Research on Innovation and Entrepreneurship Education Mode of Network Engineering Professionals

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Abstract: In recent years, the network engineering specialty, as a specialty with the characteristics of practical skills training, adheres to the path of innovation and entrepreneurship education, and increases the students' opportunities for practice. Because of the discipline characteristics of the network engineering specialty, the employment scope of graduates is flexible and extensive, and the threshold for starting a business is also very low. However, the existing mode of education is not far from the real mode of innovation and entrepreneurship education. Through the analysis, this paper points out that the training of network engineering talents in colleges and universities needs a clear orientation of service area and the orientation of training level. The training mode of network engineering talents into the education of entrepreneurship is a kind of characteristic model derived from the interaction of the social and economic changes in colleges and universities, and it can become a promotion of the network engineering in colleges and universities, and a new strategy for the quality of talent training.

1. Introduction

In recent years, with the increasing emphasis on network engineering education in the country, the quality of network engineering education personnel training has been greatly improved. However, compared with the current society's demand for network engineering talents, there is still a certain gap. The outstanding performance is that there is a general convergence phenomenon in the positioning of network engineering talents. For example, the service orientation of graduates is aimed at large national enterprises or multinational corporations. While neglecting the talent demand of small and medium-sized enterprises and private small enterprises, the professional structure of network engineering talents cultivated by colleges and universities is unbalanced, and the hierarchical types are too concentrated. In fact, the correct orientation of the talent training level is related to the development direction, development goals and development pattern of the discipline, which is the basic basis for the various tasks of the discipline. Taking the network engineering major as an example, this paper discusses the cultivation ideas of innovative and applied talents from the aspects of talent training program setting, teaching mode and teaching method reform, course assessment, teacher team construction and experimental practice base construction.

2. Network Engineering Reform Talent Innovation Training Objectives

In recent years, with the increasing emphasis on network engineering education, the quality of network engineering education has been greatly improved. However, compared with the needs of the current social network engineering personnel, there are still a certain gap, which shows that there is a universal convergence in the orientation of the training of network engineering talents. In fact, the correct orientation of the personnel training level is related to the development direction, the development goal and the development pattern of the subject, which is the basic basis for the subject to carry out various work. Therefore, the training of network engineering talents in Colleges and universities needs clear positioning of service areas and orientation of training levels.

2.1 Service-Oriented Principles: The Clear Positioning of the Service Area.

This principle requires the correct handling of the relationship between network engineering talent training and social needs, and determines the positioning of network engineering talent training according to the supply and demand of network engineering talents oriented to the region. First of all, it is necessary to comprehensively and systematically grasp the development status and trends of the region in terms of economy, culture, science and technology, environment, and society, such as the industrial structure layout and adjustment and updating, and the current and future key industries. Colleges and universities are mainly oriented to the needs of regional economy for talent training should be fully considered, the training direction should be adjusted in a timely manner, and the training objectives, curriculum system and teaching content should be rationally adjusted.

2.2 The Principle of Running a School Level: a Clear Level of Talent Training.

The requirements of this principle are reflected in two aspects, one is that the training level must be in conformity with the school level, and the two is to make clear the difference between the personnel training at the same level with the other different types of colleges and universities, and to maintain and develop their own characteristics. As far as network engineering education is concerned, colleges and universities mainly cultivate four kinds of network engineering talents, namely, academic, network engineering, technical and skilled. The university is the main body of regional innovation. Different from the regional innovation in the big cities, it may be the cooperation of the government, the enterprise and the University. In the medium and small cities, the university is often able to play the key role in promoting the transfer of technology and the transformation of results, leading and boosting the economic and social development of the region. On the other hand, Colleges and universities are generally teaching type or teaching and research type universities. Therefore, the orientation of the training of network engineering talents in Colleges and universities can not be one-sided pursuit of "high, large and complete", and the emphasis is on the training of applied network engineering talents, such as production network engineers or service network engineers. The construction of the teaching system should pay more attention to the training of the technical ability of the students' network engineering, strengthen the practical training of the students' network engineering practice, and highlight the cultivation of the ability of innovation and entrepreneurship.

3. Problems in the Practice of Network Engineering Practice

The traditional practical teaching mode of network engineering focuses on the basic principles of the network, ignoring the cultivation of students' network engineering ability and innovation ability. The main problems are:

3.1 The inadequate Validation Experiments, Comprehensive and Innovative Experiment

When the experimental content is set, the proportion of confirmatory experiments is large, while the number of comprehensive design experiments is small. Students only need to follow the steps in the lab guide to get the correct experimental results, and the ability to comprehensively use knowledge is often not exercised. This passive teaching method will make students feel inertia, lack the motivation to explore independently and challenge innovation.

3.2 The Insufficient Experimental Equipment and Use of Existing Equipment.

Network technology is developing rapidly, and the construction of network laboratories requires a lot of money, and the experimental equipment needs to be constantly updated, which makes the network experimental equipment of many colleges lack or obsolete. In addition to hardware equipment, the software platform construction can not meet the requirements of comprehensive experiments, and it is impossible to carry out high-level and deep-reaching experiments. At the same time, some teachers do not have the ability to use experimental equipment flexibly, and cannot fully utilize experimental conditions to design high-quality experimental content.

3.3 The unsystematic Experimental Content and insufficient System Level Considerations.

The content of many courses in the experimental course group is closely related and echoed, but the experimental content of each course is set by the teacher. Often, the relevance and connection between the courses are not enough, resulting in the experimental content is not systematic enough. The content even has duplicates or disjointed content; overall, the experimental setup lacks overall consideration, and the entire experimental system is not planned from the experimental teaching system level.

4. Research on the Training Mode of Network Engineering Talents Combining Innovation and Entrepreneurship Education

4.1 Perfect Curriculum System.

Focusing on the students' innovative spirit, entrepreneurial awareness and entrepreneurial ability training, promoting professional education to reflect the cutting-edge knowledge of the subject area in a timely manner, timely reflecting the comprehensive information of the subject and relevant interdisciplinary majors, and timely reflecting the relevant industries and industries of the discipline. The direction of development. Open a business management course, and set up a three- week internship and new technology topics, mainly to introduce students, to understand the characteristics of the profession, the mainstream technology of the software industry, the needs of the society for software talents, etc.; Research areas and research hotspots of level talents. Open a professional software innovation and entrepreneurship elective course.

The identified network domain software development engineering technology talent training goal provides a more solid foundation and broad development space for the student's subsequent development. The professional foundation course with C++ programming and data structure as the main body highlights the students' logical thinking ability, programming ability, program debugging ability, algorithm design ability and algorithm innovation ability, which lays a solid programming foundation for the follow-up course learning; professional courses The professional courses are mainly two kinds of modules: networking technology application and Linux network development. Network technology application teaching is to guide students to use computer technology to complete the construction of large-scale network engineering. Linux network development refers to large-scale low-level software development, design and development, application software development, etc.; and elective courses such as network security and Web application development and other related courses, such courses can effectively enhance and expand the student professional curriculum; The important point is to improve students' ability to use these skills comprehensively through internships before graduation.

4.2 Sharing Teaching Resources.

(1) To strengthen the construction of teaching materials for professional characteristics. Drawing on the experience of "12th Five-Year" of "routing exchange technology" in the national program of general higher education, combining with the teaching and practical experience of network engineering, the construction of special teaching materials is carried out. First, the construction of teaching materials for engineering practice is emphasized. Second, the course of self compilation and the technical development of network engineering industry are reflected. Third, strengthen cooperation with enterprises and jointly develop special teaching materials for developing the ability of network software development talents for enterprises.

(2) Strengthen the construction of curriculum resources. In order to improve the quality of teaching and adopt modern teaching methods, we develop CAI courseware, video teaching, teaching cases, exercise test and other multimedia resources to cultivate students' self-study ability and improve their learning consciousness.

(3) Strengthen the construction of practical resources. Starting from the whole system of talent training, the main line is to cultivate the ability of engineering innovation and application, and the combination of classroom construction and teaching, experiment and competition, innovation goal and the second classroom, practical training and school enterprise guidance to help students complete the comprehensive and comprehensive training goal of graduation design, so that students' theory study and Practice two, through the combination of the combination of the classroom and the training base and the school closely as well as the synchronization of students' learning and employment, the design and innovation, participation and cooperation of practical teaching are highlighted, so that practice teaching is an essential part of every semester.

4.3 The Improvement of Teachers.

The introduction of the teaching force must follow certain principles, ensure the stability of the faculty and the level of teaching, and have sufficient ability to develop and adapt to the development of the discipline. At the same time, we must also pay attention to cultivating the original faculty, improve the quality of teaching, improve the personal qualities of faculty and staff, and achieve the synchronization of quality and quantity. The combination of education and ability makes the support structure and age structure of college faculty and staff more perfect. In order to stimulate professional teachers to engage in innovation and entrepreneurship education, encourage professional teachers to continuously integrate into the frontiers of the discipline, professional dynamics, industrial trends, innovative entrepreneurship cases, etc., to guide teachers to deepen the innovation and entrepreneurship education and teaching students according to their aptitude, and encourage Students do middle school and think middle school.

In accordance with the "Software Institute Teacher Growth Plan", the teachers' teaching, research and practical skills are systematically upgraded, such as the backbone teachers going abroad for study, outstanding young teachers' domestic visits, and the establishment of research teams based on the research direction of teachers. Strengthen the relationship between schools and enterprises, set up a relatively stable faculty, undertake horizontal projects from social or software companies, establish professional teachers to enterprises for learning, communication, practice, and other conventional mechanisms to improve the actual project development and management of teachers. ability.

4.4 To Explore the Theory and Practice of Blended Learning Mode.

One of the characteristics of the programming class is that students need to learn and master a lot of knowledge and complex, and there is a close relationship between these complex knowledge points, which requires students to strengthen practice and practice. Most knowledge points students can be verified during the design process of the program, thus effectively deepening students' understanding and mastery of the knowledge points. The biggest difference between the teaching mode combining theory and practice and the traditional teaching mode is that there is no obvious distinction between the teaching link and the practical teaching of this new teaching mode. The professional class teacher transfers the teaching location from the classroom to the computer room in the same classroom. The theory of practice and practice is completed at the same time.

5. Conclusion

With innovative talents as the core and industry-oriented school-enterprise linkage software innovation and entrepreneurship training mode as the main content, improve the comprehensive quality of the teaching team and network engineering quality, re-establish the network engineering professional training objectives, reconstruct the curriculum system and Practical teaching system, through low-level basic program design ability training, senior enterprise network engineering innovation and entrepreneurship project practice training and senior students' enterprise actual combat to improve students' network engineering practice ability and entrepreneurial employment competitiveness, network engineering design ability and innovation ability Innovative entrepreneurship education runs through the whole process of professional education, and builds a new system of talent cultivation for professional education and innovation and entrepreneurship education.

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