

Mode of Training the Innovative Quality of Mechanical Engineers Based on School-Enterprise Cooperation

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Abstract: The report of the 19th National Congress of the Communist Party of China put forward major conclusions such as “accelerating the construction of an innovative country” and put forward higher requirements for training talents in colleges and universities. Based on the characteristics of the “Jitong Engineer Class” of our school, this paper proposes a model of “in school and enterprise dual-engine” engineering class students' innovative quality training, which is based on the cooperation between schools and enterprises, and is market-oriented. In order to meet the talent needs of Jitong Company, both schools and enterprises participate in the talent training mode of students' innovative quality training.

1. Introduction

The report of the 19th National Congress of the Communist Party of China put forward major theories such as "socialism with Chinese characteristics entering a new era" and "accelerating the construction of an innovative country" [1]. Building an innovative country requires a large number of innovative talents. The key to cultivating innovative talents is to cultivate their innovative qualities and innovative spirit. As a high-quality talent training base, colleges and universities pay attention to the cultivation of innovative talents and pay attention to the cultivation of college students' innovative quality, which is an important subject facing the college education community [2]. Therefore, this article takes the “Jitong Engineer Class” of Jilin Engineering and Technology Teachers College as an example, and proposes a model of “in school and enterprise dual-engine” engineering class students' innovative quality training, further promoting the cultivation of innovative talents and serving local economic and social development.

2. The Characteristics of "Jitong Engineer Class"

The order training engineer class of our school and Jilin General Machinery Co., Ltd. is referred to as “Jitong Engineer Class”. Implement the “2.5+1.5+(1)” mechanical engineer order-based talent training model. “2.5” in “2.5+1.5+(1)” is two and a half years for students to study in school; “1.5” is for students to practice in Jitong Company for one and a half years; “(1)” for students in four After graduating from undergraduate degree, he will be internship in the enterprise for one year as a technician. After passing the examination, he can enjoy the treatment of enterprise engineers. In this model, the school and the enterprise will cooperate intensively within five years, and the training will be extended from the traditional four years to five years. From the school to the outside of the school, the main body of the training will be changed from the school side to the school and enterprise.

3. The "School-enterprise Dual-engine" Engineering Class Students' Innovative Quality Training Mode

The school-enterprise dual-engine engineering class students' innovative quality training mode is based on the school-enterprise cooperation opportunity, market-oriented, in order to meet the talent needs of Jitong Company, the school and enterprise participate in the talent training mode of students' innovative quality training.

"School-enterprise dual-engine" engineering class students' innovative quality training process. Innovative quality refers to the basic psychological quality and characteristics that people obtain through the environmental influence and education, which are stable and necessary in the innovation activities. It consists of three parts: innovation spirit, innovative thinking and innovation ability. [3]. Under the background of China Manufacturing 2025 and Applied Undergraduate Transformation, according to the requirements of the talents and talents required by Jilin General Machinery Co., Ltd., the foothold of the "Jitong Engineer Class" students' innovative quality training mainly focuses on knowledge innovation and technological innovation. In order to meet the talent needs of Jitong Company, this paper takes the "Jitong Engineer Class" of Jilin Engineering and Technology Teachers College as an example to propose a training process for the innovative quality of the "School-enterprise Dual-engine" engineering class. It is shown in Figure 1:

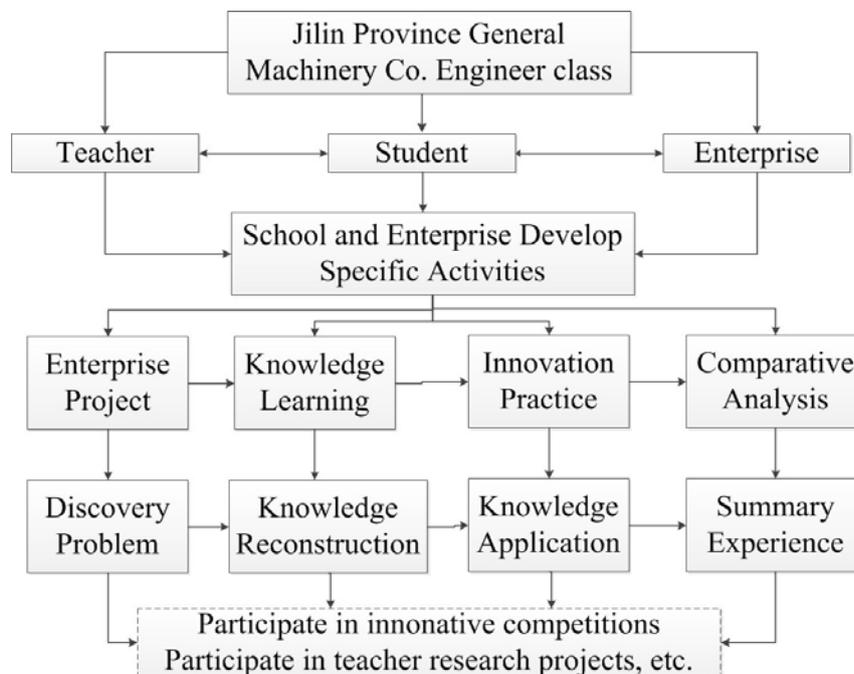


Figure 1. "School-enterprise dual-engine" engineer class students' innovative quality training process.

The main members of the "School-enterprise Dual-engine" engineering class students' innovative quality training are composed of instructors, students and enterprise personnel. The school and the enterprise jointly formulate an activity plan for cultivating students' innovative quality, taking enterprise projects as learning carriers, discovering problems from enterprise production practices, reconstructing knowledge structures, grouping and discussing, carrying out innovative practice activities, and summing up experience, thus forming The closed-loop system of practical activities, in the course of such practical activities, cultivates students' innovative qualities and realizes the spiral improvement of knowledge and skills [3]. Students will actively participate in innovative competitions and participate in teacher research projects, broaden students' horizons, increase students' knowledge reserves, improve students' innovative quality, stimulate students' enthusiasm for innovation, and enhance collective cohesion to create a positive and innovative atmosphere.

4. The Main Measures for the Cultivation of Students' Innovative Quality in Engineering Class.

Teachers establish a correct and innovative educational concept. The construction of the teaching staff is the core part of the talent training system, and it is responsible for the introduction of innovative elements and the implementation of innovative content [4]. Only when teachers establish correct and innovative educational concepts can they successfully carry out the cultivation and education of students' innovative qualities.

Project teaching methods. Traditional infusion teaching methods, students accept knowledge in a passive way, often neglecting students' independent learning and independent thinking, stifling students' innovative thinking and innovative spirit. Carry out the project teaching method, combine theory with practice, intersperse the actual project content in the theoretical teaching process, stimulate students' enthusiasm and initiative, and cultivate students' innovative quality.

Update the experimental teaching content. The content of traditional experimental teaching is centered on theory, with outdated content and lack of practicality. Taking the actual product of the enterprise as an example, the physical object and the document are combined, and the experimental teaching is carried out according to the production process of the enterprise product. In the course of the experiment, the combination of theory and practice lays a good foundation for the follow-up enterprise practice and improves students' interest in learning.

5. Reform the Evaluation System.

The traditional evaluation mode of the university is to put the mastery of knowledge in the first place, the application of knowledge or skills in practice is secondary, and the ability to innovate is often placed in the post, or even not in the assessment [5]. Establish a comprehensive quality evaluation system for students, and set weights and weights for students' theoretical knowledge, practical ability, innovative quality, participation in scientific and technological innovation activities, and participation in scientific research projects.

6. Strengthen the Open Management of Laboratories.

A large number of practices have proved that the implementation of laboratory openness can not only make full use of experimental teaching resources, but also effectively cultivate students' innovative ability and comprehensive quality [6]. Establish a sound laboratory open management system; Develop an open online reservation management system for laboratories.

7. School-enterprise Cooperation Platform Construction.

School-enterprise cooperation is currently the most practical application-oriented innovative talent training platform. It combines theoretical teaching with the expansion of students' practical ability and is a stage for all-round development of students. The school takes the actual tasks of the enterprise as the carrier, undertakes the actual tasks under the leadership of the teachers, and uses the knowledge learned to solve the actual problems of the enterprise. Through this activity, students can effectively test their own theoretical knowledge, improve the application ability of the theory and practice, and thus improve the quality of students' innovation; build an innovative atmosphere based on the working environment of the enterprise. Increase the opportunities for students to contact with enterprises, so that students can experience the unique innovation culture of the company and enhance the cultivation of independent innovation quality [7].

8. Conclusion

The fundamental of education lies in the delivery of comprehensive talents that conform to the status quo and development of society. The introduction of the innovative quality training mode of

the "School-enterprise dual-engine" engineering class is conducive to providing talent support for the development of local enterprises, facilitating the self-improvement of the university teaching system, improving the innovation quality of college students, and contributing to the development of both schools and enterprises. Form a multi-win situation.

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