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Research on the Training of New Engineering Talents in Electronic Information Engineering under the Background of Xiongan New Construction Area Construction

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Fund Project: In 2021, Hebei Provincial Ministry of Human Resources and Social Labor Security project, and explored the training of electronic information engineering skills talents in Hebei universities under the background of Xiongan New Area. Person in charge: Yiran Jiang (Project No. JRS—2021—3159).

Abstract: The construction of the Xiongan New Area is a major strategic deployment made by the CPC Central Committee to promote the coordinated development of the Beijing—Tianjin—Hebei region. It is a grand mission of a millennium and a major national event. Higher talents play an important role in social and economic development, and it is of important practical value to cultivate higher talents starting from the needs of social development. The construction of the Xiongan New Area plays an important role in the coordinated development of the Beijing—Tianjin—Hebei region, but the development of the new area needs to pay attention to talent training and application. The development of the Xiongan New Area will inevitably increase the demand for talents. Universities in the Beijing—Tianjin—Hebei region will become an important talent training base for the construction of the new area. Under the background of the Xiongan New Area, economic development challenges the talent training of traditional electronic information engineering majors. Actively layout the talent training in the future technology industry, and reform the talent training mode and practical content. This paper initially explores the training of new engineering talents from three aspects of the teaching system, curriculum teaching standards and training place, to promote the reform and innovation of the electronic information engineering major. The research results can be extended to the electrical engineering specialty.

Keywords: Xiongan New Area; New Projects; E—information Engineering; Talent Training; Higher Education

1. Development of new projects in China

China has the largest field of engineering education in the world. As of 2021, engineering students accounted for one—third of the total number of higher education students. But the goal of engineering talent training in China is not clear. Engineering teaching is just like science teaching. The understanding of the relationship and differences between general education and engineering education, practical education and experimental education is very vague. Engineering education is too disconnected with industrial enterprises. Engineering students has defects in their comprehensive quality and knowledge structure.

At present, the rapid development of the shortage of talent in the new economic fields, such as big data, the Internet ofThings and artificial intelligence, makes there is a disconnected connection between engineering education and emerging industries and the emerging economy. The development of the new economy challenges the talent training of traditional engineering majors. Compared with traditional engineering talents, the new industries and new economy in the future will need high—quality compound engineering talents with engineering practical ability, innovation ability and international competitiveness. Not only do they have profound academic research on a subject, but they are also important to bring engineering practice to an unprecedented level. The combination of time and social development should be reflected in the practice of talent training. The training

mode and practice content of new engineering talents in electronic information engineering, and the reform and training of students' innovation ability is all problems that need to be considered in the process of training new engineering talents in electronic information engineering.

2. Establishes a new centralized teaching system

The establishment of a new centralized teaching system and the teaching concept of new engineering. The construction of electronic information engineering major is not only a teaching reform, but also an attempt of the cultivation of students' full—cycle and multi—orientation training mode, and the practical decentralization of the new philosophy of talent training. Traditional education is teacher—centered. Students learn what the teacher teaches, and students listen to what the teacher says. Education in new projects cannot be teacher—centered. Teachers should consider cultivating the potential of students, so that students can gradually expand the problem space, and promote the intelligent evolution of the student group. The key to being really good at learning is outside the classroom. The "new engineering" teaching system of electronic information engineering should incorporate the informal learning of students into the professional teaching system. In the current Internet era, students can easily access a large amount of information and knowledge fragments through Weibo, WeChat and micro classes. Students can choose their own useful learning materials according to their actual learning situation and interests. The teaching system should guide students to conduct efficient and informal learning conducive to students' innovation ability, so that students can adapt to life. The fusion of art and technology, and the penetration of liberal arts and science.

Interdisciplinary courses are offered to explore the curriculum mode of complex engineering problems, promote interdisciplinary cooperative learning, strengthen the innovation and entrepreneurial ability of engineering talents, and improve the "creative innovation and entrepreneurship education system". Through innovation leads to entrepreneurship, entrepreneurship—driven employment, improving students' innovation spirit, entrepreneurship awareness, and innovation and entrepreneurship ability.

Provide new technology courses. Taking 3D printing as an example, the current 3D printing technology can produce any shape object based on computer graphics data without machining or mold, whose excellent advantages apply to each specialty. Our department has been purchasing small 3D printing equipment in recent years, strengthening the training of 3D printing teaching talents, and offering students 3D printing courses similar to laser engraving. With the development of The Times, this training course enables students to contact new things, open up their horizons, develop new thinking, improve students' ability to adapt to the society, and is conducive to cultivating their innovation and entrepreneurial ability.

3. Establishes a training ground for electronic information engineering

Opens the teaching site, increase the equipment, to meet the needs of the new engineering teaching. Traditional training equipment is still essential to training students with the most basic practical skills. In addition, in order to cultivate students' vision of The Times and social practical ability, it is necessary to use the social mainstream equipment according to the development level of The Times to supplement the teaching, such as three—dimensional printers, CNC engraving machine, virtual reality system, Internet of Things system, etc. Make sure each student has a relatively rich amount of time to understand the equipment, master operations and practical innovation.

In order to give more students the opportunity and place to put their ideas into reality, our department has opened the existing university innovation laboratories for our students. Most students have the concept and actions of innovative practice, and the College Student Innovation Laboratory has rich resources to meet the needs of students' innovative practice. The college student innovation laboratory implements unified management after student safety training, and adopts a comprehensive and open teaching mode, including weekends, holidays and nights, to provide tools and equipment. Also, provide training programs and financial support for interested students, and arrange instructors for training. Organize competitions, encourage innovation, support practice, and fully explore students' innovative and entrepreneurial potential. The teaching mode that fully openly allows students to practice independently is conducive to the formation of habits and the exercise of innovation and entrepreneurial ability.

4. Establishes new teaching standards for electronic information engineering

First, formulate talent training plans and standards for electronic information engineering according to the needs of new projects. According to the requirements of the new project construction, formulate the electronic information engineering quality standards, and formulate and optimize the talent training plan. The integrated engineering education system with certification guides teaching with the same international standards, and constantly improves and improves the quality of talent training. According to the characteristics of my professional engineering education, formulate teacher evaluation standards and teacher development mechanism, explore the construction path matching teachers with the new project, and strengthen the engineering background of teachers.

Second, establish a new curriculum system. "new engineering" research in electronic information engineering requires a review of the boundaries of the discipline. The current development of new technology requires the students in this major to have a concept of the Internet of Things, big data analysis, artificial intelligence, 5G network, etc. In the design course of this major, the content of artificial intelligence must be combined. In intelligent optimization, case research, group intelligence, etc., with advanced software rather than the daily work of the engineers, the future engineers get rid of some tedious daily tasks and give them more energy to focus on the creative work. The course system of this major needs to be reconstructed, adding new courses such as big data, and change some required courses to elective courses or combined with some optional courses. Specific practice requires further research.

5. Exploration of talent training mode in colleges and universities

Under the guidance of the new economy and the development needs of the Xiongan New Area and the concept of multidisciplinary research, professional education reform is carried out to provide a professional foundation for the training of high-quality talents. Introduce the latest needs of the industry in the curriculum, develop teaching methods to complete a series of courses, and improve the students' basic skills. Through the latest needs of the industry, the talent training plan is formulated to innovate the education process and integration of electronic information engineering, and adjust the training direction in real time. Establish discipline and industry, industry, enterprise relations, hire industry experts, and enrich the discipline construction through the cooperation of schools and enterprises.

6. Research findings

The construction of the Xiongan New Area plays a great role in optimizing the layout of the national economy and realizing regional industrial restructuring. At the same time, it also provides important opportunities for the employment and entrepreneurship of college graduates in Beijing, Tianjin and Hebei. From the perspective of the government, universities, society, enterprises, this paper believes that all parties should seize the favorable opportunity for the construction of the Xiongan New Area, and give full play to its professionalism and comprehensiveness. At the same time, employment education should be carried out, combined with the characteristics of the new project construction, to promote the reform and innovation of the talent training of the electronic information project.

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