The Construction and Research on the Course "Programming Technology"

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Abstract: The purpose of the course "Programming Technology" is to enable students to master the basic methods of program design, gradually form the correct programming ideas and skillfully use the language for program design and debug programs. Based on the analysis of the insufficiency of curriculum construction, this article has carried out research on curriculum reform and has formulated the content and steps of curriculum construction.

1. Introduction

"Programming Technology" is a professional basic course in computer science. Through the study of this course, you will lay the foundation for the study of software development work and follow-up courses which include data structure, operating system, C++ programming and software engineering. This course is also a practical and highly applied course. By learning programming methods and hands-on experiments, students can develop their hands-on ability and ability to analyze problems and solve problems. Therefore, this course is an important compulsory course for computer majors, and it is also the most popular course for information technology majors and the most involved in teaching. On the basis of rigorous theoretical teaching, we focus on practical teaching which combine unit capacity training with comprehensive ability training. Each stage puts forward the corresponding basic goals and improvement goals. We guide students to gradually improve their ability to program and develop software development. We have reformed the assessment methods of the curriculum which include the construction of a test bank, the selection of test papers, and the separation of teaching and examination. The form of assessment includes daily skills assessment, end-of-period skill assessment and final period theory assessment in order to focus on the development of hands-on skills.

2. Deficiencies of curriculum construction

Considering the teachers of this course, there are more young teachers who have insufficient teaching experience. Especially the training of teachers who have just started work should continue to be strengthened. The guidance work for them should be strengthened to promote the improvement of young teachers' teaching quality. Teaching methods and teaching concepts are not uniform. In theory teaching, it is better to use "project-driven" teaching method. The entire course is taught around a "engineering project". With the deepening of the content of the curriculum, the requirements for the project are continuously expanded and software is finally completed. Students should be guided to gradually improve their ability to program and develop software. Our use of online teaching platform is not enough, mainly reflected in how to communicate with teachers and students in real time through the network environment after class. There are many teaching and research studies, but there are few inductions and conclusions. As a result, there are few teaching and research results [1] [2].

3. Teaching reform planning

In order to further improve teaching methods and improve teaching standards, we propose the

following reform measures. We vigorously develop the training of instructors. There are more young teachers in the teaching staff. Some teachers have insufficient teaching experience. Especially the cultivation of teachers who have just started work should continue to strengthen in order to promote the rapid improvement of young teachers' teaching quality. Project teaching methods are taken in the course of teaching. Relevant theories and concepts lead to practical problems. In the process of telling examples, the knowledge points are integrated into the problem. By analyzing and summarizing, we should establish the ideas and methods for solving practical engineering problems so as to improve the ability to solve practical engineering problems. An open practice teaching model is built. According to the requirements of the syllabus, all application capabilities are decomposed and the refined capabilities are implemented in various practical aspects [3].Then the practical work are arranged according to the order of "problem formulation", "algorithm design", "program structure", "language implementation" and "backtracking concept". Open-ended means that students can choose the training of engineering application skills based on the required basic skills. During the school, the lab is open to students for a long time. The teacher conducts an open-ability assessment of each skill that the student masters [4].

The unity of "teaching, learning, and doing" in teaching activities are strengthened. The teacher's "teaching" is the premise, the student's "learning" is the subject, and the student's "doing" is the practice. The organic combination of "teaching, learning, and doing" forms a trinity teaching method, which effectively avoid the disconnection between teaching, learning and doing. The unification of the three links makes teachers' teaching activities form a whole. In the teaching design, classroom teaching, practical guidance, student self-learning and other aspects are fully concerned in order to grasp the overall teaching effect.

An assistant system for students’ autonomous learning and practical teaching is developed which promote the reform and use of modern teaching methods. We plan to develop the "programming teaching website", "program design online examination system" and "programming teaching aid system"[5]. The rich content of extracurricular science and technology activities has laid a solid foundation for the follow-up courses. Classroom content is novel, interesting, and strong in application. In the teaching process, scientific research achievements and the latest developments in the discipline are introduced. In the process of joy, we integrate knowledge transfer, ability development, and quality education.

4. Course construction

The goal of this course is to establish future-oriented education awareness, realize the information and three-dimensionality of the curriculum, build a well-qualified faculty team, and construct excellent courses with first-rate standards. The curriculum structure has been built to a new level. Continuously the syllabus, lesson plans, teaching reference books, study guides, a complete library of problem sets and case studies are improved [6][7]. We introduce the latest achievements of the subject and make necessary adjustments to the content of the teaching materials as needed and enrich multimedia teaching content. The multimedia courseware, electronic lesson plans are further developed. The focus of work shifts from the study of teaching content to the study of teaching methods. We organize the teaching and research work of this course group and encourage teachers to undertake corresponding teaching research projects and topics and actively publish papers. Teaching research is used to promote teaching.

The key to improve the overall quality of students is teachers. We continue to strengthen the teaching team. The goal of team building is to build a team of teachers with high ideological qualities, healthy physical and mental qualities, high levels of teaching and scientific research, and advanced educational ideas, theories, methods, and teaching arts [8]. The cultivation of innovative talents and young and middle-aged backbone teachers are speeded up. In the training, we insist on teaching as the basis. Young teachers need to learn curriculum teaching methods, carry out curriculum teaching research, and insist on scientific research to promote teaching. We require young key teachers to undertake research tasks. We also arrange young teachers to study in famous

domestic universities and study with questions. In the daily training, teachers in this course group are required to listen to the lessons of the old teachers and young teachers to each other. We strengthen exchanges and cooperation between related institutions and enterprises and get support and help in theoretical research. in order to promote teaching research and exchanges between institutions to jointly explore new ideas for vocational education [9].

5. Conclusion

The advanced and perfect computer hardware environment provides an excellent basis for the course group to actively explore effective and diverse teaching modes. Cultivating applied talents who are good at thinking and learning is always the goal of all members of the course group. For above purpose, we try to carry out “heuristic teaching” focusing on analysis, “project analysis teaching” that embodies application and system development features, and “network teaching” that fully demonstrates modern education characteristics and fosters independent learning awareness for different teaching contents. We also focus on the exchange and interaction of "on-site teaching". After planned reforms and construction, we continued to innovate in curriculum construction models and improve and revise the syllabus. We have carried out fruitful reforms in curriculum systems, teaching methods, and teaching methods. Through meticulous design of electronic lesson plans and supplementary teaching courseware, the teaching process is more standardized, at the same time it has played a significant role in the cultivation of the teaching staff [10].

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