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Network Course Construction of "Power Electronics Technology" based on Applied Talent Training

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Abstract

In today's Internet era, the network information technology plays an increasingly obvious role in the course teaching, "power electronic technology" course is highly theoretical, and abstract is difficult to understand, the use of traditional teaching methods for its teaching defects are increasingly obvious. This paper according to the characteristics of "power electronic technology" course, from the perspective of improving the quality of application personnel training, to conform to the local economic and social development technology demand oriented, combined with the practical situation of our hospital, the "power electronic technology" course teaching website design, the significance of the website construction, design strategy and study the development of the website. The results show that with the network-assisted teaching, the teaching method is more flexible and convenient, which provides development space for the improvement of students' comprehensive quality and meets the needs of talent training.

Keywords

Application Talent Training; Electronic Power Technology; Teaching Network Environment; Information Technology.

1. Introduction

"Power electronics technology" is composed of three disciplines: electronics, control theory and electric power, involving the knowledge of multiple disciplines. This course is highly theoretical, based on "circuit", "analog electronic technology", "digital electronic technology" and other courses, directly affecting the subsequent study of "motor and drag", "AC and DC speed regulation" and other courses. The traditional teaching mode focuses on formula derivation, and students feel it is abstract and difficult to understand. Therefore, in order to achieve the new requirements of applied undergraduate to college students, to adapt to the development of electrical information engineering application disciplines, keep the novelty of the teaching content, tracking the latest hot spot of power electronic technology, this paper on the basis of traditional teaching methods, combined with network open teaching, let students can accept more new knowledge, enhance the initiative of learning, and can stimulate learning interest and improve the learning efficiency.

2. Significance and Objectives of the Network Course Construction of "Power Electronics Technology"

2.1 Significance of Network Course Construction of "Power Electronic Technology"

"Power electronic technology" traditional teaching method is given priority to with classroom teaching, students passively accept this single classroom teaching, the understanding of the important

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knowledge in the course is very difficult, after-class students and lack of targeted learning materials, teachers to students, lead to problems, learning enthusiasm is more and more bad. Using the learning method of combining classroom teaching and network curriculum solves the above problems. Network teaching enables students to acquire relevant knowledge on the Internet, and also enables learners who are participating in classroom learning in the traditional way to broaden their knowledge through the Internet. At the same time, learners can also communicate with each other and learn from each other, so as to better meet the needs of learners at different levels. For the knowledge points that are difficult to understand in the course, teachers make teaching videos and add them to the online course, and students can watch them repeatedly. This way of learning breaks the limitation of time and space in traditional teaching, and strengthens students' understanding of knowledge points. The construction of teaching website greatly expands the radiation range of knowledge transmission, helps students understand the content of classroom learning, stimulates the enthusiasm of students to learn, improves the initiative of students in learning, and makes the course achieve good teaching effect.

2.2 Objectives of the Network Course Construction of "Power Electronic Technology"

The course construction of electric power electronic network should be grasped from three aspects. The first is educational: the network course website is for the teaching service, to conform to the characteristics of the learning object, the content has a certain educational significance, highlight the key points in learning, pay attention to inspiration, promote thinking, cultivate ability. The second is scientific: the website content is correct, logical, clear level, expansion resource content is healthy, reasonable, highlighting the characteristics of the discipline. The third is integrated: network course is not just a single knowledge list, it is the collection of knowledge collection and extension, so the network course is this course as the core of the combination of the whole, the relevant knowledge around this course, not only limited to the book content, allow within the scope of the subject covers other related disciplines, embodies the course training requirements and professional status.

3. Advantages of Network Teaching of "Power Electronics Technology" Course

The teaching content of "power electronic technology" includes the circuit structure analysis, waveform analysis, formula derivation, parameter calculation, control technology and engineering application of the power electronic conversion circuit. It is characterized by changeable circuit structure, more waveform maps, flexible formula derivation and strong practicality. With the continuous development of new power electronic technology, the teaching content is expanding, how to teachers in the limited hours achieve good teaching effect, stimulate students 'interest in learning, make students better grasp the basis of the course and new knowledge, new technology, and cultivate the students' practical ability and innovative spirit, is the education workers have been exploring research problems.

(1) Network teaching can improve the learning initiative.

Due to the network teaching can realize information resource sharing, under the support of open network teaching platform, gradually return the learning time, place and progress of control to the students, completely change the traditional classroom teaching teachers speak students listening teaching method, in active, open, interactive learning, let different students according to their own existing conditions and understanding level to choose learning difficulty, from shallow, really form to learners as the center of the learning environment.

(2) Network teaching can expand the learning resources.

Power electronics technology, an emerging discipline, is in the stage of rapid development, new devices, new circuits with each passing day and continuous innovation. To broaden the students 'knowledge, broaden horizons, we can through the network widely find information, select the resources of this course, collect the development of knowledge, practical application, the latest achievements in various aspects of information, so that the students can be a wider range of

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understanding and master the application of power electronic technology and development direction, by point and surface, achieve "covering" learning effect, improve the students' autonomous learning ability and research learning ability.

(3) Network teaching diversiteaching methods.

Power electronic technology this course involves devices, circuit types, circuit working principle, working process and devices of static, dynamic characteristics are the key and difficulty of learning, using the advantage of network course, the advantages of pictures, using dynamic demonstration, online simulation, interactive learning means, form a multi-directional, vertical learning platform, stimulate students' interest in learning, enhance their understanding of related professional knowledge.

4. "Power Electronic Technology" Network Teaching Design Framework

As an effective way of teaching resource organization under the network environment, the network curriculum construction has become an effective way to promote the integration of information technology and curriculum. It is a thematic research and collaborative learning system based on network resources. It provides learners with a large number of learning resources and collaborative learning communication tools, so that learners can choose and determine the content of learning or conduct research project design, collect, analyze and select information and materials by themselves, and apply knowledge to solve practical problems. It emphasizes the solution of problems through the subjective exploration, research, and cooperation of learners, so that learners can experience and understand the process of scientific exploration, improve learners' practical ability to obtain, analyze and process information, and cultivate good awareness of innovation and information literacy.

The network course construction of "power electronic technology" described in this paper consists of seven modules: network course catalogue, network course requirements, course content index, network exercises guidance, network course experiment, network teaching resources and network course q & A, as shown in Figure 1. These seven modules constitute a system, interdependent and inseparable.

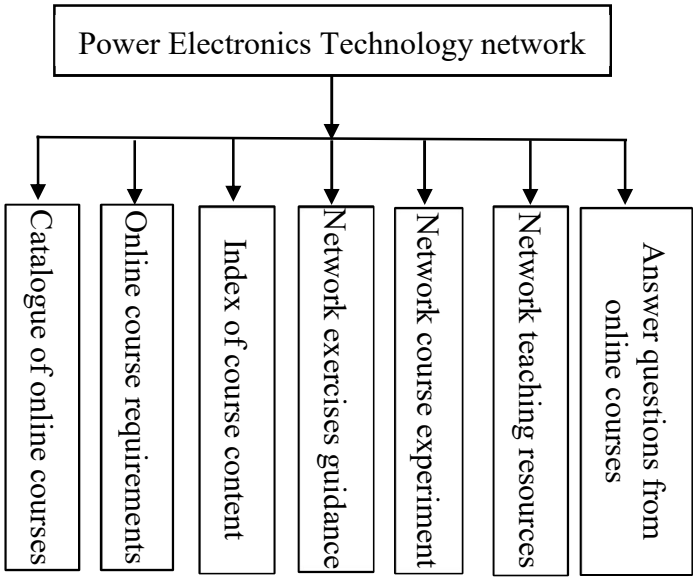

Figure 1. General framework of power Electronic Technology network course

(1) Network course catalog module

It is the focus of network course design, but also the key content of learning. It is to organize the course content in a hypertext way, with text, animation, image materials to explain and demonstrate some abstract concepts, theorems and analysis methods. While each chapter in the course catalogue

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is interrelated and interdependent with other chapters, it is also an independent whole and a basic unit of curriculum implementation. The implementation process of the curriculum is not the process of students passively accepting knowledge, but the process of interaction between teachers and students, and between students and students in the teaching activities. In each chapter, there are the teaching objectives required by learning, which provide standards for learners' self-assessment. Each specific task is refined into a number of problems, so that learners can learn in a planned and step-by-step way. At the same time, we use a variety of media to present the teaching content, to achieve the effect of picture, text, students, like, and mobilize the learning motivation of learners. At the end of each chapter, provide a summary of this chapter, so as to facilitate students' outline and master the key points and key points of this chapter. And at the end of the provided consolidation exercises, used to test the level of learning, the level achieved.

When organizing the content of the network course, we first analyze, summarize and summarize the content of the network course, and use the task-driven method to quantify the learning content into a chapter. The content of each chapter is quantified into several relevant learning tasks, and each learning task is further quantified into multiple problems. The questions are proposed in accordance with the advance order of students' cognitive rules, so that students can understand the essence of the problem in the process of specific problem solving, so as to achieve the purpose of cognition.

(2) Modules of online courses are required

This module is divided into five parts: course nature, teaching syllabus, teaching requirements, teaching arrangement and reference materials. Through the study of this part, we can understand the basic situation, learning points, basic requirements and learning time arrangement of this course, and grasp the focus of this course better.

(3) Course content index module

This module is made according to the knowledge points. In the process of learning, if some learners do not understand the knowledge points, they can query the knowledge points and come to the corresponding chapter to learn. Because each learner has different levels of mastery, it is suitable for personalized learning. If you find that some knowledge points are not understood enough after the test, you can also learn again through the query.

(4) Network exercise guidance module

Provide solutions to the typical examples. Learners can link to the exercise instruction section in the process of learning a certain chapter, or they can directly choose the exercise instruction module to learn. The solution of each typical example includes three parts: analysis, answer and summary. Through the study of typical examples, I can deepen the understanding and application of concepts, laws and analysis methods, and also increase the problem-solving skills, and improve my ability to analyze and solve problems.

(5) Network course experiment module

It contains a number of typical power electronics technology experiments, cultivating students' basic skills of scientific experiments, setting up practical engineering views and rigorous scientific style, so that they can independently carry out experiments, and laying a foundation for professional learning and engaging in engineering technology work.

(6) Network teaching resource module

Including animation library, picture library, appendix, Chinese and English comparison, simulation questions, exercises solutions, related website six parts. This part is an important part of the online course design. Compared with traditional courses, an outstanding advantage of network courses is that they have a rich resource base, which is convenient to enrich students' learning. This part independent as a separate module is conducive to the students to find, also can seamlessly link with other network platform, teachers in the classroom teaching, can carry teaching resources module, in the normal teaching process, citing the animation, image resources, rich teaching content, help students understand the abstract concept, law, increase the interest of classroom teaching. In the

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middle of the learning process, when learners need to find confused concepts, they can go to the resource library to solve them. The simulated test bank contains ten sets of simulated test questions. When students finish this course, they can test their learning effect, timely feedback the learning situation and existing problems, effectively help themselves to adjust, and also help to understand the degree of teaching objectives, so as to improve teaching. At the same time, while learning this course, you can go to the relevant website for information inquiry and learning, which not only can deepen the understanding of knowledge, but also can enrich their knowledge.

(7) Online course q & A module

This is the interactive teaching part, mainly for teachers and students to establish a connection between students and students channel, so that students can ask questions to teachers through the network, teachers give answers. In this module, we design some questions that can cause learners to debate. At the same time design can inspire the subsequent discussion, learners with these problems, landing discussion published their opinions, and the opinions of learning partners published their evaluation, learners in the process of communication with other students, unconsciously put themselves as an open system, exchange useful information with the outside world, so that the information in the brain organization more orderly.

5. Conclusion

The development of modern computer technology and network technology undoubtedly provides a good online learning platform for the network course of "power electronic technology", and this learning method is also an effective supplement to the traditional classroom learning. And "power electronic technology" at the core of the curriculum reform is to make curriculum "practical", try our best to mobilize students 'interest in learning specialized courses, network teaching combined with classroom interaction, comprehensive experiment to deepen the students' understanding of power system theory knowledge, enable the students to link basic theory and engineering practice, become a comprehensive thinking ability and comprehensive processing ability of compound application technical personnel. Through several classes of students in the network course learning, using the network course combined with traditional course mode, inspired the students 'interest in learning, improve the enthusiasm of students' learning, expand the students learning space, improve the learning efficiency, achieved good learning effect, contribute to the construction of our informatization and the in-depth development of quality education.

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