Talents Cultivation of Outstanding Engineering Based on the Plan for Educating and Training Outstanding Engineers

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Abstract. In order to train outstanding engineering talents, our school proposed the third batch of "The Plan for Educating and Training Outstanding Engineers (PETOE)" for agricultural mechanization and automation. First, PETOE is tried in a small scale, our school set up small class teaching class and equipped with high-quality teachers. Besides, it was encouraging for teachers to carry out teaching reform and establish the school and enterprise double tutorial system. The use of credit requirements, policy incentives and other ways were applied to strengthen extracurricular practice innovation. After several years of implementation, our school has initially formed outstanding engineers training mode with a self characteristics. The inherent law of personnel training is constantly explored. We summarize the successful experience and lessons from the implementation of the PETOE. Innovating agricultural engineering personnel training mechanism make it play its demonstration effect in a large scale.

Introduction

The implementation of "outstanding plan" has a very important value and significance. There are also many important background for the "outstanding plan". The Plan for Educating and Training Outstanding Engineers (PETOE) is a major reform project to carry out outline of national medium and long term talent development plan (2010-2020) and Outline of the National Medium-and Long-Term Program for Education Reform and Development (2010-2020). Meanwhile, PETOE is also a major initiative to transfer China from a giant engineering education country towards a powerful engineering education country[1]. The primary objective of PETOE is training a large number of high-quality engineering and technical talents of innovative ability and ability to adapt to economic and social development needs for the industry, the world and the future[2].

Currently Taken Practices of PETOE in Our School

Agricultural mechanization and automation in our school is approved as the third major of PTPEE at the end of 2013. Since then, the preliminary implementation plan is forming after extensive investigation in spring of 2014, the selection and pilot run were started in 2013 grade of agricultural mechanization and automation. As of now, the overall project progress smoothly, the 29 students from PETOE class in 2013 grade will graduate next year.

Extensive Discussion and Development of Talents Cultivation Were Made to Meet Diverse Requirements of Outstanding Talents Cultivation

Talent training program is a bridge to realize the university education idea and the goal of talent training[3]. In order to figure out how to form the outstanding cultivation program, the school has organized researches in other agricultural and forestry universities which started PETOE earlier. Combining with the school situation and college situation, following the principle of industry guidance, school-enterprise cooperation, the implementation of classification and various forms. In the guidance of "greater emphasis on professional, more emphasis on practice and innovation," the detail of PETOE is forming to meet the actual demand of our college, combining with the relevant
departments and units to formulate supporting policies, putting forward the demand of talents training in the field of industry, guiding universities and enterprises to implement the plan of excellence in the field of their industries.

A certain number of enterprise learning time requirement is set up in the talent training program. In addition to focusing on enhancing the enterprise's practical ability, a special course module is set up, which carries out a clear credit requirements for students’ outside of school practice and innovation. Students are required to complete the total credits of outside of school practice and innovation not less than 10 credits. Besides, Students should be the main members (the top three) to participate in the "National Student Mechanical Innovation Design Competition", "National Undergraduate Electronic Design Contest, the National Mathematical Modeling Contest" and "National University intelligent agricultural equipment innovation contest" and other related disciplines race or the total number of projects not less than 2 (at least leader or captain in one project), and actively participate in the "outstanding forum", Fischer creative combination model of comprehensive training and other required extracurricular practice.

Actively Promote the Reform of Curriculum System and Teaching Content to Help Students to Explore International Perspectives

Implement Teaching in Small Classes with Outstanding Teachers, and Actively Encouraging the Teaching Methods and Assessment Methods Reform. Using small class teaching mode for some professional core courses firmly, basic courses and professional core curriculum strictly implement small class (about 30 persons) teaching mode, equipped with teachers who have extensive teaching experience, overseas study and work experience and willing to become integrated with students, as well as encourage teaching methods and curriculum reform of assessment methods are recommended with appropriate references to "flipped classroom" and other advanced teaching methods and concepts.

Strengthen Extracurricular Credit Requirements, Policy Incentives, Strengthening Extracurricular Innovation in Practice. The provision of total credits of extracurricular innovative is not less than 10 credits. Requirements during the study period are as follow, the total number of the main members (the top three) who participate in a related subjects contest or projects should not be less than two (at least leader or captain in one project).Required to actively participate in "outstanding forum", Fischer creative combination model comprehensive training and other advanced teaching methods and concepts.

Ongoing Outstanding Forum to Broaden the Professional Knowledge and Develop an International Perspective. Students are required to finish at least one invitation report and oneself report, organizing and inviting related teachers, academics, seniors, social members and classmate from other class who is good at one field to start a discussion on particular issue or problem, or giving a PPT presentation about one particular knowledge or skill, so that the knowledge and skills in the sharing of communication is increased, the sparks of thought bloom in the collision and the way of thinking is in the exchange of mutual inspiration.

Strengthen the Outstanding Teachers, Implement Tutor System in School

Encouraging teachers form outstanding class to use winter/summer vacation to participate in various training activities, training in the basic level of enterprises, undertaking technical research and national issues applied by enterprises, actively carry out outstanding teacher program. Meanwhile, hired a group of first-class experts from outstanding enterprises as part-time teachers to give advises and teach lessons. For team of outstanding teachers, inspire them in the job classification and assessment, who actively participate in extra-curricular practice and innovative for students.

Actively Promote Internal and External Base Construction, Providing a Good Hardware Conditions for the "Outstanding Program"

College actively promotes the school and enterprise cultivation, we have established partnerships
with a number of enterprises, establishing school-enterprise cooperation base construction. Providing a good hardware condition for students to carry out enterprise internship practice as well as a broad choice of space and display platform for outstanding program. During the internship in 8 week in enterprises, the practice guidance teachers are appointed by enterprise. Students are required to practice under the guidance of teachers with an open mind to learn, bold practice and dare to communicate. According to the actual production needs of enterprises, students are encouraged to extend the internship time and complete the graduation project in the enterprise.

Implementation Difficulties in Excellence Program and Issues to be Addressed

The Implementation of "Excellence Program" Requires Multi-Party Participation and Construction

"Excellence Program" is a systematic project, which requires multi-party devotion and participation, the implementation of "Excellence Program" ought to follow the introduction of supporting incentives to promote good circulation. For now, enterprises, universities and students still need to discover the laws deeply in order to form long-term cooperation. From the school level, incentive policies need to be proposed for outstanding teacher program, such as give more attention on workload identification, professional title evaluation and appointment and so on. Besides, strengthening the students' incentive mechanism improves the students' professional identity. With the effective support gave by school enterprise cooperation training mode, improving the enthusiasm of enterprises to participate in the training of talents, so the preferential policies can be really enjoyed by enterprises.

No Prior Experience in "Excellence Program" Can Be Copied

The implementation of "Excellence Program" is of great significance to talents cultivation as well as enriching the state by talents. However, we must take practical measures according to local conditions in the end. In this regard, no prior experience in "Excellence Program" can be copied. It requires enterprises, universities and students to maximize the interests together while seeking out footing during practice. Finally it reaches a situation that enterprises are willing to participate in, the university continues to support and the student is eager to join.\(^8\).

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References


