

Research on the training of application-oriented undergraduate talents

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Abstract: In the new economic era, the training of engineering professionals is the cornerstone of the rise of a great power and the cradle of great power craftsmen. This paper, through the analysis of the industry background, according to the core competence of electrical engineering and automation major in applied colleges and universities, combined with the construction of the major in a college, puts forward the existing problems based on the existing talent training program and discipline construction. In view of the problems, this paper puts forward the solutions to be implemented.

Key words: talent training; Core competence; applied

I. Major in Electrical engineering and automation

In 1998, the electrical and electronic and information classes were merged into the electrical information class, and the original electrical motor and electrical appliances and their control, power systems and their automation, high voltage and insulation technology, electrical technology majors were merged into electrical engineering and automation majors. In 2012, the former majors of Electrical Engineering and automation and the special majors of Electrical Engineering and automation, Electrical Information Engineering, Power Engineering and Management, electrical technology education, and Intelligence of Electrical appliances were merged into the major of Electrical Engineering and Automation.

In recent years, China's electric power industry has developed rapidly, and the overall trend is toward the direction of large power grid, digital intelligence, green energy saving. In order to implement the goal of "reaching the peak of carbon and carbon neutrality", China's power industry is required to vigorously develop smart grid and new energy generation. In order to meet the needs of the development of The Times, combined with the characteristics of the development of electrical engineering and automation in our school, aiming at the training goals of college students, the talent training program of our school has been redesigned.

II. Training objectives and characteristics

The major of electrical engineering and automation in our school is positioned to serve the requirements of local economic structure adjustment and industrial upgrading, facing the practice and production line of electrical engineering, training students with basic theories and professional knowledge of electrical engineering, and able to engage in power system operation and design in the professional fields of electrical engineering, national grid, automatic control, power electronics, computer control technology application, etc. Electrical equipment overhaul, installation and commissioning, power system relay protection and automatic device operation, installation, commissioning and maintenance, smart grid and new energy power distribution system installation, operation and maintenance of general industrial electrical equipment, electrical control design of mechanical and electrical systems, Application, compound and innovative high-quality talents in the production design and technical management of equipment and equipment.

The major has made preliminary achievements in exploring application-oriented transformation, highlighting the school-running philosophy of integration of major and enterprise, integration of theory and practice, integration of technology and service, integration of application and innovation, adopting the school-enterprise cooperation mechanism of "leading enterprises to school, leading schools to enterprise", forming a "one main, two auxiliary and four integration" production and education integration collaborative education model, the core courses of the major adopt the integrated teaching mode of science and practice. Mobilize the enthusiasm of students to study, actively carry out scientific and technological innovation activities, build a "four-in-one" teaching quality control system, out of a "production" as the direction, "learning" as the basis, "research" as a link, "use" as the purpose of the training path, the formation of interactive talent training system with enterprises. For the third-tier cities and remote areas of the national grid, as well as small and medium-sized power plants and small and medium-sized enterprises operation and maintenance to transport a large number of high-quality talents.

Curriculum is the carrier of ability training. The curriculum system is set with the achievement of professional core competence as the main objective. According to the training objectives and combining with professional characteristics, the curriculum system construction scheme of this major is formulated, as shown in the following figure.

III. The effect of talent training

In recent years, the employment rate of the major has continuously exceeded 90%, and the students who have passed the National Grid account for an average of 25% every year. The graduates are mainly engaged in the construction, production, operation, dispatching of the national grid, small and medium-sized power plants, and the operation and maintenance of electrical equipment in small and medium-sized enterprises.

In order to give full play to various talents' expertise, create a good atmosphere for scientific research and teaching, develop and

improve the system for teachers to guide students in scientific research and scientific and technological innovation, and actively guide undergraduates to participate in scientific research, of which students have presided over or participated in a total of 10 projects. At the same time, teachers are encouraged to guide students to participate in various competitions. In the past three years, various activities and lecture competitions have won 42 awards or honorary titles at or above the provincial level, of which 4 are above the ministerial level and 38 are at the provincial level. It has cultivated the students' innovative thinking and improved the students' experimental hands-on ability.

IV. The problems in the training program and the measures to be implemented

At present, the electrical engineering and automation major of the school is facing the needs of jobs, and there are still many problems in the background of engineering certification, which are mainly reflected in the following aspects.

1. Teachers' problems

The problem of teachers is the key to training the quality of students. The school has the problem of insufficient teachers and relatively high students. The teachers' curriculum burden is too heavy, and the teachers have no time to learn to improve their professional quality, which seriously affects the teaching quality. Especially in the practice of graduation design, the number of graduates led by a teacher is too large, and the tutoring is too difficult. At the same time, due to the problems in the professional structure of teachers, they can not meet the requirements of the proportion of strong electricity graduation design topics. Among them, there are enough teachers of basic subjects, fewer teachers of professional subjects and teachers of practical operation skills training.

In view of the above problems, this major should introduce relevant professional teachers and expand the channels of talent introduction. In addition to doctoral students from colleges and universities, attention should be paid to introducing electrical engineers with industry experience, or external enterprise engineers to teach. At the same time, regular professional training for teachers, one is to send teachers to other colleges and universities for further study, broaden and deepen professional knowledge; The second is to send teachers to enterprises for long-term on-the-job practice, so that teachers can go deep into the industry and master the cutting-edge knowledge of the industry. Because teachers can not master enterprise technology in a short period of time, enterprises are not assured about product quality, and even production safety issues, so we must start half a year to a year in order to play a good effect.

2. The practice link has not been implemented

In addition to the above problems of practical teachers, due to insufficient capital investment, practical conditions can not meet the needs of students' ability training. Among them, the laboratory construction is backward, including the aging of experimental equipment, insufficient quantity, small laboratory area and other problems, can not carry out effective practical activities. For example, in the substation switching operation practice project, only two or three sets of experimental equipment are fully available, and when the practice is carried out, a class needs to be divided into multiple groups to complete a project teaching, which increases the teaching time of teachers. And high and low voltage switchgear laboratory, the equipment has long been eliminated by the market, the operation process is complex, can only meet the basic understanding of the practice project. In addition, some practical links are mere forms, and the practical goals are not fulfilled. Some courses of my major adopt the integrated teaching method of science and practice, but due to the limited laboratory resources and the large number of classes, it is difficult to carry out the integrated teaching method of science and practice.

In view of the problems existing in practice, the school needs to introduce advanced experimental equipment and virtual simulation system in the industry and expand the laboratory. At the same time, teachers are required to improve their operational skills, implement the content of the practice link, strengthen the management of the practice link, and improve the relevant mechanism. Relevant professional leaders go out to contact enterprises and send students to enterprises for practice.

3. Employment and export

In recent years, the employment situation of this major is good. In order to further expand the employment channels of students and improve the core competitiveness of students, it is necessary to strengthen the cooperation between schools and enterprises, achieve student matching training, carry out the construction of school enterprise customized classes, and adopt the 2+2 mode for talent training. In the first two years, students will study general education and professional basic courses in colleges and universities, and in the last two years, students will study in enterprises. The talent training plan is to customize professional courses and practice links according to the needs of enterprises for talents. Create a talent training system of "integration of production and education, integration of school and enterprise". In order that students can rest assured that the enterprise study, the school should be strict in the selection of enterprises, because the cooperative enterprises are basically the employment enterprises of students. Among them, the scale of school-enterprise integrated training mode enterprises should be large, the management system should be standardized, and there should be a perfect staff assessment and promotion system.

The model has many advantages. For the enterprise, the internship equipment is the equipment used for work, and the staff has no transition time; Professional skills are cultivated by the enterprise, and what kind of talents are taught by the enterprise; Recruitment integration, staff training by the support of school resources, large investment, benefit, save the time of recruitment.

For students, due to the deep participation of enterprises, get high-density and high-intensity skills training opportunities, in-depth understanding of corporate culture, high recognition, high skill level in employment belongs to the level of technicians, and there is no job adaptation problem, the enterprise directly according to the skill level, the wage starting point is high, benefit from the enterprise's training mechanism, the growth rate is fast, big growth space. High degree of protection of personal rights and interests, large space for re-choosing a career.

4. Lack of training for students' learning ability

The goal of university education is not only to learn systematic professional knowledge in school and cultivate outstanding talents needed by society, but also to learn good moral concepts and cultivate excellent character, so as to lay a solid foundation for stepping into society. At the same time, it should also cultivate the ability of students to learn independently. When students step into the society and work, they will not always have a preacher around them, and have the ability to learn independently, which can not only improve the comprehensive quality of students, but also improve the ability of students to resist pressure in the face of difficulties and enhance their self-confidence. At present, the talent training program of colleges and universities has basically no link for the cultivation of students' independent learning ability.

To solve this problem, a self-study course should be set up regularly in the talent training program, and students should complete the content of independent learning. Self-study courses can be theoretical courses or practical courses. In the first two semesters or the first two classes of all self-study courses, teachers can guide students how to complete the study of self-study courses. Since self-study courses are different from ordinary lectures, a reasonable assessment plan should be formulated. Among them, students' learning progress can be checked online (such as through the cloud class system) during the self-study period. For self-study practice courses, students can make a set of control system individually or in groups according to the difficulty of the course, so that students can independently design, wire construction and final debugging, during which the instructor is required to provide regular guidance. The four-year college self-study course can be gradual, from simple to complex, combining theory with practice, and gradually improving students' independent learning ability

V. Concluding remarks

The major of electrical engineering and automation is a typical interdisciplinary major, and the cultivation of professional core competence is an important link in the whole personnel training work. There is a big gap between the current situation of electrical engineering and automation major in most local colleges and universities and the certification standards of engineering education. In order to achieve long-term professional development through engineering certification and train a group of high-quality electrical engineers in the new era, it is necessary for us to constantly improve the teaching mode and curriculum system of talent training program according to market demand. Only professional teachers walk in the forefront can develop talent training programs in line with the new era. Only teachers constantly strive to keep pace with The Times. In order to cultivate the future of the great country artisans.

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