Research on project-based teaching mode of Communication Engineering Supervision Practice course

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Abstract: "Communication engineering Supervision Practice" course is the core course of communication engineering design and supervision major. Compared with the traditional teaching mode, project-based teaching can greatly improve the teaching quality and strengthen the connotation construction of higher vocational colleges. This paper aims to explore the application of project-based learning mode in the teaching of "Communication engineering Supervision Practice", determine the course positioning and training objectives, design the teaching content, create the learning environment, implement the practice of case projects and task-driven teaching, organically integrate the ideological and political elements of the course, and exercise students' practical ability. Enhance students' learning initiative, sense of social responsibility and sense of national cultural identity, so as to cultivate all-round supervision talents with strong comprehensive quality.

Key words: project-based teaching; Task-driven; Curriculum thinking and politics; supervision

Introduction

The development of communication industry provides a strong guarantee for the comprehensive implementation of reform and opening up in our country and the vigorous enhancement of national economic strength and people's living standards. Forty years of reform and opening up, the rapid development of China's communications industry, the continuous update of technology, the continuous expansion of business scale prompted communications operators to step up network expansion, which led to the rapid development of communications construction market. From the past few professional engineering companies to carry out the construction as planned to the current many equipment manufacturers and engineering construction units to join the ranks of communications construction projects, the level and technology of construction units are uneven, and the construction methods and standards are not uniform, resulting in frequent engineering failures and quality hazards, equipment installation and wiring confusion, commissioning difficulties, and project quality cannot be guaranteed. Therefore, it is imperative to introduce the engineering supervision system, which leads to the emergence of communication construction supervision companies mushrooming, active in the front line of communication engineering construction.

By the end of March 2023, the total number of mobile phone base stations in China reached 11.14 million, a net increase of 310,000 over the end of the previous year. Among them, the total number of 5G base stations reached 2.646 million, accounting for 23.7 percent of the total mobile base stations. The wireless base station project consists of pre-supporting projects, transmission access projects, wireless equipment installation projects and other projects. In order to ensure the smooth progress of the project, communication supervision engineers are required to do a good job in supervision and management. Based on this, many communication majors in vocational colleges in China have set up the course "Communication Engineering Supervision Practice", but the traditional teaching method has little effect. Students still need to participate in training before they can work after graduation. This paper combines the course content with typical projects in actual jobs, effectively utilizes practical training resources and enterprise resources, and allows students to simulate the project leaders of construction units, design units and construction units, as well as the chief supervision engineer, professional supervision engineer and supervisor of supervision units, and integrate practical work into teaching. The use of information technology to transfer teaching resources, task allocation, task implementation, summary and assessment.

1. The drawbacks and reform ideas of the traditional course "Communication Engineering Supervision Practice"

The traditional "Practice of Communication Engineering Supervision" course is based on the basic theories and concepts of communication engineering supervision, and takes typical communication projects as the carrier to practice the supervisor post requirements of "three control, two management, one coordination and one fulfillment". The traditional chapter teaching, lacking of practical application links corresponding to knowledge, is boring in content and difficult in learning, resulting in low interest in learning and lack of method ability and social ability of students. They still need to spend a certain amount of time for training before taking the job, which cannot meet the training requirements of specialized skilled talents in higher vocational colleges. The future employment of students majoring in communication in higher vocational colleges is mostly concentrated in front-line positions, and enterprises need students to be able to work directly when they are employed. Therefore, after mastering the basic knowledge, it is particularly important to apply the relevant knowledge to the actual project, and let the students carry out the project work as the supervisor involved in the process of the communication engineering project, so as to strengthen the cultivation of practical ability. Therefore, the curriculum design should reflect the reform of theoretical teaching content, the change of the ratio of theory and practice teaching and the reform of practice teaching.

2. The project teaching curriculum construction scheme

1. Course positioning

As the core course of communication engineering design and supervision, "Practice of Communication Engineering Supervision" includes "Communication Line Engineering", "Application of Mobile Communication Technology", "Data Communication Network

Construction and Management", etc., while "Optical Transmission Network Construction and Maintenance", "Communication Engineering Design Drawing" and "Mobile Network Optimization and Planning", etc. It covers all the basic knowledge of communication pipeline engineering, communication optical cable engineering, data and switching equipment installation engineering, and wireless base station engineering involved in the course of "Communication Engineering Supervision Practice". This course is set up according to the communication engineering supervision task and professional ability analysis table of communication engineering design and supervision major. It adopts the "144" teaching mode to teach a set of basic theories and basic knowledge of communication supervision that must be mastered, learn the supervision practice of 4 typical communication engineering projects, and arrange 4 real on-site supervision tasks. Through the teaching and training of this combination of work and study, it lays a solid foundation for students in the subsequent professional learning and vocational skills training, and realizes the seamless connection from students to jobs.

2. Training objectives and requirements

The design of course objectives should be combined with the actual needs of the post, centering on the vocational post ability, and reflecting the professional ability and vocational core ability of the employment post. The overall goal of the course is that through the study of this course, students can quickly adapt to the position.

The overall goal is to have the basic ability of "three control, two management, one coordination and one implementation" of communication engineering construction supervision, master the communication engineering supervision process, be familiar with the relevant laws and regulations of communication engineering supervision, and develop the professional quality of "according to law, independent, fair, honest and scientific".

The ability goal is to be able to achieve the corresponding ability of specific positions through the course study, such as carrying out supervision work according to the supervision work flow, being able to find problems, being able to check and record the implementation plan and progress of the construction unit, being able to supervise, manage and guide the implementation process of the construction unit, and being able to write the supervision daily, weekly report, meeting minutes and other applied documents.

Knowledge goal is to master the systematic applied knowledge system through course study, such as supervision process, laws and regulations, three control, two management, coordination and implementation of theoretical knowledge, etc.

Quality goals mainly reflect the core abilities of quality education in China, such as being good at expression, communication, coordination and response, having legal awareness, integrity and justice quality, and forming the habit of lifelong learning.

3. Design teaching projects according to typical jobs

According to the requirements of the syllabus, the teaching design is shown in Figure 1. The setting of teaching modules follows the principle of gradual progress from shallow to deep, combining theory with practice, and the ratio of theoretical lessons to practical lessons is about 1:1.

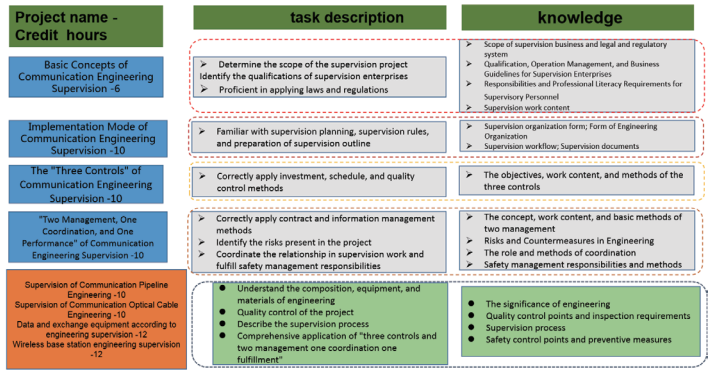


Figure 1 Description of teaching content

4. Formation of project team -- realization of project teaching

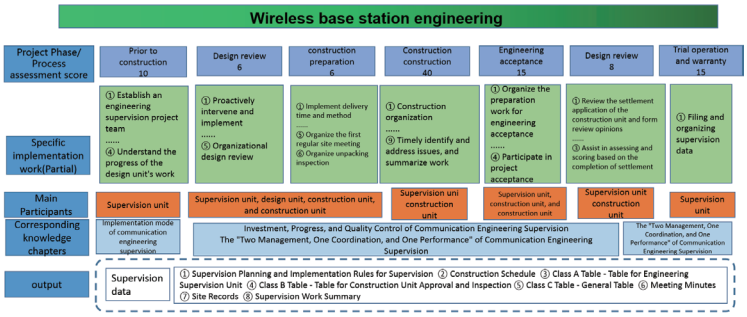
Using the training room platform of the school, the base station of the school and the cooperative enterprises, the practical exercises of communication pipeline engineering, communication optical cable engineering, data and switching equipment installation engineering and wireless base station engineering were carried out. According to the process of the actual project and the relevant parties and roles involved, the students are divided into multiple project teams, each project team includes the head of the construction unit, the head of the design unit, the project manager of the construction unit, the chief supervision engineer, the professional supervision engineer and the supervisor. The selected part of the teaching content is shown in Table 1. In this way, each student is allowed to participate in the project with a real role and become the protagonist. In the whole process of the project, each student has corresponding tasks and output requirements, and the students complete the project independently. The teacher gives guidance and edifies the corresponding ideological and political elements during the process, thus changing the infusing teaching mode and improving the enthusiasm of students in practice. Cultivate their independent learning ability and innovation ability, and enhance students' sense of unity and cooperation, social responsibility and craftsman spirit.

5, the use of information technology to develop a sound assessment method

Adopt the process of information assessment, the use of chaoxing learning platform,tencent conference and other information platforms, to develop a comprehensive and perfect assessment system, including class attendance, class performance evaluation, course work completion evaluation, practical training operation evaluation and the combination of theory and practice of the process examination

system. Among them, the process examination and practical training operation evaluation combining student theory and practice should pay special attention to the combination of process evaluation and result evaluation, which mainly consists of four parts: student self-evaluation, group mutual evaluation, teacher evaluation and enterprise evaluation. It is necessary to pay attention to the accuracy of the results. It should also pay attention to the evaluation of students' attitude and quality in learning and completing work tasks, the degree of work norms, the awareness of safety precautions, professional quality and craftsman spirit.

Table 1 Task breakdown diagram of wireless base station engineering project



6. Application effect

The implementation of "Communication Engineering Supervision Practice" project-based teaching has greatly cultivated students' comprehensive ability, and connected students' theoretical mastery and practical operation with the post needs of enterprises. Students really master the professional skills of communication engineering supervision, so that students can set up the right values, and cultivate students' craftsman spirit, rigorous work style and independent learning ability. Through assessment and evaluation, students' enthusiasm and initiative in learning are stimulated, so that students can pay attention to the importance of fairness and justice and learn to make fair evaluation, so that students can accept praise and criticism calmly, so that students are more confident and know how to respect others, cultivate students' positive learning initiative and improve their learning attitude.

3. Conclusion

The course "Communication Engineering Supervision Practice" is closely combined with the actual position, and the project-based teaching fully demonstrates the teaching effect of highly combining theory and practice. It can specifically train students' ability to use knowledge and solve problems, connect theoretical knowledge and practical operation with practical work, and enable students to quickly enter the role in the job. At the same time, it helps to enrich the teaching content, expand the teaching methods, strengthen the teaching methods, change the traditional teaching ideas and methods, optimize the traditional classroom organization form, and improve the students' theoretical, practical ability and professional quality.

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