Exploration of the Training System for Applied Specialized Talents in Electronic Information under the Context of Intelligent Manufacturing + Artificial Intelligence

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Abstract. From the new engineering to the "Double Ten Thousand Plan" round after round of professional reform, a number of first-class disciplines and first-class professions have emerged, and the development of disciplines is more in line with the trend of the times, and intelligent manufacturing and artificial intelligence, as a representative of the emerging professions, is getting more and more hot, and from the undergraduate to the master's degree are all laying out the construction of professions. Professional as a traditional discipline how to play its own accumulation and heritage, in the development of the wave of traction to deepen the reform of engineering education, for applied undergraduate colleges and universities, to cultivate specialized talents to the first place, to build a specialized characteristics suitable for the regional economic and industrial development of the system structure of personnel training, from the top-level design to practical action, to explore the cultivation of electronic information applied specialists training paths in the process. In this process, we should actively draw on the excellent experience with reference to the establishment of new professional disciplines system, integration of excellent knowledge system, interdisciplinary cross-composite construction of the training of talents model, really let the electronic information technology as a key discipline, in the first-class disciplines to occupy a place.

Keywords: New engineering, Intelligent manufacturing, Artificial intelligence, Electronic information, Applied specialists

1 Introduction

Since the Ministry of Education promoted the construction of new engineering disciplines in February 2017 [1], to April 2019, the Ministry of Education issued a notice on the implementation of the first-class undergraduate major construction "double ten thousand plan" [2], the wave of disciplinary reform has gradually risen, and the competition is exceptionally fierce in the competition for the construction of the first-class disciplines, which involves all kinds of inputs and Deepen the reform, the construction of new engineering disciplines has gone through several cycles, under the original system to continue to carry out faster and higher level reforms, the construction of first-class undergraduate specialties is to highlight the school's advantageous specialties, to a certain extent, resources are tilted. In addition, the explosion of new professions has also intensified the competition between the professions,

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electronic information as a traditional discipline, there is a certain basic advantage, but there are certain problems, such as: training programs and knowledge systems can not keep up with the times, and the regional economy and production development is out of touch with the problems, of course, in the problem at the same time also need to realize that the professional deepening the reform of the opportunity. Grasp the opportunity of reform can make electronic information traditional engineering specialties renewed new style, electronic information technology as a major discipline has its own advantages, after the construction cycle of the new engineering, as a key discipline by many colleges and universities, in the application of undergraduate colleges and universities of this old engineering specialties should be recognized as its status, its basic advantages, but also a new specialty of a basic support. So how to develop the electronic information profession, how to deepen the reform of engineering education, how to build the electronic information applied specialists training system, and how to build the electronic information profession into a first-class discipline are new ways to explore.

To train excellent engineers in the new era is an important means to promote the level of talents [3],In the process of the development of the new engineering discipline, the majors actively carry out interdisciplinary cross-reform, many traditional engineering majors carry out the revision of the talent program for the cultivation of outstanding engineers, and deepen the reform of engineering education in a variety of ways, and the "Double Ten Thousand Plan" is to establish the first-class disciplines and the first-class courses on the basis of the first-class disciplines have been formed in recent years, and there has been intense competition among the disciplines. Competition between disciplines is fierce, and consequently, the curriculum system is built, and first-class courses from national to provincial level are established, and many courses are made into gold courses of majors, and the development of traditional majors has ushered in a new opportunity to build key disciplines and first-class majors, and to strive for limited resources to carry out pragmatic reform actions within a reasonable range. Intelligent manufacturing and artificial intelligence as a new specialty, universities and colleges vigorously open new majors, but also in line with the needs of social and economic and production development, emerging majors are also based on the original similar disciplines of the foundation components, not overnight, in this context, electronic information can play its own basic advantages, while helping to support the construction of emerging majors, but also to actively seek opportunities for change in the "Double Ten Thousand Plan" under the fight for first-class professional and first-class courses, the introduction of their own professional gold courses, the emerging professional knowledge system interdisciplinary cross-fertilization into their own, in the cultivation of electronic information specialists and other emerging professional goals consistent with the same goal to learn from and learn from the same objectives, to absorb the excellent experience of the construction of the original basis for the establishment of new Cultivate specialists system, focusing on the revision of personnel training programs, to reflect the advanced nature of professional development in the new context. Artificial Intelligence has an all-round influence on the aim, content, Method and evaluation system of education[4],Promote personalization and better learning outcomes[5], The application of artificial intelligence technology to improve the system of electronic information engineering education.

2 Challenges in Establishing the Training System for Applied Specialized Talents in Electronic Information

Electronic information specialization is as a traditional discipline has maintained the original training system, in the development of the Internet of Things period, the integration of the direction of the Internet of Things, as a large class can increase the different directions, such as: the direction of communications, embedded direction, the direction of the Internet of Things, etc., based on the development of this category of disciplines and technologies, based on the increase of different directions to revise the personnel training program, the fact that the reforms are more passive, and access to the Relatively few resources, many colleges and universities in the early years of the withdrawal of electronic information, so electronic information as a traditional profession in the development has been more embarrassing, positioning above is not very clear, not as hot as the emerging professions, so in the establishment of a new system of training of applied specialists facing a number of difficulties.

2.1 Electronic information programs receive fewer construction resources

At present, many colleges and universities are actively declaring new majors, especially the hottest smart manufacturing and artificial intelligence, new majors need a lot of support and investment, relatively speaking, electronic information technology as a traditional discipline in addition to the existing construction, in the allocation of resources and support are weak, although there has been the construction of a good foundation, but with the updating and development of technology, such as laboratory equipment, many of which are faced with the elimination and renewal of the situation. Although there is a good foundation has been built, but with the update and development of technology, such as laboratory equipment, many facing elimination and renewal of the situation, a lot of old equipment is still in the service of teaching, the new input relative to the construction of new disciplines is obviously insufficient, the construction of the acquisition of fewer resources to a certain extent impede the development of the profession, in this case, should consider in-depth cooperation with other professions and sharing of the new laboratories and other resources. In the case of less input to make full use of the existing conditions for integration and efficient use, you can raise the equipment needed through other ways, and deep cooperation with enterprises, the use of enterprise resources for professional transformation and upgrading.

2.2 Faculty members in the electronic information program need to improve their business skills

Electronic information technology as a traditional discipline, the faculty are accumulated over the years, with excellent teaching experience, but should also be seen, the business level of many teachers have not been improved, teaching courses have been traditional knowledge, which means that the level of electronic information technology teachers need to be further improved to keep pace with the times and the development of science and technology, and can not be limited to their own mastery of the teaching Knowledge structure, to go out more exchanges, especially from the scientific research project as the goal of their own business improvement, to scientific research and exchanges and other forms of academic activities, forcing their own academic level and business level of enhancement, but also should be the introduction of outstanding talent, replenishment of fresh blood, modification of the

assessment standards and systems, through incentives and other ways to encourage teachers to actively carry out academic research, in order to cultivate applied specialists to provide excellent Teachers as the basis of its development. As an engineering specialty, it is more important to pay attention to the needs of enterprises, so that teachers can go into the enterprises to practice, and become a real dual-teacher type multi-shoulder excellent teachers.

2.3 The revision of talent training programs should not be limited to mere patchwork adjustments

The revision of the talent training program as a daily teaching task for each period, in the revision of the talent training program can not just add or delete certain courses to reflect the completion of the professional reform, there should be a certain degree of real talent training program of a reasonable layout, to fundamentally solve the problems and difficulties of training to be able to cultivate applied specialists to adapt to the needs of the regional economic development and production upgrading. Talent training program revision should start from the research, research related enterprises and companies, after graduation students to visit, but also to investigate the stage of social recruitment of electronic information personnel requirements and future demand trends. Research is to provide reasonable data to support the revision of talent training programs, but also held such as teaching seminars, so that enterprises to join the curriculum reform seminars, and other schools to explore the exchange of engineering education, and go out to participate in teaching activities, in addition to the research of the professional accident but also research emerging professions and other schools of the first-class related professions, to learn from the excellent experience of reform in the revision of the talent training program is not limited to tinkering, but rather to be able to revise the talent training program. When revising the talent training program, we will not limit ourselves to tinkering, but will be able to grasp the specific goals of the reform as a whole.

3 The construction of electronic information application-oriented specialized personnel training system

To establish the electronic information application specialists training system, we have to focus on the long-term development trend of the profession, we have to combine the emerging professions and the emergence of new technologies and new knowledge systems, for the changes brought about by the technology, we have to deeply realize the positive impact on the profession, how to break the ice in this impact, especially with the fire of the emerging professions, we can't just pursue the new technologies and new knowledge ignoring the basic training, we have to complete the reform of engineering education. Reform of engineering education, to build a truly practical situation in line with the application of specialized personnel training system, to learn from the success of the first-class professional construction of personnel training system, to learn from the same type of universities in line with the regional economic development of the profession of the excellent experience, in particular, we must see the success of similar colleges and universities in the construction of electronic information technology, a wide range of teaching and learning exchange activities, and seriously discuss the reform program, the real design from the top. Influence the establishment of applied specialists training system.

3.1 Revise talent training programs with reasonable objectives

Electronic information to revise the talent training program through a wide range of research and communication activities, to first-class professional construction as the goal, against its construction requirements, the use of existing resources for the transformation and upgrading, and strive to achieve the school's focus on disciplinary support, we must find ways to accumulate advantageous strength, to play the advantages of their own disciplines, and the basic courses are also mandatory for other engineering majors, so that you can interact and learn from each other and the emerging professions. Exchange and study, learn its new knowledge and technology, invite teachers of emerging professions to cross-curricular classes, participate in teaching reform seminars, invite corporate engineers to cooperate in the opening of the course, and jointly build the course into the talent training program system, to develop a reasonable electronic information development and reform goals, to high target requirements for the construction of the profession, and accumulate results in the construction process, and effectively and efficiently on the depth of the revision of the talent training program. The revised talent training program should be discussed, and experts should be invited to evaluate its rationality and whether it is adapted to the goal of the current construction of first-class professions, and should also refer to and learn from the excellent experience of emerging professions, and as far as possible, such as the excellent and successful experience in the construction of intelligent manufacturing and artificial intelligence to draw on the talent training program of electronic information, and also reflect the characteristics of its own professional direction, such as intelligent Internet of things, artificial intelligence applications, and other directions. Application and other directions.

3.2 Cross-use of emerging professional development resources across disciplines

Electronic information as a traditional discipline, early investment in the construction of experimental equipment and other instruments because of time, can only barely cope with the basic teaching, the new laboratory support is relatively small, the school will generally invest in new majors, into the smart manufacturing and artificial intelligence such as emerging professions, to the trend of leading the popular professions, in such a context, the electronic information to obtain strong support and investment in the relative difficulties. In fact, through the way of cooperation, and other emerging professions to build experimental training base, you can share the input instrumentation and other equipment, such as PLC equipment, so that the electronic information students can learn in the direction of robotics above the course, through the sharing of instruments and equipment, but also save the development of the required input. Through the interdisciplinary cross way, can be related courses into the professional construction, can be reflected in the personnel training program, not only can increase its interdisciplinary cross-application of the curriculum, but also allow students to expand the application of knowledge, there can be more than one direction to choose, not limited to a certain type of direction, and more respect for the needs of the students, as well as reflecting the needs of the community on the demand for specialists, so that we can cultivate excellent applied specialists. This can cultivate excellent applied specialists.

3.3 Increasing the number of academic competitions for university students

Electronic information as a large class of disciplines, including many branches and directions, for talent training program to develop multiple directions for students to choose, expanding

the coverage area of the electronic information profession, then the competition involving electronic information will be very much. Selection of competitions from the major categories should be from the event whitelist, select the high gold content can reflect the characteristics of professional competitions, such as: artificial intelligence competition, robotics competition, electronic design competition, etc., the selection of whitelist competitions according to the degree of difficulty of the classification of the different grades of students to participate in the competitions, participation in the competitions is also a method of cultivating outstanding students, but also exercise the lower grades of the students to participate in competitions in the early advancement of learning, except for Whitelist competition can be organized within the school to select talents, but also can be radiated to all students, so that through the extracurricular academic competitions to further promote the cultivation of specialized applied technical talents, but also as an important part of the talent training program. Should also cooperate with cooperative enterprises to carry out industry-specific on-campus competitions, which can put forward the technical difficulties faced by enterprises and the direction of research and development, so that students can adapt to the actual research projects of enterprises in advance, and also allow enterprises to provide convenient conditions and support resources.

3.4 Enhancing the quality of academic programs for university students

College students innovation and entrepreneurship training program as a regular project every year, after many years of development is relatively mature, on this basis should put forward higher requirements for students, to combine the current focus on the technical field of the project declaration, focusing on the process of research to strive for excellent results, can be used as the team's academic projects, to academic projects to enhance, generally this type of project should be instructors to give certain Professional guidance, from a professional point of view to give students a list of suitable topics or research direction, can start from the solution of technical problems can also start from the academic research, divided into two types of direction to stimulate students to choose, the academic field of the selection of guidance to the professional instructor is responsible for the selection of guidance for technical problems to let the enterprise mentor is responsible for, but also can be developed in cooperation with both the academic and technical selection of the topic. In addition to the innovation and entrepreneurship training program for college students, there are other types of student projects, such as: climbing science and technology projects, etc., can also be included in the college students' academic project management system, different types of projects for different grades, forming a legacy to improve the quality of college students' academic projects, and effectively obtain the progress of the research can be reflected in a high level of representative academic results or technical projects.

3.5 Increase the number of innovation credits and encourage students to actively apply for them

In the original credit system to add innovation credit, mainly to encourage students to carry out extracurricular learning and participate in large-scale events or projects to achieve results can apply for recognition of innovation credit, in fact, to encourage students to actively participate in extracurricular learning and academic activities, from the professional training of specialized skills, and to cultivate outstanding talents, guidance students can be interdisciplinary cross-application of knowledge in different professions, through the

curriculum of outside learning to supplement the practical knowledge system in the classroom, through a variety of forms to publicize the recognition of innovation credit work, to simplify the recognition process. In the context of smart manufacturing and artificial intelligence, students are encouraged to utilize comprehensive knowledge to design projects, and the recognition of innovation credits should be publicized in various forms, and the process of recognition should be simplified, so that students can actively apply for the recognition of credits under the guidance of the instructors, and the atmosphere of academic and technological learning can be promoted, and more innovative and characteristic talents can be cultivated under this system. Talents. Senior students who have achieved results should be used as role models for publicity, and students should be motivated to participate in the learning activities of innovation credits in various forms, such as commendation.

3.6 Incorporating knowledge systems for smart manufacturing and artificial intelligence

In the context of the development of intelligent manufacturing and artificial intelligence, we should actively learn from the excellent experience of emerging majors, especially the construction of their curriculum system, observe the teaching effect of emerging majors' courses, introduce their perfected knowledge subject system, compare it with the original curriculum system of electronic information, choose the excellent courses that are related and similar to the knowledge system of electronic information to be added in the talent cultivation program, and revise the talent cultivation program. In the process of revising the talent cultivation program, we should evaluate the course structure system, establish the corresponding connection of all courses, integrate the new knowledge points into the practical teaching with the knowledge system of electronic information subjects, actively modify the knowledge content of the courses, and add the technical knowledge of the development of electronic information subjects inside the intelligent manufacturing and artificial intelligence into the course system.

4 Conclusion

To establish the standard of first-class disciplines to build the electronic information profession, drawing on the knowledge system of the advantageous courses of the new profession of intelligent manufacturing and artificial intelligence, integrating the relevant knowledge into the practical projects of electronic information, reforming the engineering education system of the electronic information profession, adopting a variety of initiatives to cultivate the electronic information specialists, cultivating more top-notch characteristics of the application of talents, and taking the electronic information as a key discipline to carry out Periodic construction, reform through top-level design, revise the personnel training program that truly adapts to the development of the regional economy, explore the electronic information applied specialists training system under the background of "intelligent manufacturing + artificial intelligence", build the system through a variety of ways for tracking and observation, to achieve significant results, and dynamically adjust the goals in the reform process. To establish an interdisciplinary and cross-disciplinary talent training system with exemplary effect.

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