

Exploration on Online Teaching Mode of Curriculum Group of "Electronic Technology Foundation"

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ABSTRACT

According to the characteristics of the curriculum group of "electronic technology foundation", this article analyzes the timely improvement of teaching methods and innovative teaching design against the background of the epidemic, explores a new online teaching model for the curriculum group of "electronic technology foundation", and proposes a new way for the blended teaching of the curriculum group of "electronic technology foundation".

Keywords: online education, teaching design, blended teaching, curriculum reform

I. INTRODUCTION

The series of courses of "electronic technology foundation" is a compulsory professional basic course for non-commissioned college students majoring in communication technology. The course group mainly includes electronic technology foundation, electronic technology and application, comprehensive training, etc. The sudden epidemic has brought new challenges to this course. The course team of "electronic technology foundation" timely discussed and adjusted the teaching design and teaching mode, and resolutely fought the hard battle of online teaching of electronic technology foundation course.

II. INNOVATIVE ONLINE TEACHING DESIGN

The general characteristic of the course group of "electronic technology foundation" is that the teaching content is abstract and boring, but is very practical. Therefore, the online teaching of electronic technology foundation course group is not simply to move the offline courses to the online. In order to ensure the teaching effect, the online teaching design should be in line with the characteristics of the course. Through the in-depth discussion, the team adopts the project-driven mode to make every knowledge point run through the whole project when designing the online course content. Using this way can make online teaching more living. The project-based teaching design firstly introduces the project case and the composition of the project, focuses on the electronic components used in the project, as well as their functions and working principles, pays attention to the analysis of electronic devices by using external circuits, emphasizes that students should understand the overall function of the circuit in the learning process, and pay attention to the external characteristics, functions and practical applications. The

content such as the internal structure and characteristics of components or integrated circuits is not the key content of online teaching. MOOC videos are pushed to students for offline self-learning before class. Against the background of the epidemic, it is impossible to implement offline practical operation. Therefore, Multisim Simulation software is used to assist teaching, which is a good way to solve the problem that students can't carry out the practical operation in online teaching mode. As students are easy to be distracted and fatigued when having online courses, the appropriate integration of "humor" in the teaching design is an important means that cannot be ignored in the construction of online courses, and the just-right "humor" is the "catalyst" in the learning process.

A. Pre-class test

In Rain Classroom and Tencent Classroom, pre-class test questions will be distributed to understand students' mastery of relevant knowledge. In this way, teachers can better understand the students' mastery of the teaching content, have a definite target, and design the appropriate starting point of teaching according to the actual situation of students. Then, the difficulty of teaching content and the form of group training can match the actual situation of most students. Through the preview of courseware, students can make clear the teaching content and teaching difficulties, and improve the efficiency of online teaching.

B. Paying attention to interactive learning in class

Online courses need to take "students as the center", fully reflecting that students are the real masters of the classroom. Through online question answering, online group discussion and practical operation, students can actively participate in the whole teaching process, fully reflecting that teachers are the guide of the classroom,

and students are the masters of the classroom, so as to stimulate students' learning potential. Due to the lack of communication and interaction between teachers and students offline, students are easy to feel tired. Therefore, online questions or humorous videos can be set up every 15 minutes so as to relieve students' fatigue and improve their attention.

C. Adopting various forms of online Q & A after class

Online teaching has higher requirements for students' autonomous learning ability. After class, teachers conduct online discussion and interaction through rain classroom, Tencent classroom, Wechat group and QQ group teaching platform to stimulate students' learning enthusiasm. Teachers can timely understand the learning situation according to the actual situation of online discussion, and conduct centralized Q & A through Rain Classroom, Tencent Classroom and Wechat group, and further arrange the teaching content and implementation scheme according to the online Q & A situation.

D. Simulation experiment software can be employed to improve students' ability to apply knowledge

Courses involving electronic technology foundation are highly practical. Multism simulation software can be adopted as supplement for online courses. In addition to theoretical teaching online, multimedia presentations are also covered, which makes up for the difficulty of conducting online practical courses. The experiment process and result make abstract teaching content visualized. Multism simulation software boasts rich components library, instruments and other measuring tools. Students can propose a variety of design schemes based on design requirements, modify specific parameters of components at any time, and obtain the results. By constantly improving the design scheme through data, students' ability to analyze and solve problems is improved. The bridge of transition and communication between theory teaching and experiment teaching of electronic technology foundation courses is built, which enables students to apply what they have learned.

III. OPTIMIZING AND INTEGRATING TEACHING CONTENTS

According to the characteristics of online teaching and specific project cases, the teaching content of electronic technology course group is integrated and optimized. At the same time, the application ability of non-commissioned college students in vocational education is investigated, and the content of basic ability training to meet post is formulated. According to the post requirements, the relevant teaching contents of application skills training are added, such as basic knowledge of electrical engineering, digital

communication principle, sensor, single-chip microcomputer application, etc. According to the characteristics of online teaching, it adopts "less calculation and more theory", and the contents such as formula overturning are deleted.

A. Mind maps can be used to clarify knowledge frames

Mind maps involving knowledge of the chapter can be employed in online teaching to improve teaching effect. Mind maps helps to connect knowledge points, cultivate thinking ability, clarify the knowledge system of electronic technology courses, and enrich resources for online teaching. The graphical structure of mind maps can also be taken to emphasize the physical properties of circuit itself, thus reducing the mathematical requirements. For example, as for the analysis of basic amplifying circuit, students not only have a further understanding of related concepts of basic amplifying circuit after drawing mind maps, but also help solve the difficulties in teaching and learning: relationship between static and dynamic, the solution method of static and dynamic parameters, the relationship and transition between mathematics and circuits. Thanks to the divergent thinking characteristics of mind map, students' innovative thinking ability can be gradually enhanced.

B. Typical cases can be taken to realize the integration and expansion of knowledge points

In order to realize the horizontal integration and expansion of knowledge points, the content of electronic technology foundation online course should covers typical life examples. Though not an easy job for teachers, the idea of applying theoretical knowledge to practice to stimulate students' interest in learning to the maximum extent should be upheld. Its application in electronic technology foundation online courses shows that it is beneficial to students, mainly in the following aspects. First, better and active classroom atmosphere is obtained, the number of students who distract has decreased significantly, and the interaction between students and teachers online has enhanced. Second, students' enthusiasm to participate in online teaching activities has been hiked, which can be explained by typical examples based on life that narrowed the distance between knowledge and application, highlighted the usefulness of knowledge, and increased their interest in learning. In short, typical cases introduced in teaching have been welcomed and recognized by students. The related cases introduced to online courses take into account both basic theories and practical applications, so that students can relate what they have learned to real life and get their ability to analyze and solve problems improved.

C. The history and frontier knowledge of electronic technology should also be covered

In view of the characteristics of electronic technology online courses, the teaching content should include information about the development process of electronic technology and the frontier trends in the field of modern electronic technology, so that students can stay current with the time while understanding the evolution of electronic technology, thus further enriching their knowledge system. For example, when it comes to transistor, the development of transistors and the new technology of light-emitting diodes should be covered to unveil its mystery. The teacher can also illustrate the application prospect of light-emitting diode, explain the competitiveness of existing fine point light-emitting diode with the help of multimedia courseware, and look forward to its development orientation. The introduction to new and advanced technology and products helps to stimulate students' innovation, encourage them to pursue the spirit of innovation, which contributes to the cultivation of students featuring future vision and solid foundation!

IV. ESTABLISHING A NEW EXAMINATION AND EVALUATION MECHANISM

Combined with the characteristics of online teaching of electronic technology foundation course group, it is required to highlight the authenticity, objectivity and impartiality of the assessment process and results, and establish a diversified examination and evaluation mechanism. The assessment of electronic technology foundation course group consists of formative assessment and summative assessment. Formative assessment accounts for 50% of the total score, and summative assessment accounts for 50% of the total score. Formative assessment includes online attendance (accounting for 10%), preview (5%), online homework (10%), online stage examination (15%), Multism simulation experiment design (5%) and classroom performance (5%). The summative assessment adopts the offline assessment, in which the practical operation that follows the system of "experiment plus comprehensive practice" accounts for 20% of the total score, and mainly assesses the students' practical ability and problem-solving ability; the theoretical examination that test students' mastery of important and difficult contents involving electronic technology foundation accounts for 30% of the total score, which mainly assesses the theoretical knowledge of electronic technology course group in the form of closed-book exam.

V. CONCLUSION

Because of the epidemic, the electronic technology course group adopts the way of online implementation, which is not only a challenge to the traditional teaching,

but also provides a new opportunity for the innovation of teaching mode of electronic technology foundation course group. Diversified teaching modes are adopted, with online live broadcast and interaction as the basic mode, online discussion is carried out through teaching platforms such as rain classroom, WeChat group and QQ group, and Multism simulation software is taken to integrate theoretical and practical teaching in online courses. Problems are summarized and reflected through online big data feedback, so that the teaching effect of electronic technology course group is good. It is necessary to further explore new ways for the online and offline blended teaching. In the future, it is required to have further exploration and improvement, continuously promote the teaching quality of electronic technology foundation course group, and improve the teaching ability of teachers and the learning effect of students.

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