Research on Curriculum Reform Based on the Construction of Professional Teaching Resource Database

——Taking the Application Chemical Technology Major in Shandong Vocational College of Light Industry as an Example

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Abstract: The role of the teaching resource library in teaching is becoming more and more important, especially for the application of chemical engineering and engineering majors. According to the characteristics of applied chemical technology, this paper reforms the curriculum system reconstruction, design concept and assessment based on the content of the teaching resource library, and analyzes the importance of the resource library to the application of chemical technology.

1. Introduction

Chemical production has higher risks than other production departments. Therefore, it has higher requirements for the quality of talents engaged in the chemical industry. It must have professional knowledge. At the same time, the chemical industry has its own characteristics, the equipment is highly automated, and the replacement is fast. In order to cultivate high-level talents that meet the needs of enterprises, schools need to have corresponding practical conditions, but the investment in chemical equipment is very large, and the replacement is too fast. The school does not have such input conditions. At present, the method often used by schools is to use simulation methods to simulate the production site, which can play a certain role, but still can not meet the needs of enterprises for talent training. We have jointly developed and constructed a teaching resource library with Shandong Jincheng Pharmaceutical Chemical Co., Ltd., etc., recording and explaining the production site of the enterprise, animating important knowledge points, and establishing an online learning system. Students can see the realities of the company online. The production process, combined with simulation to carry out curriculum reform, achieved good results.

2. Curriculum System Reconstruction

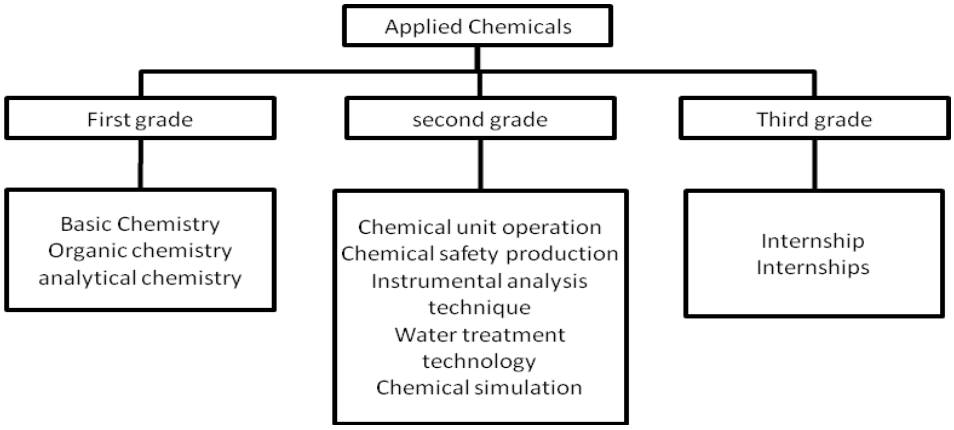

Figure 1 Application of the original curriculum system of chemical engineering

Due to the lack of training equipment that meets the actual needs of enterprises, the entire

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curriculum system is built around the analysis of positions, and the analysis of positions in the enterprise is small and the wages are not high. However, the total control of enterprises with high demand and high technical content has not really been carried out. Only a few related courses have been set up, and students are trained in chemical simulation. Due to the lack of training courses adapted to automation, the quality of talents trained cannot be achieved. Enterprise requirements are out of touch with social needs.

After the completion of the chemical professional teaching resource library, we construct the curriculum system according to the characteristics of the chemical industry and the content of the professional teaching resource library. Each professional core course adds training content, and the training content corresponds to the knowledge points of the resource library. And can be updated at any time. In solving the original curriculum system, due to limited training conditions, there are many theoretical and theoretical problems in chemical unit operation and chemical production technology. The knowledge of students can be broadened, more systematic and hierarchical, and able to cultivate the talents of the real needs of enterprises.

3. The Concept and Goal of Curriculum System Design

3.1 The Concept of Curriculum System Design.

The core concept of the curriculum system design is to follow the real production process line of Jincheng Pharmaceutical and Chemical Industry as a case, and the instrument and the total control operation are integrated into the process, which can be combined and assembled. All the courses in the university are integrated according to this idea, from simple to complex, and the original theoretical knowledge is integrated into the process. At the same time, through online means, students can see the specific production process of the enterprise, while learning and watching and integration. The entire professional curriculum becomes a system that maximizes the student's learning ability and professional knowledge. In order to facilitate students' understanding, the unit knowledge and the overall process are animated, so that students not only operate but also understand the internal structure and principle, and the theory and practice at the same time.

3.2 The Objectives of the Curriculum System Design.

The new curriculum system is designed according to the overall process. The content is combined with the enterprise case. The goal of the design is to make the knowledge systematic and conform to the students' learning rules. The second is to improve the understanding of students through the animation, video, and on-site operation of abstract knowledge, which is conducive to mastering knowledge. Third, the contents of the resource library are updated at any time, and the latest professional knowledge can be supplemented in time to avoid the disconnection between teaching and design, and make the knowledge learned by students more useful. Fourth, the design of the curriculum system is more consistent with the training objectives of vocational colleges, and it is more able to train first-line operational talents with strong hands-on operation ability.

3.3 Reconstruction of the Curriculum System.

The basic curriculum system is reconstructed, and the original basic chemistry, analytical chemistry, instrumental analysis technology, and organic chemistry are merged into a new basic chemistry. The emphasis is on teaching the simplest basic knowledge, laying a solid foundation, and laying the core knowledge of the original analytical position. Transforming to the foundation and transforming the core positions from analysis to master control.

The professional core course is chemical production technology. It is the entire production process line of Jincheng Pharmaceutical Products. Chemical unit operation, chemical instrument automation, chemical simulation, and chemical safety production are all carried out around the process. Each course will be reconstructed and retained. Process related content. For example, the chemical instrumentation and automation course will greatly reduce the theoretical part of the original course, retaining only the type, use and operation of the instrument, and each instrument

can be used in the process, and the specific operation and application in the process is completed. . The remaining courses are also refactored according to this principle, and finally the content of each course can be applied in the course of the process. Safety production directly uses the employee training content of the enterprise, and applies the real case of the enterprise, which is more representative and more practical. In the end, a professional core curriculum system is formed. There are centers, branches, and levels between the courses to achieve the goal of easy learning and practicality.

4. Teaching Mode Reform

After the curriculum system and curriculum content are reconstructed, new requirements are put forward for the use of the resource library and the teaching mode.

4.1 Use of the Teaching Resource Library.

The construction of the teaching resource library lasted for three years, and it is rich in content and able to update the latest knowledge in a timely manner. It is also required that each course must use a teaching resource library to build a resource sharing course. The use of the resource pool is one of the contents of the course assessment. It encourages the use of the resource library in many aspects and strives to apply modern information means to teaching.

4.2 Actual Case Teaching.

Make full use of the real cases of Jincheng Medicine and other enterprises to stimulate students' interest in learning. At the same time, students are encouraged to reorganize the knowledge they have learned, to design new techniques, to explore the rationality of process design, to use exploratory teaching methods, to learn knowledge, and to prove that students have learned through continuous improvement and can design simple and realistic Process. Students are recognized by the company for each school-enterprise cooperation enterprise according to the product design and improvement.

4.3 Pre-study • Interpretation • Teaching.

The teaching mode of “pre-study, interpretation, and compliance” follows a gradual approach to teaching. The basic structure is divided into two parts: pre-study and classroom teaching; it is divided into three sections: pre-study, dissuasion, and compliance; it is divided into academic study, cooperative inquiry, group display, error correction mutual evaluation, point expansion, refinement summary and Seven links in diagnostic evaluation. Give full play to the rich content of the teaching resource library, complete the pre-study before the class, ask questions, discuss and answer questions in the class, give play to the subjective initiative of the students, and finally carry out the assessment of the standard, and supervise the students' learning.

5. Assessment Method Reform

5.1 Assessment Ideas.

Most of the traditional assessment methods use the examination papers for the final assessment. After using the teaching resource library for teaching, all assessments are subjective assessments, which can monitor the students' learning attitudes and the completion of learning projects, and replace the results with scientific and reasonable results. . Focus on the ability to examine, the content and weight of the assessment are shown in Table 1 below.

Table 1 assessment content and weights

Examination content		Weights	Subtotal
Process assessment	Number of learning	15	60
	Learning Content	15	
	Number of participation in the discussion	15	
	study-time	15	
Project assessment		40	40

5.2 Assessment of Main Content and Weights.

The process assessment took 60 points and the project assessed 40 points. It can be adjusted according to the characteristics of the course and the number of projects, but the overall principle is to lightly assess the process.

6. Analysis of Reform Effectiveness

According to the analysis of the professional core curriculum before and after the use of the teaching resource library, the results are as follows:

Table 2 analysis of reform effectiveness

Comparison	before use	After use
Resources	Low quantity and low quality	Massive resources
Teaching conditions	Lack of training conditions, less training content	Combined with the actual situation of the enterprise, the improvement of conditional quality
Teaching mode	Duck-filling teaching	Network platform, case, real enterprise
teacher	Single class	In a variety of ways
student	Low interest in learning, tired of learning	Increased interest and ability
Assessment method	Final assessment, can not reflect ability	Process assessment, full assessment
Evaluation	Graduates can't meet business needs	Get recognized by the company

7. Conclusion

The construction of the teaching resource library has opened a new path for teaching, and it is also the inevitable use of modern information means. However, there are some problems in the use process. In order to maintain the vitality of the resource pool, it is necessary to continuously update the resources, and it needs to cooperate with the industry enterprises. Close cooperation, continuous integration of cutting-edge technologies and methods, and keeping pace with the times, can better play a role, and escort for the training of high-level chemical professionals.

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