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**Abstract:** Circuit analysis technology belongs to one of the more important basic courses of mechanical and electrical professional teaching, want to improve the education effect, you need to use mixed teaching methods, show the Internet of things + advantages, innovative education activities, do a good job of craftsman spirit training, help students master the basic knowledge of circuit analysis, strengthen professional quality, meet the requirements of professional positions. Based on this paper briefly expounds the basic hybrid teaching reform of circuit analysis under the Internet of Things + for reference only.

**Keywords:** Internet of Things +; Basic Circuit Analysis; Hybrid Teaching

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## Kpvt qf wevkqp

The basic course of circuit analysis has the characteristics of strong theory and many knowledge points, but is influenced by class hours, insufficient student foundation and other factors, making the teaching effect is not ideal. Therefore, in the teaching, it is necessary to show the advantages of the Internet of Things +, to carry out mixed teaching activities, to ensure that students can grasp the knowledge points well, improve their independent learning ability, and improve the learning effect.

## 30 Rt qdrgo ugz lpi lpi vj g dcule vgej lpi qhelt ewlv cpcrf ulu

### 30B O gej cpluo r t qdrgo

In the practice link, without forming an effective supervision, guidance and feedback mechanism, the students' learning effect is not ideal. In addition, for students at this stage, they are insufficient in their independent learning ability, motivation and other aspects, etc. Even if they have learned relevant knowledge in class, they did not do a good job in reviewing after class in time, making the knowledge grasp not solid. In addition, some teachers rarely understand the actual learning situation of students in time, and do not do a good job in answering questions in time, which ultimately affects the quality of the basic teaching of circuit analysis.

### 304 Vj g uwdlgev r t qdrgo

Due to the long-term influence of traditional educational concepts, students are used to be teacher-centered in the basic teaching of circuit analysis, and spend a lot of time carrying out demonstration and teaching work, which makes students' hands-on operation time relatively short. Because circuit analysis basic content mainly to memory nature knowledge, such as equipment operation methods, component identification, etc., and in the traditional education mode teachers need to spend a lot of time about knowledge, students can only mechanized imitate teacher demonstration steps, make students innovation ability and practical ability is difficult to improve<sup>[1]</sup>.

### **3.5 Vq gxcwcvj g r tqdrgo**

In the traditional circuit analysis basic teaching, student performance evaluation is mainly the final exam evaluation, although also contains the usual performance evaluation, etc., but in practice can provide feedback evaluation data and information, even many teachers focus on students in practice in accordance with the requirements to complete preview content, and not for students after questions, content, make the evaluation focus on end evaluation, and in the formative evaluation proportion is relatively low.

### **4.0 Dcuk o kzgf vqcej kpi tghqto o gcuwtgu hqt ek ewk cpcrf ulu wpf gt**

#### **Kpvt pvgqh Vj kpi u**

### **4.1 Gpj cpeg vj g ko rqt wpeg qho kzgf vqcej kpi**

Only by updating the educational concept in time can we show the subjectivity of students. Therefore, in the basic teaching of circuit analysis, it is necessary to timely change the traditional education concept, reasonably use the mixed teaching methods, organize students to analyze the problems in the classroom, give full play to the role of the Internet of Things <sup>+</sup>, and realize the effective integration of online and offline. Before using mixed teaching methods, it is necessary to do a good job in link division, exercise students' independent learning ability, while teachers need to observe students in time, do a good job of process guidance, share teaching resources, and improve students' autonomy. With the use of video and simulation software, it can change the traditional education state, answer students' doubts, show the role of diversified learning methods, and mobilize students' learning initiative<sup>[2]</sup>.

### **4.1 Rt gr ct g y gmdghqt g encuu**

With the help of the Internet of Things <sup>+</sup> advantages, it can improve the basic teaching quality of circuit analysis, but also can liberate students from the past learning state, and deepen their understanding of knowledge points. Therefore, when using the mixed teaching method, it is necessary to prepare before class, and ask students to conduct theoretical learning with the help of video materials. For example, when telling the knowledge of Kirchhoff's voltage law, the theoretical knowledge points can be transformed into video content, and use the learning platform to push them to the students, requiring the students to master the theoretical knowledge through self-study. Due to the obvious differences in students' learning ability and level, they can self-regulate the learning pace in independent learning. For students with insufficient learning ability, they can deepen their understanding of knowledge points by repeatedly watching video materials. When they encounter problems that are difficult to solve by themselves, they can also use platforms and communication tools to communicate with other students, or seek help from teachers. To test the learning effect, the pre-class test function can also be used to obtain the relevant feedback. Teachers use the network platform to provide students with test exercises, and students can timely grasp their actual learning situation after completing the test. After completing the test, they can also analyze the wrong problems and find out the existing problems. Teachers can find out the teaching priorities and difficulties according to the student test results, adjust the educational methods in time, and integrate the educational content. After completing the test, by sorting out the data and information collected, we can design different learning tasks, which are convenient so that students can prepare before class. Because the task is characterized by strong openness, so students can give full play to their imagination and complete the task from different angles. If students can be required to design a dual power supply circuit to obtain 5V and 12V voltages in the components. After receiving the task, students can use the knowledge mastered before class to complete the task, and realize the combination of

theory and practice in the design.

## 50Gpuwt g vj g qtf gtq f gxgmr o gpv qhv j g enc ut qqo

First of all, do a good job in pre-class task research work. When formally carrying out the basic teaching of circuit analysis, it is necessary to timely analyze the completion of students' tasks before class, and solve the problems in the test by using the interaction between students and the teacher's explanation, such as determining the circuit, judging the actual direction of the voltage, etc. Using this link can help students to solve the problems in learning.

Secondly, do a good job in the task display and exploration work. In class, students need to be encouraged to show the designed circuits, share their own design ideas, and deepen their understanding of the knowledge points in discussing and learning with other students. When expressing their opinions and listen to other students' opinions, students can find the problems they have not yet thought about, and timely realize their own shortcomings through the opinions proposed by other students, and find out improvement methods in the active exploration and research to improve the rationality of the design. The display and discussion can also help students to improve the knowledge structure, realize the knowledge internalization, and improve their language expression ability. After the completion of the display, they can also use mutual evaluation, teacher evaluation and other methods to help students to further consolidate their knowledge<sup>[3]</sup>.

Thirdly, carry out the experimental verification activities. After organizing students to participate in the display and discussion, students can obtain important information, actively modify the designed circuit, and realize the extension of theoretical knowledge to practical goals. In the traditional basic teaching of circuit analysis, the experimental content is mainly assigned by the teachers. The circuit experiment tasks completed by the students are the same, and the final experimental results are the same. However, in this teaching mode, students are bound to gradually lose their interest in learning, and even some students will directly use the data channels obtained from other groups. If you directly need to design your own circuit, it is easy to be limited by time and other factors, and the students rarely have the time to verify the theory, so it is easy to appear safety accidents in the circuit installation. So under the use of mixed teaching methods, can let the students design circuit before class, make the students enthusiasm significantly, can prove accurate design in practice, learning motivation, keep experimental interest, in the continuous analysis and attempt to complete experimental tasks, gradually improve students' professional operation ability and professional quality.

Finally, do a good job after class. The summary stage is actually the stage of accurate evaluation of students' performance. After summarizing the tasks of this section, follow-up tasks are put forward, including self-evaluation, self-evaluation, questionnaire and questionnaires.

## 60E qo r ngv chgt / uej qqnt gxlg y

In the after-class stage, it is necessary to assign the corresponding homework in time, or the students can be organized to complete the expansion tasks, and provide the expansion space for the students while reasonably arranging the amount of exercises. Because the expansion task has a strong inquiry and difficulty, such as students need to master the information processing ability in the information collection, so it is necessary to combine the specific tasks, to ensure that students can master the knowledge points in the review and consolidation<sup>[4]</sup>.

## 70Gpuwt g t guqwt eg cf gs wce {

Under the background of the Internet of Things +, the basic mixed teaching of circuit analysis needs a reasonable use of software and hardware, show the support role of the network platform, integrate teaching resources, and provide support for students' practical training. In the platform, we need to meet the requirements of online learning, upload relevant resources, have diversified functional advantages, and strengthen the interaction between teachers, students and students. In order to ensure that students can better grasp the education or, we need

to collect a lot of resources, such as video, teaching cases, etc., on the basis of good design work to ensure the refinement of content and language, to show the knowledge points in an intuitive way, to ensure that students can really understand the basic knowledge of circuit analysis.

Conclusion: to sum up, under the Internet of things + circuit analysis introduction of hybrid teaching method can not only exercise students independent learning ability, but also can reduce the pressure of teachers teaching, strengthen the interaction between teachers and students, timely grasp the problems existing in learning, strengthen the students 'practical operation ability, show students' subjectivity, deepen the understanding of the basic knowledge of circuit analysis.

## **Tghgt gpegu**

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