

Exploration on the Implementation Path of Teaching Reform of Mechanical and Electrical Automation in Vocational Colleges

Xu Li, Wang Di

Huaian Senior Vocational & Technical School, Huaian, 223003, China

Keywords: Vocational colleges, Electromechanical automation, Teaching reform

Abstract: With the continuous development of society, the traditional education model has long been unable to meet and adapt to the needs of human knowledge. It has become an inevitable trend to realize the reform of electromechanical automation teaching in vocational colleges. This article will set out to put forward the goal of electromechanical automation teaching reform, summarize the content of electromechanical automation teaching reform, and put forward the path of electromechanical automation teaching reform in vocational colleges based on the background of teaching reform in the new era.

1. Introduction

In vocational and technical schools, the core course offered for students majoring in mechatronics is “installation, installation, adjustment and debugging of automated production lines”. [1] The teaching methods used by teachers who teach this course are usually based on the subject system, and the teaching content deviates from reality. Application, practical operation and theoretical knowledge are rarely related, leading to a shortage of talents in related jobs. Such curriculum knowledge makes students feel monotonous and general, and then lose their original yearning and interest in learning. In order to fill the shortage of talents in high-skilled positions, after the goal of cultivating mechatronics talents with “work-learning” is completed at this stage, the project courses obtained from the work process must be reformed. [2] Secondary vocational schools must put the core of training on students. In terms of ability training, we will continuously strengthen students' professional qualities and abilities, rearrange the content of skill training and theoretical teaching, and establish a project-led teaching method that combines theoretical knowledge with practical operations.

2. Teaching Reform Content of Electromechanical Automation

When carrying out project-based teaching, teachers should develop teaching projects in the process of work, and set the foundation in more classic tasks when designing teaching projects. In the teaching process, teachers should combine classroom explanations with students' practical operations, change the traditional teaching method, and choose courses to cultivate students' abilities of “placement, installation, adjustment, debugging [3], and maintenance in the automated production process” Focus, and arrange these into seven steps. Students should be clear about their

own tasks when they first start learning, master theoretical knowledge and cultivate the necessary skills in future work when completing tasks, and use the teaching items involved in the course to let students learn and familiarize themselves with the installation, installation and adjustment of automated production lines[4]. Knowledge and skills for commissioning and maintenance. When carrying out project-based teaching, teachers must require students to master the electrical, pneumatic, mechanical installation, trial adjustment, and the design and trial adjustment of corresponding procedures involved in the automated production line. They must also learn to check and repair mechanical failures. The arrangement and filing of related documents can strengthen students' professional skills, such as hands-on skills, teamwork skills, learning skills and the ability to interact with others.

3. The Reform Path of Electromechanical Automation Teaching in Vocational Colleges in the New Era

3.1 Teaching Content Design Conforms to the Characteristics of Electromechanical Automation

When the school is opening an automated production line for students majoring in electromechanical technology application, it should not be stagnant on a basic point. Schools and teachers should teach according to students' thinking, and use flexible and diverse methods to respond to students' learning conditions. Teaching; in teaching, we must also reflect the student's dominant position, guide students to learn, cultivate students' positive learning attitude, perfectly connect all courses, extend teaching content with textbooks as the center, broaden students' horizons, and encourage students to be independent Innovation.

3.2 Combination of Mechatronics Teaching Theory with Practice

To better operate the electrified system, theoretical knowledge is indispensable, because practice is based on theory, and the teaching effect of theoretical knowledge is directly related to students' operational level and operational safety. Therefore, the importance of practice in higher vocational colleges is to put the cart before the horse. Emphasis on practice, fast results, teaching results are very good, but it is not conducive to students' future learning and development. Electrification is developing very fast. Once the technology is updated and the equipment is replaced, they will not be able to get started quickly, and some people will even be eliminated. [5]Therefore, in the teaching process, students should deepen their understanding of professional knowledge, comprehensively and systematically understand the entire electrification system, and have an in-depth understanding of the electrical equipment that they will be exposed to. In this way, students can develop correct thinking skills, solid basic skills, and good study habits. If you encounter difficulties in practice, you can learn through your own solid basic skills to find a way to solve the problem.

3.3 Improve Mechanical and Electrical Automation Teaching Technology Equipment in Vocational Schools

To let students master the latest knowledge and technology, they must provide the necessary hardware equipment for their studies. This requires the government and schools to pay attention and increase financial support in this regard. At the same time, schools should also pay attention to teachers, increase overtime fees, so that teachers are willing to stay for overtime after class, and guide students on new equipment to shorten the period of students operating equipment. This is

equivalent to a disguised increase in the number of new equipment, so that every student has enough time to operate on the new equipment. Old and obsolete equipment should be disposed of and eliminated as soon as possible, because old equipment has no meaning for operation and learning, and it does not conform to the development of society. Learning on these machines is just a waste of time. Disposal as soon as possible can also recover a portion of the funds to buy new equipment[6]. Electrified automatic teaching equipment is an important teaching resource. To ensure the quality of the equipment, it is necessary to strictly supervise the use of funds. One source of funding is government funding, the second is school subsidies, and the third is corporate sponsorship. When purchasing equipment, it is necessary to monitor the flow of funds throughout the entire process to be open and transparent. The list of purchased equipment should be determined jointly by teachers and technicians on the front line of teaching and a budget should be made. When purchasing, the purchaser must ensure that quality comes first and take into account costs. After the equipment is purchased, the invoice should be kept well, and the warranty period can be extended as long as possible. After all, students will not be very good in terms of operating specifications and care, and the equipment is relatively easy to break. Regularly maintain and overhaul the equipment, and solve problems in time to avoid minor problems becoming bigger problems. Ensuring that the new equipment is in good condition without failure is equivalent to increasing the number of equipment.

3.4 School-Enterprise Cooperation Joint Professional Teacher Training

To increase the enthusiasm of professional teachers, only the joint efforts of society and schools, such as holding more skill competitions, held once a year by the state, province, and city, can reflect the teaching results of professional teachers in the competition. Skills competitions can also be held within our school, and students who win prizes can be rewarded with money or honors. At the same time, let teachers participate in more training, so that professional teachers will work hard to improve their professional literacy.[7] For the situation of few professional teachers, the force of school-enterprise cooperation can be used to solve the problem. First, no matter how large the funds are, it is difficult to meet all the hardware requirements for automated teaching. Second, once some large-scale equipment is out of date, it is inconvenient to replace, and there is a certain gap between the simulated environment and the real environment. Therefore, students can enter a real enterprise to understand the management and operation mode of the enterprise. During this period, students will be able to better know what they want to study and where to find their way out, so that they can prepare in advance for job hunting in the future, and shorten the time to adapt to society in the future. The school signs a contract with the company, and hires company technicians to train and teach students, so that the company's engineering project is turned into a school's teaching project. The company provides the school with the hardware and equipment needed to complete the project in the process of completing the project. , The ability of students can be improved. This method can not only make full use of the resources of the school and the cooperative enterprise, but also cultivate the students' practical work ability, and create benefits for the school, the enterprise and the students. School-enterprise cooperation also includes inviting enterprise experts into the school to participate in training lectures and new technology project appraisal, and the school and the enterprise share resources and improve each other.

4. Conclusion

All in all, various problems will arise in the course of curriculum reform, and the implementation of curriculum reform will not be satisfactory. In many cases, the teaching objectives are not clear and the teaching content is weakly targeted, which affects the teaching of electromechanical

technology automation. quality. The teaching reform is to discover and improve the problems, and constantly improve the teaching system and methods, clarify the teaching objectives and content, explore effective teaching measures, and improve the teaching quality of the automated production line courses for the application of electromechanical technology.

Acknowledgement

The fourth issue of Jiangsu Vocational Education teaching reform research topic “the school-based practice research on the growth path and training mechanism of famous teachers in Vocational Colleges oriented by the integration of production and education” (Project No.: zyb143); the key project of Huai'an city with regional characteristics “Research on the growth path and cultivation mechanism of famous teachers in Huai'an City -- Taking Huai'an Senior Vocational and technical school as an example” (Project No.: hazy18041)

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