

Construction of Curriculum System of Mechatronics in Higher Vocational Education Based on “Internet +”

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Abstract: Owing to the continuous progress of science and technology in China, information technology, intelligent mechanical equipment and new energy materials have been fully developed. In this context, China’s manufacturing industry has gradually developed and expanded. The manufacturing industry is an important pillar industry to push the improvement of the national economic level, which is of great significance to the production and construction of our country. In the context of Internet +, the domestic manufacturing industry has improved and innovated in technology to better adapt to the market demand and the progress trend of the times, thus increasing the demand for professionals. Based on this, this paper makes a specific analysis of the curriculum system of mechatronics in higher vocational colleges under the background of “Internet +”, hoping to provide some reference for the training of professionals in higher vocational colleges.

1. Introduction

The application of Internet technology in the domestic manufacturing industry not only improves the efficiency and level of the manufacturing industry, but also has a certain impact on the traditional manufacturing mode^[1]. To better push the progress of the domestic manufacturing industry, the managers of manufacturing enterprises should fully focus on the improvement of the professional level of electromechanical integration personnel. Only when the mechatronics professionals have a good level of information technology can they fundamentally improve the production level of China’s manufacturing industry. As an important birthplace of cultivating talents with solid professional knowledge and professional quality, higher vocational colleges strengthen the construction of electromechanical integration professional curriculum system under the internet background, which is conducive to cultivating and promoting students’ professional skills and informatization application level. This is greatly significant to promote the development of China’s manufacturing industry. Therefore, higher vocational colleges should fully integrate the talent needs of the manufacturing industry to build the electromechanical integration professional courses, so as to provide more practical talents with professional abilities for the manufacturing industry.

2. Requirements of Society for Mechatronics Professionals under the Background of “Internet +”

With the continuous progress of China’s information technology, the demand for talents in the manufacturing industry is increasing, and the requirements for professional talents are also raised. In manufacturing enterprises with high level of intelligent technology, automatic production mode is the core element of enterprise development, which has high requirements for computer application level and software writing ability. In terms of the current progress of China’s manufacturing industry, owing to the continuous expansion of production scale, the demand for corresponding professionals is also increasing significantly. With the application of information technology and virtual management platform, enterprises have higher requirements for talents’ mechanical operation ability, electronic maintenance and management ability, such as C language programming, numerical control technology and electronic management^[2]. Therefore, many

manufacturing enterprises pay more attention to the information technology level and professional practice ability of professionals. According to the survey, most enterprise managers believe that the professional knowledge of the candidates can be cultivated and accumulated in the follow-up work, and the information technology level and practical ability are the basis for their rapid work.

3. Construction Strategy of Curriculum System of Mechatronics in Higher Vocational Education Based on “Internet +”

3.1 Strengthen the Construction of Teaching Staff

If higher vocational colleges want to build the mechatronics curriculum system under the background of “Internet +” and effectively train and improve the students’ mechatronics technology level and informatization application ability, they should first strengthen the construction of teaching staff. The professional quality and level of higher vocational teachers affect the development and teaching effect of electromechanical integration course to a certain degree, and also affect students’ learning thinking and understanding of teaching content. Only when higher vocational teachers have good teaching ability and ideological quality can they fully realize the significance of building the electromechanical integration curriculum system under the background of “Internet +”, and then actively take various measures to strengthen the construction of the curriculum system^[3]. To begin with, higher vocational colleges should comprehensively consider and review the current electromechanical integration teaching work and level of teachers, and then find out their shortcomings, carry out targeted education and teaching training, so as to promote the teaching ability and concept of higher vocational teachers and better promote the construction of electromechanical integration curriculum system. Secondly, higher vocational teachers should keep up with the progress of the times, constantly understand and learn the recent progress of the manufacturing industry, and then organically integrate it with the teaching content, so as to promote the effectiveness and professionalism of mechatronics teaching and foster more professional talents for the manufacturing industry. In addition, higher vocational teachers should actively learn and learn from the teaching methods and concepts of other schools, so as to lay a good ideological basis for the construction of electromechanical integration professional curriculum system under the background of “Internet +”. Finally, higher vocational colleges can also employ professionals with working experience in the manufacturing industry to carry out electromechanical integration teaching activities, and let teachers go deep into manufacturing enterprises to carry out teaching practice, so as to improve the scientificity and standardization of the construction of electromechanical integration professional curriculum system.

3.2 Improve Teaching Contents and Cultivate Students’ Innovative Ability

The teaching purpose of higher vocational colleges is to cultivate practical talents with solid professional knowledge, skills and good professional quality for the society^[4]. Therefore, higher vocational colleges focus more on cultivating students’ professional skills in specific educational and teaching activities. Under the “Internet +” background, the manufacturing industry has begun to shift to the automatic production mode, and more intelligent equipment is applied in the mechanical production, manufacturing and processing links, thus effectively improving the work efficiency and quality, and also increasing the demand for electromechanical integration professionals. Under this background, if higher vocational colleges still focus on the training of students’ professional skills, while ignoring the current progress trend and talent standards of the manufacturing industry, it will hinder the future career progress of students and further affect the overall progress of the manufacturing industry in China. Therefore, higher vocational colleges should closely focus on the changes of the manufacturing industry, strengthen the construction of the curriculum system of mechatronics under the background of “Internet +”, perfect the teaching content, and cultivate the innovative ability of students. First of all, higher vocational colleges should develop specific analysis and research in combination with the current information development level and automatic production mode of the manufacturing industry, and organically integrate it with the teaching

content of electromechanical integration^[5]. In this way, students can not only recognize and master the current development of the manufacturing industry, but also cultivate students' information technology level and application ability, so as to push students to meet the manufacturing industry talent standards. Secondly, higher vocational colleges should also break the traditional teaching content of mechatronics, break away from the shackles of books and textbooks, cultivate and improve the innovative ability of students, so that students can flexibly use teaching knowledge and information technology to effectively push the progress and development of the manufacturing industry.

3.3 Perfect the Teaching System of Mechatronics in Higher Vocational Education

To build the curriculum system of mechatronics in the context of "Internet +", higher vocational colleges should also promote the teaching system, break the shackles of traditional teaching concepts, and transform the unitary theoretical knowledge explanation into the core skill training. Only in this way can students' professional skills and application ability of information technology be effectively cultivated and improved, so as to provide more professionals for the manufacturing industry. A perfect teaching system can ensure the smooth development of electromechanical integration teaching, and is also the basis for improving teaching efficiency and quality^[6]. However, at present, many higher vocational colleges have not fully realized the significance of the teaching system for the teaching activities of electromechanical integration, but more teaching energy and focus on how to cultivate students' professional ability. This, to a certain extent, reduces the efficiency and quality of the teaching of mechatronics, and is not conducive to the progress of students. First of all, higher vocational colleges should improve the teaching system on the basis of understanding and mastering the specific electromechanical integration teaching situation. Only in this way can we develop targeted teaching activities according to students' learning ability and needs, and ensure the effective improvement of students' professional quality. Secondly, higher vocational colleges should also build a teaching system according to the requirements of the manufacturing industry for electromechanical integration students, establish an electromechanical integration teaching system based on actual work needs and industrial talent development strategy, with work ability as the core and theoretical teaching as the basis, to ensure the effectiveness and standardization of the electromechanical integration professional curriculum system to the maximum extent, and improve the professional ability of students.

3.4 Establish a School-Enterprise Cooperation Model

The establishment of school-enterprise cooperation mode is also one of the important ways to effectively construct the curriculum system of electromechanical integration under the background of "Internet +". The school-enterprise cooperation mode mainly refers to the specific talent training plan formulated by higher vocational colleges according to the actual development situation and talent development strategy of enterprises, so as to train practical talents with professional ability for enterprises. At present, the manufacturing industry not only requires talents to have professional skills and knowledge, but also requires talents to master certain information technology and practical ability. As a discipline combining theory and practice, electromechanical integration is beneficial to deepen students' understanding and mastery of theoretical knowledge and cultivate students' professional practice ability. Therefore, higher vocational colleges should strengthen the school-enterprise cooperation mode, and let students go deep into the enterprise to carry out internship activities through organizing social practice activities in winter and summer vacations. This can not only improve students' professional practice ability, but also help students form a correct professional concept of electromechanical integration, and guide students to develop career planning and design. In addition, higher vocational colleges should also take the talent development strategy of enterprises as the guide to design the talent training program, implement it into the construction of the specific electromechanical integration professional curriculum system, organically combine enterprise needs with teaching contents, cultivate and improve students' information technology level and work ability, and then provide more professional talents for the domestic manufacturing industry.

4. Conclusion

To sum up, it is very necessary to build the curriculum system of mechatronics specialty based on the “Internet +” background. This is not only an inevitable trend to meet the market demand and push the progress of the manufacturing industry, but also necessary to promote the teaching level and quality and push the comprehensive progress of students. Therefore, college administrators should fully focus on the construction of the curriculum system of electromechanical integration, and cultivate the students’ information technology level and application ability by improving the teaching system, strengthening the construction of teachers, improving the content, and establishing the school-enterprise cooperation mode. Only in this way can we train more professional and practical talents for the domestic manufacturing industry, and then push the sustainable progress of the manufacturing industry in China.

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