

# Research on teaching strategy of power supply technology from the perspective of engineering teaching

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**Abstract:** From the perspective of engineering teaching, the teaching model of power supply technology course has changed obviously. The existing teaching model can not meet the demand of power supply technology course. Therefore, teachers should innovate their own teaching ideas, closely follow the development trend of engineering teaching, based on engineering teaching to optimize the teaching of power supply technology course, in order to effectively improve the teaching quality of the course, and then cultivate talents to meet the needs of industry development. Based on this, this paper firstly expounds the teaching significance of power supply technology course from the perspective of engineering teaching, and then clarifies the shortcomings of current power supply technology course teaching, and then puts forward the teaching strategy of power supply technology course from the perspective of engineering teaching for reference.

**Key words:** engineering teaching; Power supply technology; Courses; Teaching; strategy

Based on engineering teaching, students should master the basic concepts and principles of power supply and distribution system, operation and maintenance management, and basic knowledge of engineering design methods by participating in power supply technology course teaching. But in the traditional course teaching, teachers tend to occupy the teaching center, and pay too much attention to the systematic and integrity of the course teaching, and the interaction between teachers and students is also lack of effectiveness. In this kind of teaching situation, students usually seldom carry out systematic engineering training, nor can they have a deep understanding of the engineering application background, so it is difficult to cultivate the high-quality applied talents needed by the industry, which is unfavorable to the sustainable development of schools and students.

## 1. Teaching significance of power supply technology from the perspective of engineering teaching

(1) It is conducive to the integration of engineering tasks and teaching tasks

In the course of power supply technology teaching, the teacher takes the real engineering task as the core, and the task will run through the whole course of teaching. Moreover, through engineering tasks, students can internalize the theoretical knowledge they have mastered and fully experience the interest contained in the work, so as to continuously improve their professional level, and their ability to think, analyze and solve problems will be enhanced. Therefore, in order to better apply engineering tasks to the teaching of power supply technology, teachers will decompose and combine various teaching tasks to ensure that they can meet the real needs of engineering teaching, and significantly enhance students' comprehensive professional quality, so as to facilitate the integration of engineering tasks and teaching tasks.

(2) It is conducive to reflecting the practicability of engineering in practical teaching

From the perspective of engineering teaching, teachers will take the employment needs of the industry as the orientation, and optimize the course teaching plan according to the real employment needs of the industry, so as to improve the proportion of practical teaching in the course of power supply technology. In addition, colleges and universities will rely on the carrier of school-enterprise cooperation to optimize the practical teaching system of power supply technology courses, to ensure that students' practical ability is enhanced. In addition, in order to improve the effectiveness of practical teaching, teachers will carry out in-depth research on the real needs of society and industry, and the content and elements explored into the actual teaching, so as to highlight the practical engineering practicability in practical teaching, and then effectively improve the comprehensive ability of students, so as to reflect the practical engineering practicability in practical teaching.

## 2. The current power supply technology course teaching deficiencies

(1) Teaching efficiency needs to be improved

Power supply technology courses are usually divided into theoretical courses and practical courses. Theory courses are teacher-led and practice courses are student-oriented. In the teaching of theory courses, teachers will guide students to master the theoretical knowledge point step by step. However, in practice classes, they focus on strengthening students' practical ability, allowing students to deepen the theory and consolidate the knowledge learned in the practical operation, and really combine the knowledge learned in the theoretical class with the practical operation. However, in the concrete implementation process, teachers focus on the theoretical teaching, and rarely carry out the corresponding practical teaching, which is difficult to effectively improve the comprehensive level of students. Thus restricting the improvement of teaching efficiency of power supply technology course.

(2) Lack of corresponding teaching resources

The teaching resources of power supply technology course should locate the course objectives of this major according to the post needs, and then make the learning resources of power supply technology course through optimization, rectification and expansion, so as to make the teaching of power supply technology course more complete. However, restricted by traditional educational concepts, teachers are still limited to teaching materials to carry out power supply technology course teaching, which makes the teaching content lag, and the applied

teaching resources are not perfect, so that students can not timely grasp the cutting-edge knowledge, it is difficult to effectively enhance the teaching effect of power supply technology course.

(3) The teaching staff needs to be improved

At present, with the steady progress of education reform, teachers need to constantly adjust the courses of power supply technology, which has relatively high requirements for their comprehensive ability. However, teachers seldom go out for temporary training, so that they lack rich practical experience, which is unfavorable to their optimization of power supply technology curriculum structure, the basic teacher strength needs to be improved, therefore, schools should increase the construction of teachers.

### **3. The teaching strategy of power supply technology course from the perspective of engineering teaching**

(1) Clear teaching objectives and optimize teaching content

In the perspective of engineering teaching, power supply technology courses should take engineering as the main teaching activity. Therefore, teachers should innovate their own teaching ideas, clarify the teaching objectives according to the actual situation, improve the rationality of engineering tasks, make the curriculum content more rich, and thus ensure that students can achieve all-round development. In addition, when designing the teaching content, teachers should ensure that the engineering tasks are systematic and comprehensive, so as to lay a solid foundation for enhancing students' comprehensive professional ability. Among them, the system of engineering tasks mainly means that the teaching content should be comprehensive, including not only basic concepts, but also application methods and skills, so as to promote students' engineering practice ability to be significantly enhanced; The comprehensiveness of engineering tasks means that by participating in the teaching of power supply technology and improving the comprehensiveness of teaching content, students' knowledge structure will become more and more perfect, and their practical ability to solve practical projects will be significantly enhanced. Therefore, to give full play to the value of engineering teaching in the course of power supply technology, teachers should clarify the teaching objectives and constantly optimize the teaching content, so as to effectively improve the comprehensive ability of students.

(2) Enrich the teaching methods and activate the classroom atmosphere

To carry out the course teaching of power supply technology based on the concept of engineering teaching, teachers need to change the teaching methods of knowledge indoctrination in the past, and should timely enrich the teaching methods applied by themselves, so as to fully stimulate the enthusiasm of students to participate in the course teaching, and lay a solid foundation for the enhancement of students' comprehensive ability and the improvement of the course teaching quality. For example, teachers can use case teaching, cooperative learning, task-driven method, situational teaching method and other methods to continuously enrich the teaching methods of power supply technology courses. For example, when teaching the content related to the main wiring design, the teacher can use the case teaching method to carry out the course teaching, can provide the real wiring drawings of the enterprise to the students, require the students to master the wiring mode taught by the teacher in the process of comparing the drawings, and urge the students to clearly understand the way of line selection, so as to constantly improve their learning efficiency. Or, in the teaching of circuit breaker, transformer selection calibration content, teachers can use the field visit teaching method, organize students to high-voltage substation field trip, in the real teaching situation, students can not only produce a more intuitive understanding of this section of knowledge, but also effectively internalize their own curriculum knowledge, in order to effectively enhance students' engineering application ability. Therefore, in the actual teaching process, teachers should enrich their own power supply technology course teaching, making the teaching atmosphere more active, and then effectively improve the comprehensive level of students.

(3) Optimize practical teaching and enhance students' practical ability

The concept of engineering education requires students to learn in practice and practice in study. Therefore, teachers need to pay due attention to practical teaching, and use information teaching technology to integrate animation, audio and pictures into one, so as to show practical content to students more intuitively, effectively enhance students' ability to solve practical problems, and thus significantly enhance their practical operation ability. In addition, teachers need to set up practical operation links scientifically according to the practical content, and constantly improve the practical operation level of students. For example, relying on the information teaching technology to demonstrate the specific process, promote the intuitive perception of the operation process, and be able to complete the practical operation drill according to the corresponding process, so as to improve the quality of practical teaching. In addition, teachers need to guide students to independently design practical operation exercise programs according to the operation process, and promote them to learn, so as to improve the overall quality of students. For example, in practice teaching, it is not easy for students to observe teachers' demonstration operation at close range. Using multimedia technology for real-time video recording and real-time projection, good results can be received. In practice teaching, due to the lack of experimental equipment leads to less and less student experiments, the use of computer aided teaching software to demonstrate a large number of experiments, reduce the difficulty of the experiment, strengthen the practice teaching, students install experimental circuits in front of the computer, develop the students' observation and analysis ability, improve the experimental effect, so that their professional quality will be insubly improved significantly.

(four) improve the project evaluation link, improve the effectiveness of teaching

In the previous teaching evaluation of power supply technology course, summative evaluation accounts for 80%, while process evaluation only accounts for 20%. Under the concept of engineering education, this evaluation model can hardly meet the teaching demand of power supply technology course. Therefore, teachers need to innovate their own educational concept, make appropriate optimization

of course teaching evaluation, gradually increase the proportion of process evaluation, and constantly optimize the elements of course evaluation, so as to mobilize the enthusiasm of students to participate in the course of power supply technology teaching. And effectively enhance their comprehensive practical ability. For example, the summative evaluation accounts for 50%, and the procedural evaluation should account for 50%, and the evaluation elements should be as follows: (1) The curriculum basic evaluation module, which is mainly to assess the students' grasp of the basic theoretical knowledge and the course content, and carried out in the form of written assessment; (2) the thinking ability evaluation module, which mainly evaluates students' ability to find, collect and apply relevant information, and this module belongs to the process evaluation, should be carried out in the form of topic discussion; (3) Practical ability evaluation module, this module is mainly to evaluate students' practical ability, mainly in the form of practice drills, simulated practical operation. In this way, teachers can effectively improve the effectiveness of curriculum teaching and continuously enhance students' comprehensive practical ability by improving the project evaluation.

(5) Construction of double-qualified teachers to improve the quality of curriculum teaching

The school should actively build the double-qualified teachers. First of all, various teaching and training activities should be held. Under the guidance of the curriculum experts, the problems encountered in the course teaching of power supply technology using the engineering teaching concept should be analyzed. And encourage them to combine practical teaching with theoretical teaching organically, so as to continuously enhance the pertinence of power supply technology course teaching. In addition, teachers should be encouraged to participate in more off-campus training activities, such as national, provincial or municipal training activities, so as to ensure that teachers can master advanced professional knowledge. At the same time, schools can also require teachers to take temporary jobs in cooperative enterprises, so that they can have a deeper understanding of the needs of the industry, and consolidate practical experience, so as to improve the quality of power supply technology course teaching. Finally, the school should invite the technical backbone part-time teachers in the cooperative enterprises, so that the part-time teachers can not only share their work experience with the students, but also improve the quality of practical teaching. Through the above measures, the overall level of the teaching staff can be effectively improved, and further enhance the teaching effect of power supply technology courses.

### **In summary:**

In a word, in order to ensure that the concept of engineering education is implemented into the teaching of power supply technology, we should actively explore effective strategies, which can be started from the following steps: clear teaching objectives, optimize teaching content; Enriching teaching methods and activating classroom atmosphere; Optimize practical teaching to enhance students' practical ability; Improve the engineering evaluation link, improve the teaching effectiveness; Construction of double-qualified teachers, improve the quality of teaching courses, in order to effectively enhance the teaching effect of electrical technology courses, and promote the comprehensive ability of students to be further improved.

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