manner and deepen the students' memory. It can be seen from here that arranging 10 minutes of micro-class learning is very in line with the time of students' attention to things, which can enable students to study efficiently in the case of concentration, and also conforms to the students' memory storage time, 7±2 blocks, in line with the law of memory. Finally, micro-courses have the function of long-term storage, which is economical and convenient, which makes

up for the shortcomings of traditional education and promotes the development of students' independent learning.

3. Apply Artificial Intelligence to promote student development.

With the development of society and the progress of science and technology, Artificial Intelligence (hereinafter – AI) has slowly entered people's field of vision. In our daily life, AI has also helped us a lot, and some industries have also been replaced by AI, which can quickly improve efficiency. Of course, the application of AI in education is becoming more and more widespread, providing unprecedented opportunities and possibilities for the development of students.

By using AI technology, it can personalize the learning needs of students, improve the quality of teaching, stimulate interest in learning, and cultivate innovation ability and skills needed for the future, so that students can better adapt to the development of society and keep pace with the times. First of all, AI can carry out personalized learning, and can provide customized learning resources and paths for students according to their learning habits, ability levels, interests and preferences, physical and mental development rules, and age characteristics.

Through data analysis, AI can identify students' strengths and weaknesses and recommend suitable learning materials and practice questions, thereby helping students master knowledge more effectively. Secondly, AI also has intelligent assistance systems, using natural language processing and machine learning technology, can build intelligent tutoring systems to provide timely feedback and explanations according to students' situations, and these systems can even simulate the role of teachers or teaching assistants to solve students' problems and answer students' questions.

Finally, AI can provide one-on-one tutoring, which is very important, especially in rural areas where education is now unequal. Due to the development of society and the flow of population, there has been an imbalance in education in some areas of the country, with a decrease in teachers, a loss of talents, and an imbalance in educational resources. The advent of AI can greatly compensate for these shortcomings, strive to catch up with the level of education in developed regions, help students to gain more knowledge, bridge the gap between them, and improve the knowledge level of students.

4. Apply online education to promote teacher-student cooperation.

Online education makes use of Internet technology to break through time and space constraints and promote interaction and cooperation between teachers and students. It provides a variety of teaching formats, such as online courses and learning platforms, to meet students' individual learning needs. China's Ministry of Education promotes the construction of online courses, aiming to improve the quality of courses. Meanwhile, some companies such as Ten Square Ronghai use AI technology to optimize their teaching systems, while organizations such as China's Houlang Education improve the quality of teaching through innovative teaching models. Online education enhances teacher-student communication through videoconferencing software, making teaching more resilient and building equal and harmonious teacher-student relationships.

5. Use Flash animation to promote students' understanding.

Flash animation is also a very important teaching tool in modern information technology, and it has significant advantages for students' understanding. In traditional education textbooks, in order to achieve the effect of streamlining, many knowledges often only have theoretical parts. Although this kind of typography can enable students to summarize the truth at a glance and quickly understand the knowledge, if the teacher directly explains the theoretical knowledge to the students, then the students will feel bored and tired, and reduce the interest in learning and thus reduce the efficiency of learning.

The application of Flash animation can make up for the shortcomings of traditional education. Flash animations have the advantage of being simple and easy to operate. In the teaching process, the teacher presents the teaching theory content through Flash animation, which can make students understand the important and difficult points at a glance in the process of animation demonstration, deepen their understanding of theoretical knowledge, and make learning vivid and interesting.

For example, in the process of science teaching, many concepts and principles need to be verified and understood through experiments. However, traditional experimental teaching is often limited by factors such as time, space, and resources, and it is difficult to fully cover all knowledge points. Flash animation can make up for this shortcoming, by simulating experimental scenarios, allowing students to conduct experimental operations in a virtual environment, observe experimental phenomena, and analyze experimental results. This method not only breaks through the difficulties in teaching, but also cultivates students' hands-on ability and

scientific thinking, promotes the combination of theory and practice, and cultivates students' ability to solve problems.

In short, the application of modern educational information technology in the field of education has brought profound changes to the traditional education model, and its role is extensive and far-reaching. Modern educational information technology has greatly enriched teaching resources. Through the online platform, teachers and students can easily access a large number of learning resources, including e-books, online courses, teaching videos, etc., which are not only rich in content, but also updated quickly, helping to broaden students' knowledge and horizons.

Modern information technology has also improved the efficiency of teaching. With the use of multimedia teaching equipment and software, teachers can display the teaching content more intuitively, vividly and concretely, and stimulate students' interest and enthusiasm in learning. Let students learn to learn. At the same time, through online assignments, online tests and other tools, teachers can obtain students' learning feedback in a timely manner, so as to adjust teaching strategies and teaching methods, and improve teaching effectiveness and learning efficiency.

Finally, modern information technology has also contributed to the equity and universality of education. In remote areas and mountainous areas, through online classes and distance education, students can enjoy high-quality educational resources, narrow the educational gap between urban and rural areas and regions, strive to achieve educational equity, and promote better development for everyone [2]. At the same time, modern information technology has also made lifelong learning possible and established a learning society. People can learn anytime, anywhere, and constantly improve their knowledge and skills.

To sum up, front-line teachers should actively work hard to learn advanced educational concepts and educational technologies to enrich educational activities. Promote the diversified development of teaching forms, so that students can gain a deeper understanding of knowledge, promote the construction of efficient teaching models, and realize the new requirements of modern teaching concepts for education.

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УДК 539.3/.6:372.862

Компьютерная программа *Mirag* как средство усвоения правил анализа эпюр в балках

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Аннотация:

В статье представлена компьютерная программа *Mirag*, разработанная на кафедре «Математические методы в строительстве», которая используется в учебном процессе по дисциплине «Сопротивление материалов» раздел «Построение эпюр в балках».

При изучении дисциплины «Сопротивление материалов» тема, посвященная построению эпюр поперечных сил и изгибающих моментов в балках, является одной из основных для строительных специальностей в высших учебных заведениях. Несмотря на использование программных комплексов для инженерных расчетов по-прежнему сохраняется необходимость в качественном освоении студентами этой темы. В условиях развития и применения новых информационных технологий инженеру не требуется самостоятельно производить точные вычисления. Это может сделать компьютер. Однако современный инженер должен уметь анализировать и оценивать правильность результатов, полученных с помощью программных комплексов.

На кафедре «Математические методы в строительстве» Белорусского национального технического университета разработана компьютерная программа *Mirag*, которая по сути является тренажером. Программа разработана для освоения и развития навыков в анализе и