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Discussion on the Teaching of the Electronic Technology Foundation

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Abstract: The course Electronic Technology Foundation is a basic course of information subject, which has a very important position of courses. This paper expounds the nature, purpose, task and characteristics of the course, and various teaching methods about the course, so as to improve the teaching effectiveness.
Keywords: Course; Subject; Teaching methods; Teaching effectiveness

1. Nature, purpose and task of the course

The course Electronic Technology Foundation is a basic course of information subject, including circuit analysis, analog electronic technology and digital electronic technology. Through the study of common electronic devices, analog / digital circuits and their analysis and design of the system, this course enables students to acquire basic theories, basic knowledge and basic skills in electronic technology, cultivate students' ability to analyze and solve problems, and lay a foundation for in-depth study of computer hardware courses and their application in majors. It has its own theoretical system, it is also very practical.

Through this course, students can master the basic concepts, basic theories, basic laws, basic circuits, basic analysis methods and basic experimental skills of electronic technology, and master the external characteristics of semiconductor devices, analysis methods and applications of basic analog circuits, master the analysis and calculation of the static and dynamic of basic amplification circuit, and firmly grasp the analysis and related calculation of common signal operation circuit composed of integrated operational amplifier. In the process of teaching, we should pay attention to the appropriate renewal of the content, and appropriately introduce new devices, new technologies and knowledge. Improve students' understanding ability, reasoning ability and language expression ability through classroom discussion. This course is a basic course with strong practicality. Through the study of this course, students can improve their ability to analyze and solve practical problems, design and complete experiments, and cultivate their engineering quality. In the process of teaching, we should focus on the basic concept, basic analysis methods of circuit and the basic application of electronic technology, and pay attention to cultivating students' practical skills and engineering application ability. Thus, they will can establish preliminary system concept, engineering concept and innovation concept.

Through the study of this course, students will focus on mastering the basic concepts, basic laws and basic analysis methods of circuits, the external characteristics of semiconductor devices, the analysis methods and applications of basic analog circuits, and the static and dynamic analysis and calculation of basic amplification circuits, master the basic laws of logic algebra and the simplification methods of logic functions, master the logic functions and external characteristics of gate circuits and various integrated flip flops, master the analysis and design methods of common combinational logic circuits, master the analysis and design methods of common sequential logic circuits, and learn the design of synchronous counters and pulse signal generators, understand the principle and application of programmable logic devices.

2. Characteristics of the course

From the course content of Electronic Technology Foundation, we can see that the teaching of this course has the following characteristics: the prerequisite courses of this course are general physics and electrotechnics. Therefore, on the premise of laying a good foundation, we should strive to connect and cooperate these courses, grasp the relationship between them. This course embodies a strong conceptual, abstraction and principle. In the teaching process, we should grasp the teaching content, grasp the key and difficult points, and carry out teaching from shallow to deep. In the teaching, we should pay attention to combining with practice and carefully clarify the basic concepts, basic principles and basic analysis methods in electronic technology, at the same time, the course is a highly practical course. While teaching theory, we should pay attention to practical teaching. While improving students' theoretical level, we should also enhance students' practical ability so that students can have the ability to solve practical problems.

3. Teaching methods

In the course teaching process, teachers should adopt a variety of teaching methods.

The course teaching should adopt centralized class explanation, intuitive teaching, task driven teaching, modern teaching means,

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project teaching method, students' practice in class, extracurricular guidance and other means to realize the concept of great practical teaching, that is, the combination of in school and out of school, in class and extracurricular, experiment and scientific research, and put practical teaching through the whole process of students' learning.

Through careful analysis of the key and difficult points of the course, after deep understanding, teachers express them in the most direct, concise and easy to understand language, strive to be vivid, and can attract the attention of students.

Task driven teaching method means that in the course teaching process, the specific tasks are completed in a task driven teaching method, and each knowledge point of the teaching content is cleverly included in each task, students complete the tasks independently or cooperatively, and learn basic concepts, basic theories and basic methods, the purpose is to enable students to master basic theoretical knowledge and skills in the process of trying to complete tasks, so as to train students' ability of thinking, exploration and innovation. The implementation process of task driven teaching method is to first clarify the task, determine a specific topic, then design the task, and then reasonably allocate the task, students can consult the data around the task, write the plan and steps to realize the task, and then find ways to complete it step by step, comprehensively apply the learned knowledge, strive to complete the task, it can also be completed in a team.

The development of multimedia technology has added vivid means to electronic teaching, because it has graphic, text and sound, and has good interaction, it makes the expression of various educational information more intuitive and vivid. It vividly and visually reproduces the contents that are difficult to express in traditional teaching, making it easier for students to understand the contents in the process of class, it has more advantages than other teaching methods.

In teaching activities, students are the main body, focusing on ideas, principles and methods, and repeatedly emphasizing key points and concepts, at the same time, case teaching and task oriented teaching methods are carried out, because theoretical teaching serves the cultivation of practical skills, and practical skills training takes the completion of specific projects as the carrier, therefore, case teaching principle is the best carrier to complete theoretical teaching, under this guiding ideology, case teaching is also well implemented. The adoption of case teaching method enriches teaching, highlights learning priorities and systematizes classroom content, which can better stimulate learning interest and improve learning initiative and enthusiasm. The process design of each skill training is: firstly, the theoretical teaching is carried out around the realization of a specific project, and the thinking tasks are arranged after class, the students complete the design through review and consulting materials. In this way, the students study and train with the purpose, which is conducive to the elimination and mastery of knowledge and skills.

Adhere to the overall teaching principles of guiding teaching with application, assisting teaching with practice and testing teaching with design. Adhere to the reform of teaching methods, so as to cultivate students' scientific thinking ability and innovative spirit, and meet the requirements of applied talent education. Adopt advanced teaching methods, make rational use of modern information technology and other means, reform the traditional teaching methods, teaching methods and teaching management, and use the network for teaching and management. The theory course adopts discussion teaching and the combination of inductive and enlightening teaching, teaching and guidance to strengthen students' understanding and training of basic concepts, basic principles and basic analysis methods, emphasize the cultivation of students' ability to analyze and solve problems, and pay attention to the cultivation of students' scientific thinking and innovation ability. Theory and practice are combined, at present, this course focuses on classroom teaching, combined with online teaching guidance, and takes innovation and practicality as the guiding ideology, a series of practical teaching links are set up to enable students to synthesize and summarize the knowledge learned in each chapter through curriculum design, system design and comprehensive experiments, so as to improve students' understanding of electronic circuits, cultivate students' system design ability.

The course Electronic Technology Foundation is an important basic course of Science and Engineering in colleges and universities, teachers must pay attention to it, apply various teaching methods in the teaching process, use modern teaching methods rational, and improve the teaching effectiveness.

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