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Application of Information Teaching in the Course of Online Programming and Debugging of Industrial Robots

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***Abstract*:** With the development of industrialized society, how to improve industrial production efficiency has become the focus of social concern. With the support of emerging technologies such as artificial intelligence and computer technology, more and more industrial robots are applied to industrial production and become necessary equipment for industrial production automation. Doing a good job in the promotion and performance optimization of industrial robots is the top priority for the sustainable development of the manufacturing industry. Industrial robot online programming and debugging courses are professional courses for industrial robot technology, which involve touch screen technology, programmable controllers, sensors and other multidisciplinary knowledge. Educational and teaching activities must be able to develop online programming and debugging courses for industrial robots. Teaching reform and innovation, thereby enhancing students' practical application ability in industrial robot technology, and laying a good talent and technical foundation for the batch and intelligent development of industrial robots are important.

***Keywords*:** Information Teaching; Industrial Robot; Online Programming; Debugging Course; Application

From the perspective of the overall market environment of the industrial manufacturing industry, industrial robots will develop in the direction of intelligence, miniaturization, innovation, and individualization. The online programming and debugging of industrial robots is important to promote the future development trend of industrial robots. Therefore, more attention should be paid to the training activities of professionals in industrial robot technology and the teaching quality of professional courses. Based on traditional teaching practice activities, it can be seen that there are certain shortcomings in the teaching of industrial robot online programming and debugging courses. It is urgent to introduce a new teaching mode, create an efficient classroom teaching mode, and improve the comprehensive quality of industrial robot technology students in higher vocational colleges [1].

1. The teaching status of online programming and debugging of industrial robots

1.1 The teaching of online programming and debugging of industrial robots lacks comprehensiveness

From a professional point of view, the online programming and debugging course of industrial robots is an important course system in the major of industrial robot technology. It carries out the teaching of theoretical knowledge and practical training operations of various programmable controllers and inverter technologies to ensure. Students can complete the design of the basic functions of industrial robots, and complete the design of the ABB industrial robot rapid programming language and application programs. It can be said that the organic integration of theory and practical training is needed in the teaching of industrial robot online programming and debugging courses. But in fact, in the teaching of industrial robot technology in many higher vocational

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colleges, it is obvious that the theoretical teaching is ignored while the practical teaching is ignored, and the theoretical teaching and practical teaching are separated from each other in higher vocational colleges. It seriously affects students' practical application effects on the related structure and format of rapid application, and the knowledge they master can't meet the actual application requirements of engineering [2].

1.2 The teaching quality of online programming and debugging of industrial robots is not high

According to the actual teaching goals of the online programming and debugging course of industrial robots, students must be able to master the basic characteristics and technical performance of industrial robots, and they must also have the rapid programming language and application design methods of ABB industrial robots. The latter is to be carried out by frequent practical operations, and it is required to be able to combine actual cases to support the practical application of the deployment technology. However, in the current professional teaching of industrial robot technology in higher vocational colleges, the course is highly comprehensive, and students are not interested in boring and professional teaching content, and start independent exploration of industrial robot online programming languages and design methods not tall. On the whole, the course shows that the teaching methods are not good, students learn passively, and the quality of classroom teaching is not high.

2. The application of information teaching in the online programming and debugging courses of industrial robots

2.1 Create a teaching platform that combines theory and practice with the help of information teaching

The online programming and debugging courses of industrial robots need to improve students' robot programming and design skills and the ability of innovative design of robot structure. This determines that the ABB programming teaching of industrial robots is a practical teaching activity. At present, with the help of information-based teaching methods, it is possible to complete the industrial robot application technology training room and the industrial robot simulation course teaching experimental platform, so that students can use the virtual simulation experimental teaching platform to complete the industrial robot program data, expressions, and calculation instructions. Practical exploration applications such as programming formats and requirements can also use the information teaching platform to import real industrial robot design cases to ensure that students can master the practical skills of online programming and debugging of industrial robots in their profession. For example, the application program example of the arc welding robot is imported, and the welding students complete the selection of the programming language of the robot, sort out the program data and try to practice [3].

2.2 Provide high-quality and advanced online programming teaching resources with the help of information teaching

In the teaching activities of industrial robot programming technology in higher vocational colleges, it has the characteristics of abstract teaching theory and cumbersome programming skills. Therefore, the teaching activities depend on the teaching materials. With the further development of artificial intelligence technology and the innovative development of the design theory of industrial robots, the lack of compilation of the latest industrial robot programming cases in the existing textbooks has led to insufficient training of students' practical application skills. At present, with the help of information teaching, it can use the high-quality curriculum resources of the national high-quality industrial robot ABB programming course to achieve shared applications. For example, various industries currently have more classic ABB robot program programming examples. The performance and overall structure of industrial robots formed under these actual programming designs are different, and they have different advantages and disadvantages. These information resources belong to various scientific research subjects. With the help of the information sharing platform, information teaching activities can be carried out, but these high-quality industrial robot programming examples can be imported into classroom teaching, and real and intuitive programming cases can attract students' interest in learning, to enrich students' innovative vision on industrial robot programming and design.

2.3 Provide personalized teaching methods and teaching models with the help ofinformation teaching

In the traditional teaching activities of online programming and debugging of industrial robots, teachers often adopt passive teaching methods, and the initiative and creativity of students are seriously ignored [4]. This is not conducive to the cultivation of vocational students' industrial robot programming theory and programming practical ability. With the help of information teaching, on the one hand, it can rebuild the curriculum teaching paradigm, establish a student-based teaching model, and determine the student's main position in the programming and design of ABB industrial robots; for example, under the influence of information teaching methods, various advanced teaching concepts have been introduced into the classroom teaching of industrial robot online

programming and debugging courses, and the teaching mode has been transformed; another aspect is that information teaching provides various teaching methods for industrial robots and online programming and debugging courses. For example, create micro-class activities to meet students' micro-needs in the online programming of industrial robots. Taking the basic knowledge of ABB industrial robot programming as an example, it involves many basic theoretical concepts such as program memory, application programs, and system modules. With the help of information teaching methods, these basic theories can be presented in the form of mind maps, and with the help of pictures and texts. It is presented in the form of a small video to analyze and explain what is the main module and what is the program data. In the practical exploration of industrial robot programming, if students are not clear about a certain basic knowledge, they can efficiently extract these basic knowledge micro-class videos to complete the consolidation of knowledge points.

3. Conclusion

To sum up, in the context of intelligent manufacturing, industrial robot technology has been promoted and developed rapidly, but at the same time, it also highlights the shortage of online programming talents for industrial robots. Through the training process of industrial robot talents, it can be seen that in the teaching activities of industrial robot online programming and debugging courses in higher vocational colleges, the simplification of teaching content and traditional rigid teaching methods have become the reasons that restrict the quality of talent training. In this regard, it is feasible to introduce a new teaching model and use the information teaching model to carry out the teaching reform of industrial robot online programming and debugging courses. Firstly, information teaching brings a variety of teaching application platforms to the online programming and debugging courses of industrial robots, enriching students' practical application ability of industrial robot programming software; secondly, information teaching brings high-quality teaching to the online programming and debugging courses of industrial robots resources, so that all kinds of high-quality artificial intelligence and programming algorithm knowledge at home and abroad can be shared and applied; finally, information teaching meets the individual development needs of students in the online programming and debugging of industrial robots, allowing industrial robots to program online abstract theories and complex practical operations are presented in multiple forms.

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