

Discussion on the Teaching of CNC Machining Technology under the Integrated Curriculum of Work-Study

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Abstract: Technical education shoulders the important task of cultivating highly-skilled talents for the development of socialist market economy. Therefore, technical colleges and universities must reflect the characteristics and advantages of technical education when carrying out the technical personnel training activities in different major. As the technical colleges and universities in the new era, it is necessary to increase the innovation and reform of the teaching mode of CNC machining technology when carrying out training activities of CNC technology professionals, and to explore the idea of the constructing the work-study integration professional teaching system aiming at the current problems in the process of training technical talents in CNC machining, and improving the quality and efficiency of the training of talents in CNC machining technology. The article mainly analyzes and discusses the work-study integration teaching of CNC machining technology.

Keywords: Technical education; Work-study integration; CNC machining technology major; Teaching mode

1. The teaching value of "Work-study integration" teaching mode for CNC machining professional teaching

1.1. Contribute to improving students' adaptability

The "work-study integration" teaching mode is based on a certain environment, integrating study and work, so as to achieve the teaching goal of comprehensive quality training. CNC machining technology is a discipline with outstanding practical characteristics, which puts forward clear requirements for students' practical operation skills. If students focus too much on the study of theoretical knowledge, not only will they not be able to master the skills of CNC machine tool operation, but also students will not be able to adapt to future study and work requirements. The application of work-study integration teaching of CNC machining technology is mainly through the way of creating real work scenarios for students, requiring students to make reasonable use of their professional knowledge, participate in practical production activities, discover and solve problems encountered in the process of practical operation under the guidance of teachers, promote the effective improvement of students' ability to adapt to work, and lay a solid foundation for students' later growth and development.

1.2. Contribute to improving teachers' teaching skills

Under the traditional teaching mode of CNC machining technology, there is a general lack of work-study combined teaching practice. In the course teaching process, teachers mainly focus to the teaching of theoretical knowledge, and they rarely have the opportunity to participate in practical operation, which eventually leads to the situation that the teachers of CNC machining technology have strong theoretical knowledge, but weak practical operation ability. It has great impact on the development of teaching activities of CNC machining technology in technical schools. With the continuous development of CNC machining technology, teachers who only master theoretical knowledge obviously cannot meet the requirements of systematically guiding students to participate in practical activities. In this regard, teachers of CNC machining technology should actively explore the strategy of the application of integrated engineering teaching mode, organize teachers to regularly participate in teaching practice activities, improve the teachers' hands-on practical operation ability and teaching level, so as to ensure

students' learning experience is enhanced on the basis of the orderly development of teaching activities in CNC machining technology.

1.3. Contribute to carrying out the teaching reform of CNC machining technology

The rapid development of modern industrial technology has promoted the innovative development of CNC machining technology. In the daily teaching process teachers of CNC machining technology must deeply understand the importance of reforming the professional teaching content of CNC machining technology. Give full play to the advantages of integrated engineering teaching mode, organize students to the enterprise to understand the importance of the application of CNC machining technology in production activities, innovate and reform the teaching content, so as to cultivate technical CNC professional personnel that meet the needs of relevant business development, and escort the healthy and sustainable development of China's industrial industry.

2. CNC machining professional "work-study integration" teaching reform mode

2.1. Improve the construction of CNC machining professional "work-study integration" training base

Firstly, in-depth analysis the requirements for innovative reform of the teaching mode from students majoring in CNC machining technology. When adopting the work-study integration teaching mode, teachers of CNC majors should strictly follow the principles and requirements of the vocational standards of practical training teaching and develop a comprehensive training program for the professionals of CNC machining majors. In response to the situation that students do not understand the teaching behavior of teachers when they initially contact the engineering integration teaching mode, teachers should, through in-depth communication with students, adopt the teaching strategy of combining theoretical knowledge and practical operation of CNC machining technology profession according to the learning situation and requirements of students, organize students to regularly participate in job practical training activities and improve students' practical operation skills in order to promote teaching quality. On the basis of effective improvement of teaching quality, cultivate more high-quality application-oriented high-skilled personnel in line with the requirements of industrial production. Secondly, we should speed up the construction of standard classrooms for "work-study integration" in schools. During the process of continuous development, technical colleges and universities should deeply understand the importance of building standard classrooms for "work-study integration" in schools, and require students to actively participate in practical training activities in the process of learning and mastering professional knowledge in schools, so as to broaden students' career development path and improve their vocational skills and level. When learning the theoretical knowledge in textbooks, students of CNC majors will inevitably encounter information and content they cannot clearly understand. In this regard, teachers should be teaching content and its later engaged in CNC technology positions together in the daily teaching process, explaining the key points and difficult knowledge in CNC professional disciplines the follow-up practical training teaching process, helping students deepen their understanding and knowledge of theoretical knowledge, improving the practical operation skills and level of students, helping students find a job successfully after graduation. And promoting the long-term sustainable development of China's vocational education career.

2.2. Strengthen the CNC machining professional "work-study integration" teaching materials development

First, increase investment in the development of computer programming courses in CNC technology. In the daily teaching process, teachers must integrate the basic knowledge and content of CNC technology into the whole process of cultivating students' practical operation ability, and promote the overall improvement of students' practical operation ability and theoretical knowledge learning effect. As technical colleges and universities, they should cooperate with relevant enterprises to facilitate students' learning and mastering computer operation knowledge, and require students to start with simple CNC equipment operation in the daily learning process, and gradually extend to the internal installation procedures and software programming of CNC equipment, so as to promote the development of students' academic ability and work thinking, help students form correct learning ideas, and give full play to the advantages of the work-study integration teaching mode, improve the quality and efficiency of students' professional knowledge learning, and lay a solid foundation for students to enter the workplace later. When developing computer programming courses in CNC machining technology, technical colleges and

universities must take inspiring students' digital thinking as the primary teaching goal, require students to understand and master the digital symbols and programming logic of programming courses in the process of actively participating in classroom teaching activities, regularly carry out the inspection activities of practical teaching effects, delete the contents that are irrelevant to the training of students' employment level, and supplement students' deficiencies in the knowledge and skills of CNC technology.

Second, improve the software system curriculum development system of CNC technology. Since some of the functions of CNC equipment must be controlled through the programming content, when technical colleges carry out the teaching of numerical control technology, they must closely integrate numerical control equipment and related software systems, so as to maximize the requirements of students to learn and master the knowledge and practical operation skills of CNC technology. In order to help the students of CNC technology to deeply understand and master the contents involved in the CNC software system, and avoid the stagnation of the technical level of students in the process of professional development after graduation. Technical colleges and universities must, according to the characteristics and requirements of CNC technology students learning, increase the efforts of the development of software systems related to CNC technology, the application of advanced software systems in the equipment of the relevant enterprises, to provide students with the convenience of learning CNC technology software systems. In addition, for the software technology development difficulty in the teaching process of CNC technology, technical colleges and universities must start from several aspects such as CNC equipment manufacturing as well as programming, to cultivate students' general knowledge of academic skills as the focus of CNC technology professional course teaching, to provide students with space for innovation and development, and to promote the effective improvement of students' learning effect of CNC technology professional knowledge.

2.3. Planning CNC machining student learning

(1) Planning students' academic courses during their school years. Although the application of the engineering combination teaching mode clarifies the direction of professional skills training for students in CNC, teachers should also pay full attention to the importance of academic tests during students' school years in the daily teaching process, and formulate targeted solution strategies regarding the problems that exist during students' internship in enterprises after they are completely separated from the school environment. Do a good job in planning the course content that students need to complete in the enterprises, require students to strictly follow the requirements of the academic level test, summarize their experience in the process of practical training, help students to clarify the planning of career vocational development, and lay a solid foundation for students' later growth and development. The application of the work-study integration teaching mode in the teaching of CNC machining in technical education not only avoids the situation that students miss key knowledge in the learning process, but also clarifies the direction of vocational education, shortens the time for students to hone in the front-line workplace, and provides strong support for students to adapt to the requirements of the workplace as soon as possible. In addition, when technical colleges and universities plan the teaching content of CNC professional courses, they must take the cultivation of students' practical training skills as the focus of professional course teaching, give full play to the advantages of the combined engineering teaching mode, and improve the quality of students' professional knowledge learning.

(2) The cultivation of students' CNC technical skills application ability is regarded as the focus of the implementation of teaching strategies of practical training course. Through the cultivation of practical skills of students in CNC technology, improve students' ability to convert theoretical knowledge into working, guide students in the learning process, CNC equipment quality inspection, software programming and other learning content and related technical positions together, in order to effectively enhance the students' practical skills to effectively enhance the basis to meet the requirements of the innovative reform of the scientific teaching mode of CNC technology. In view of the fact that some students can not meet the current situation of enterprise employment needs in the learning process, technical colleges and universities should also pay full attention to the importance of students' career planning, cultivate students' career ideals and career development awareness, require students to form a correct sense of career development in the process of learning and application of CNC technology, help students to develop a clear career planning, and provide services for students' learning and growth. In addition, when technical colleges and universities actively implement practical training teaching activities, they should clarify the direction of students' vocational skills cultivation, so as to avoid students' learning behavior errors due to personal problems during the learning process, which affects the effect of students' professional knowledge and skills learning mastery. Strictly in accordance with the requirements of the teaching of CNC technology, students must make employment choices and plans

that are conducive to their own growth and development under the premise of seriously thinking about their career planning, create a good space for students to develop their careers, and improve the quality and efficiency of professional skills practical training teaching for students of CNC technology.

2.4. Optimize the evaluation standard of CNC machining profession

Teaching evaluation is one of the important links in the teaching work of technical education, and it is also the key to the smooth development of skilled personnel training in technical colleges and universities. Teachers should strictly follow the requirements of the work-study integration, change the traditional teaching evaluation method in which the results of mid-term and final exams are the only assessment criteria, and incorporate the assessment of students' daily learning process goals into the teaching evaluation of professional courses to improve the quality and efficiency of the training of talents in CNC technology. In this regard, when designing the teaching evaluation system, technical colleges and universities must include students' daily performance and classroom activities in the student evaluation system, and improve students' comprehensive quality by making objective and fair evaluations of their learning achievements, homework results, classroom performance, moral qualities and innovative abilities, in order to make them become a high-quality applied technical personnel. In addition, technical colleges and universities should also pay full attention to the importance of students' professional ethics training and professional literacy ability evaluation, and build a perfect vocational assessment and evaluation system, so as to lay a solid foundation for students to successfully enter society in the future to adapt to the requirements of social development.

3. Conclusion

In conclusion, work-study integration as one of the widely used teaching modes in the current teaching of CNC machining technology in technical education, When applying this teaching mode, teachers must strictly follow the requirements of students' professional skills growth and formulate and improve the teaching of CNC professional courses. In order to ensure the successful completion of the construction of on-campus practical training bases and professional curriculum development work, to facilitate students to receive high-quality on-campus professional practical training teaching activities and promote the effective improvement of the quality and efficiency of technical talents training in CNC machining technology in technical colleges and universities.

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