Comprehensive Management Promotes the Quality Improvement of Graduation Design for Computer Majors

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Keywords: Integrated management, Computer major, Graduation Project

Abstract. As the last link of undergraduate teaching, graduation design is an important basis for students to graduate successfully to obtain a degree certificate. In view of the problems existing in the current graduation design process, the use of comprehensive management methods to improve the quality of graduation thesis has an important role in cultivating students' ability of innovative practice and solving complex engineering problems. This article starts from two aspects of teachers and students, in order to improve students' interest and confidence in their majors, improve the quality of graduation design, and enhance the employment level of computer graduates.

Introduction

The reputation of college graduates in society affects the vitality of the university. In the whole process of computer science and technology professional training, the undergraduate graduation design is the last one, and it is also a very important practice. Graduation design is not only to achieve the goal of professional graduates by completing basic professional training, but also to test students' professional comprehensive ability and scientific research level through graduation design. Students should systematically review the basic theories of their studies through graduation design. The graduation design of electronic and information science requires students to design and implement complex electronic systems, including hardware design and software design. Graduation design results should be combined with specific customer needs and strictly follow the process of an electronic product development process. Through the graduation design process, students can have a deep understanding of the workflow of the enterprises and enterprises in the profession, and improve the social competitiveness of the students. However, due to various reasons, there are still various problems in the graduation design of the major.

Problems in the Graduation Design Process

There is a gap between graduation design topics and talent development goals.
Due to the large scale of enrollment in the application-oriented undergraduate colleges and the high student skills, the application ability of the instructors is uneven. Some of the topics are not targeted, and the depth and breadth are not enough; some of the topics are repeated, the technology is outdated, and lack of innovation; The research basis and conditions of some subjects are not sufficient, and it is difficult to achieve the expected goals; some of the selected topics are not clear, the ideas are not clear, and it is difficult to form materialized results.

There is a big conflict between graduation design time and student employment.

During the implementation stage of graduation design, students are faced with internship and employment. Some students do not know the importance of graduation design, and put forward the requirements of early internship and employment. However, the graduation design project has little relevance to internship and employment, and sometimes it is impossible to achieve both. Students lacked energy and initiative in graduation design, and the instructors were negligent in management and guidance time could not be guaranteed, which seriously affected the quality of graduation design.

There is a big gap between the quality of graduation design and the certification requirements for engineering education.

Some of the graduation thesis papers in English and Chinese abstracts, keywords, references, charts, formats are not standardized, the overall workload is small, the design only stays at the component selection level, but important to the system design, hardware and software design, data processing, etc. Substantial content involves less; some graduation design papers lack theoretical analysis, there is a phenomenon of piece-to-length, the paper is similar to product specifications; some graduation designs lack software, hardware and system debugging links, hardware circuits and software programs are correct and reliable. Unable to verify; part of the graduation design paper content is only a brief description of the phenomenon, theory and method, lack of feasible analysis, experimental data and application results, the structure of the paper is incomplete.

Graduation design quality evaluation standards are not strictly enforced.

Applied undergraduate colleges attach great importance to the graduation rate and employment rate of undergraduates, while some majors ignore the achievement of graduation design quality and graduation ability. Although there are graduation design related requirements and quality evaluation standards, but the operability is not strong, the selection of questions, opening questions, design process and other links are not enough, the graduation paper review, defense is not strict, the score evaluation is random, resulting in There is a big gap between the actual quality of graduation design and graduation requirements.

Comprehensive Management to Improve the Quality of Graduation Design

In view of the various problems in the current graduation design process, this paper believes that research should be carried out from the following aspects to further enhance the quality, employment competitiveness and social recognition of graduates of this major.

Strict tutor responsibility system, close teacher and student contact.

During the entire graduation design process, the responsibility of the instructor is unquestionable. The instructor needs to give sufficient guidance from selecting topics, guiding students to access relevant literature, and determining the research plans and research methods of graduation design. In order to ensure the quality of graduation design, the teaching and research section has developed a series of systems, but in the actual implementation process, because the teaching and research section has undertaken the school electronic technology basic series of courses, the teaching tasks are heavy, due to lack of energy, it will also bring guidance time. And the shrinkage of responsibility. In response to this actual situation in the past, the Department of Education and Research has adopted a series of measures to strengthen supervision.

Specific practices include:

● To establish a graduation design inspection team system, specifically to divide all teachers in the teaching and research section into several groups according to the direction of graduation topics.

● The team regularly inspects the teacher's guidance, including review of topics, mid-term inspections, and review of student papers.

● Each group organizes the defense design of the graduation project, organizes the teachers in the group to check each other, and standardizes the papers.

● Strengthen teacher-student contact, require instructors to meet with students twice a week, and fill out the guidance record.

● During graduation design, students must sign and approve the teacher when they leave school.

The teaching and research section strictly closes the topic and closely matches the characteristics of this profession.

The topic is the beginning of graduation design and the most critical part. The success of the topic directly affects the enthusiasm of the students and the enthusiasm of participation, and ultimately determines the quality of the design. The topic selection has been reformed from the following aspects: the topic selection combined with the teaching and research work of the instructor can be

hardware, software or theory, but it must be closely related to the teaching or research of computer science and technology majors. Have a specific application background. If multiple students work together to complete a comprehensive project, the guidance must be specifically divided into tasks, requiring each student to understand the entire topic and complete their work independently. All topics must be reviewed by a special group of the teaching and research section, and then posted on the Internet. Students should choose according to their own interests. The topic should consider the purpose of cultivating the design ability and comprehensive ability of electronic engineering, and the teaching, research or specific of computer majors. Combination of application products. The topic should be combined with professional features, keeping up with the latest development direction of computer science. The topic encourages computer hardware system hardware and circuit design and software design, and develops actual background projects or products with advanced technologies such as microcontroller, FPGA, DSP and embedded. Development, or for the development of practical teaching and experimental platforms. It is necessary to pay attention to the theoretical basis and practical value of the topic selection. Pay attention to the fact that the topic should not be too general, and the workload of the topic should be reasonable. It is roughly reasonable for the middle-level students to complete. The graduation design topic supports the combination of college students' innovation and entrepreneurship plan, and supports a number of topics each year. Each project is given certain financial support.

Combine the national college students' electronic design competition to improve the level of teacher guidance.

The National Undergraduate Electronic Design Competition is a very important event in the computer related field and has been successfully held for many times. The topic of the National Undergraduate Electronic Design Contest represents the most advanced direction of computer science and automation. It has a good influence on the reform of university education in China and has become an auxiliary and promotion means for education development and reform. From the previous questions of the electronic design competition, it can be summarized into five categories, namely, power supply, signal source, radio, simple radio remote control system instruments, data acquisition and control. The courses in computer science are: low frequency circuits, high frequency circuits, digital circuits, microcomputer principles, microcontrollers, FPGAs, and embedded.

The teaching and research section should be guided by various electronic design competitions and the ability training of electronic design competitions, and encourage teachers in the teaching and research section to actively participate in the guidance of various electronic design competitions. In the second semester of each academic year, the Electronic Teaching and Research Section is responsible for organizing the school's electronic design competition, and awards the first, second and third prizes in the school every year. Each academic year requires experienced teachers to organize and guide the electronic competitions in Shaanxi Province with young teachers; each year, the participating teams will participate in the National Undergraduate Electronic Design Competition. In each competition, they have achieved outstanding results. In the future practice teaching process, the teachers of the teaching and research section will put more energy and time into various electronic design competitions, further develop their horizons and strengthen their own experience in electronic design practice.

Through each of the various college students' competitions to participate in the electronic design competition, on the one hand, they can accurately grasp the most cutting-edge and latest development direction of the computer field; on the other hand, they also improve the teachers' practical ability and electronic design level. Guided by the electronic design competition, applying the theoretical knowledge and practical experience acquired by teachers from the process of guiding the electronic competition to professional teaching and graduation design will definitely enhance students' interest in graduation design and encourage them to learn what they have learned. Applied to graduation design topics. Thereby improving the overall electronic design level of professional students, improving the quality of graduates and the social recognition of employment.

Summary

Through comprehensive management, after two years of graduation design work practice, the sense of responsibility of the instructors has been enhanced, the ability of students to analyze problems and solve problems has been improved, the ability of teamwork and innovative practice has been cultivated, and the overall quality of graduation design has been improved. Improve the competitiveness of the students in the society and social recognition.

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