

Preliminary Study on The Examination Reform about "Digital Electronic Technology"

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Abstract

This paper analyzes the deficiencies of the traditional digital electronic technology examination methods, and discusses how to carry out examination reform of Digital Electronic Technology, as well as the positive effects of the reform on enhancing students' interest in learning, improving teaching quality, improving students' innovation ability and making the examination results more scientific.

Keywords

Reform of examination methods; Simulation practice assessment.

1. Introduction

Digital Electronic Technology is a basic course for students majoring in automation, electronics, communication, measurement and control, and electrical. It mainly includes electronic devices and electronic circuit design and other contents. The teaching quality of "Digital Electronic Technology" will play a crucial role in the follow-up courses of each major. Therefore, the introduction of a more scientific and reasonable assessment method will give more scientific and advanced guidance to students' learning of "digital electronic technology", and the resulting course results will certainly reflect a student's actual academic level and ability more objectively and truly, and truly make the teaching process become the process of evaluating students' learning state and ability level.

2. Present Situation of Teaching and Examination of Traditional Digital Electronic Technology

The aim of modern higher engineering education is to cultivate innovative applied talents. The traditional universities tend to cultivate "uniform" academic talents, while the training of applied talents becomes a vacancy. This talent training mode is matched with the traditional course assessment.

The traditional examination of Digital Electronic Technology mainly evaluates students' theoretical knowledge. Both in terms of the examination method and the examination content, it emphasizes the theoretical knowledge of the subject and ignores the practical ability. Such an examination method deviates from the goal of talent training in colleges and universities, and inevitably leads to teachers and students only paying attention to the book knowledge.

In the traditional teaching of Digital Electronic Technology, in order to help students understand the theoretical knowledge or deepen the basic application of the circuit, they often lay stress on the pure and boring theoretical explanation, so that students lose confidence and patience in the face of complex concepts and principles.

Therefore, in the teaching process, it appears that the teachers teach for the paper exam, the students learn to cope with the paper exam. The final examination method of "one paper" is not conducive to stimulate students' learning enthusiasm, so that the learning effect is greatly

reduced, and it is easy to form bad style of study and examination style, and the examination results can not objectively and comprehensively reflect the actual ability and level of students. In the traditional way of teaching and examination, students can not integrate the theoretical knowledge with the actual circuit, and students can not fully grasp the principle, and can not explain the actual circuit phenomenon. As a result, students can not apply what they learn and lack the ability to deal with practical problems and can not solve practical problems.

3. The Examination Reform About "Digital Electronic Technology"

(1) Using EDA technology to change the traditional classroom teaching mode

The application of EDA (electronic design automation) technology in the teaching of "digital Electronic technology" can easily enrich the classroom teaching with actual circuit simulation and design, and achieve the teaching effect that is difficult to achieve in conventional teaching. For example, the application of Multisim software will help teachers and students understand the structure of circuit schematic diagram and the relationship between different of circuits, so that students can get twice the result with half the effort in reading and recognizing diagrams. The simulation module in the Multisim software platform can facilitate teachers and students to conduct simulation analysis of the circuit, and the results are intuitive, clear and convincing. At the same time, EDA technology can help teachers guide students to break through the difficulties of the course and deepen their understanding of the course.

It is helpful to improve students' learning interest and self-learning ability, so as to cultivate students' innovation and practical ability better. In short EDA will make "boring" theoretical teaching lively and efficient.

(2) Use process assessment to change the original way of examination

To change the traditional practice of determining the score of one paper, the score of "Digital Electronic Technology" will be composed of three parts: theoretical examination, experimental examination and simulation practice examination:

Among them, the theory examination mainly examines the students' basic knowledge and basic theory of digital electronic technology, as well as the comprehensive application of theoretical knowledge.

The theoretical teaching of Digital Electronic Technology consists of 50 class hours, and the content can be divided into 45 knowledge points and 40 examination points. Each test paper must cover every chapter of the digital electronic technology course and examine no less than 35 points.

And the design questions should be no less than 30 percent of the total exam. The theory examination will be carried out in the form of closed book test after learning all the theory classes. The examination proposition teacher is different from the teaching teacher, and different teachers take turns marking exam papers. The theory section will count for 50% of the total course grade.

In the experimental examination part, the "digital electronic technology" experiment is a crucial link to learn digital electronic technology. Students verify their knowledge by installing, debugging, troubleshooting and designing circuits, which plays an irreplaceable role in understanding and mastering the principles of electronic circuits. Meanwhile, electronic experiments can also improve students' hands-on ability and cultivate students' awareness of engineering practice.

The Digital electronic technology experiments consists of 14 class hours, and a total of 6 experiments are arranged, among which the first 5 experiments are confirmatory experiments, and the last experiment will require students to complete a certain design experiment in 4 class hours after learning all the theoretical courses.

The experiment will be guided by experienced experiment teachers, and the experiment teachers with first-hand information will give objective and fair experiment results for each student. The lab grade will account for 20% of the total course grade.

In the simulation practice assessment part, in order to let the students can be connected with the practical application after learning the theoretical course, the best way is to encourage students to participate in the actual electronic circuit design.

But at present, with the expansion of college enrollment, many college laboratories are in the "overload" operation, experimental equipments and devices are seriously damaged, Damaged laboratory equipment cannot be repaired in time, the original one group of experimental projects often need several people a group to complete. Such teaching effect will be greatly reduced, and for students manual practice opportunities will become less and less.

With the introduction of Multisim teaching, this adverse phenomenon will bring radical change. The Multisim software can be installed on every computer, so that students can set up their own LABS on their own computers and master the skills of using the software after a short period of study.

Under the guidance of the teacher in class, students can complete experimental projects and design circuits on their own computers.

This will greatly improve students' learning efficiency and the learning interests, and it will greatly reduce the loss of experimental equipment which, and then it will save a lot of laboratory funds.

In the teaching process of "Digital Electronic Technology", with the deepening of the teaching content, the teachers designed carefully three electronic design questions with the different stages of electronic theoretical knowledge. Teachers arranged the students to complete the circuit design and simulation work in spare time. Every student will get a grade for passing these experiments of circuit designs and simulation, the results will be added to the total score of the Digital Electronic Technology course. Accounting for 30% of the total score of Digital Electronic Technology.

This kind of simulation practice work will give full play to the students' intelligence and wisdom. With the completion of each design topic, the students will be more confident in their ability, they will also exchange the skills and methods in the process of electronic circuit design, experience the fun of realizing the circuit design by themselves, so as to better mobilize the students' interest in learning, and improve the students' ability of independent innovation.

In a word, the reform of teaching method and examination method is the inevitable requirement for the national higher education training, especially under the new situation. And it is the inevitable way to cultivate innovative applied talents. The reform of examination method will also be the best platform to transform from exam-oriented education to quality-oriented education.

The result of Digital Electronic Technology course can reflect students' mastery and application ability of the course, it is objectively and reasonably through the reform of process examination way.

At the same time, it will greatly stimulate students' learning interest and motivation, and cultivate innovative talents with solid professional knowledge and strong practical ability!

References

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