

Discussion on the Mode of Cultivating Innovative Talents

—Research on the Education of Innovative Talents in Science and Engineering

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Abstract—The aim of this study is to form the organic connection between the development of the subject specialty education and the innovation and entrepreneurship education. This paper puts forward that the innovation and entrepreneurship education should be integrated into the teaching system of the whole construction of electronic information engineering specialty, so that the innovation and entrepreneurship education and discipline construction become a complete system to form their own professional advantage. This paper is a supplement to the existing theory of innovation and entrepreneurship education, this paper puts the innovation and entrepreneurship education into the system of professional education and carries out a complete elaboration and practice. The research of this paper has positive effect on the construction of the specialty of innovation and entrepreneurship Guiding role. In the specialty construction, innovation and entrepreneurship education will be organically integrated into the education and teaching system. It will link with the development of discipline education, which will make students develop the ability of innovation and entrepreneurship relying on the advantage of professional knowledge.

Keywords—*innovation; entrepreneurship; professional; talents*

I. INTRODUCTION

At present, there is a gap between the talents cultivated in higher education and the needs of modern social and economic development. The main factors are that the comprehensive quality of the graduates is not enough to meet the needs of social development, and the pioneering spirit, initiative and innovative spirit are insufficient. In the era of rapid development of knowledge economy era, this mode of personnel training is bound to be separated from the development of society. Faced with this situation, establish a modern innovation and entrepreneurship education is a concept of education and educational thinking of a reform, innovation

and entrepreneurship education is a quality education, and only for some people's elite education is different, it is for all students, teachers, Managers, students to participate in the completion.[1] Professional training objectives and training programs to develop education should not only have the discipline of innovation and entrepreneurship, more innovative and entrepreneurial universal, innovative entrepreneurial professional development for students of self-development, self-improvement to build a suitable platform.[3]

II. THE NEED FOR INNOVATIVE FEATURES RESEARCH

Innovation and characteristics of the need for research: the development of regional economic development for the electronic information industry needs and to serve the local focus on professional, disciplines and "production and research with" as the carrier, electronic information engineering should update the concept of personnel training, Personnel training model, deepen education and teaching practice, emphasizing the professional construction of innovation, application, the implementation of professional education and engineering practice ability of convergence of personnel training plan, and strive to build a local characteristics, to electronic information application-oriented professional training, And the training system of "platform + module + skill" for training innovative talents of research-oriented type. Through the key training and reasonable construction, we will establish a professional teaching team with "double teacher" quality to build undergraduate application-oriented electronic information Professional curriculum system; in the core curriculum in a typical electronic products as the carrier, the integration of the existing curriculum system, the preparation of a number of engineering and engineering teaching materials, the development of network courses, the establishment of a shared professional resource base; to strengthen and improve the

electronic production process, Product design based production training base construction, improve students' professional skills and professionalism.[2]

The use of national innovation and development opportunities, through the construction and practice, the professional construction of the province into the same level of advanced institutions, and innovative business characteristics of the obvious advantages of electronic information engineering undergraduate majors, for the province of similar electronic information engineering Construction and reform to play a leading role for our school discipline construction, curriculum reform and innovation and personnel training to gain experience and achievements and breakthroughs. And strive to make our school electronic information undergraduate professional local well-known, competitive, high level of service, practical practice base complete, advanced equipment, distinctive and has a certain role of radiation and demonstration, to adapt to regional electronic information industry development needs of high Quality application of electronic information class personnel training base.

III. CONSTRUCTION OF PROFESSIONAL COURSE GROUP SYSTEM

Professional completion of the "curriculum clustering" innovation system to build the main course of class, the overall teaching reform and teaching, in the curriculum system and content integration, teaching team building and training of young teachers, teaching resources integration and other aspects of exploration And practice.

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The following main measures can be taken:

A. Curriculum system and curriculum integration

The repetition of the curriculum should be eliminated, the content of repetitive subjects should be properly dealt with, the relationship between theoretical teaching and practical teaching should be properly handled, the interdisciplinary should be emphasized, and the potential of each student should be fully tapped. Have different levels of requirements, teaching people. Ensure that each student's intelligence and intelligence have been fully display.

B. Teaching content and teaching methods

Update the teaching content, and the times, the establishment of a creative and unique content system (to form a new syllabus).

C. Laboratory Construction and Experimental Teaching Reform

Strengthen the practice of teaching, construction and class construction to match the comprehensive practice teaching base, set up comprehensive experiments, design experiments and a variety of large-scale curriculum design experiments, to

provide simulation training environment to meet the needs of all levels of teaching.

D. Textbook construction

The use of domestic advanced materials and self-compiled teaching materials with a combination of methods for the various courses selected groups of course materials. The group encourages teachers to actively develop teaching materials and prepare more teaching materials that suit the characteristics of the university.

E. Optimize the teaching staff

Deepen the reform of teaching content and system for courses; strengthen the monitoring of teaching quality, the establishment of course group teaching and research group. Strengthen teaching and research, teachers and students are required to write high-quality teaching and research papers.

IV. CONSTRUCTING THE REFORM MODEL OF PRACTICE TEACHING SYSTEM WITH THE CORE OF KNOWLEDGE, ABILITY AND QUALITY

Combine with the characteristics of professional knowledge, to determine the integration of professional practice teaching system ideas to practical ability, practical skills and innovation capacity training as the core, the establishment of modular, progressive practice teaching system. In practice, the teaching system is divided into four modules: basic skills, professional skills, comprehensive skills training and innovative skills training. According to the requirements of each module to determine the specific content of practice, And around the practical ability, practical skills and innovation ability of progressive training as the core work.

According to the actual situation of the school and the students, the students should be divided into different levels according to the needs of the students, and the concept of "student as the main body" should be embodied in the teaching process, and the teaching contents should be adjusted accordingly. Content, consider the diversity of teaching content, organic combination of basic teaching content and design innovative teaching content, to build a sound system of practical teaching. On the way, pay attention to the teaching object personality characteristics, clear teaching objectives and guiding ideology, pay attention to the timely updating of teaching content, the use of comprehensive case-specific practice teaching.

V. TO EXPERIMENTAL TEACHING CENTER AS THE BASIS, TO CREATE A PROFESSIONAL PRACTICE TEACHING BASE

To create a practical teaching base, optimize the discipline competition system, the combination of disciplinary competition and innovation activities, improve the multi-level, multi-type innovation education system and to support students to independent management, innovation and innovation system; the same time, And constantly explore the development of new disciplines in-depth competition model. Optimize and gradually form from the student interest groups or college student associations to the college level competition, from the selection of students to enter the innovation laboratory training

to team up to participate in school or national competition, combined with practice and competition results to discuss innovative training model. To guide students to attach importance to discipline competitions, take the initiative to participate in the training process, attach importance to scientific thinking and practical ability to exercise.

A. The Training of College Students' Science and Technology Competition

Pay Attention to the Competition of College Students 'Science and Technology to Cultivate Students' Innovative Consciousness. In the organization of college students' science and technology competition, follow the "two-oriented" principle: First, science-oriented, that the competition for all students of the professional, so that more students understand science and technology competitions and participate; Strong, high-level scientific and technological competition.

B. Teacher training session

Pay Attention to the Training of Scientific and Technological Competitive Training Instructors and Team Building. Through the development of various forms and sizes of teaching seminars, the collective preparation of training manuals, improve teaching documents, explore teaching methods. Encourage and support the training of teachers to carry out various research works, teaching as the basis, to promote scientific research teaching and comprehensively enhance the level of competition.

C. Student training links

In the freshmen into the education in the infiltration of ideas, causing students interest in learning. Create interest groups, and then find talent to participate in the competition. Through practical training, students have some understanding of the relevant science and technology competitions and innovative content, design ideas, but also have some certain skill

D. Skills training session

Training students design skills, including component selection, component use, system design, implementation, component welding, system fault elimination and other aspects of practical skills. As well as writing skills. Train students to develop teamwork skills.

E. The Training of University Students' Innovation and Entrepreneurship Project

The implementation of college students' innovation and entrepreneurship training has the characteristics of comprehensiveness, autonomy, innovation and practicality, which can stimulate students' interest in learning and promote students' independent study. The implementation of college students' innovation and entrepreneurship training has the characteristics of comprehensiveness, autonomy, innovation and practicality, which can stimulate students' interest in learning and promote students' independent study.[4]

VI. INNOVATION AND ENTREPRENEURIAL CHARACTERISTICS OF PROFESSIONAL CONSTRUCTION INITIATIVES

A. Innovation and entrepreneurial characteristics of professional construction initiatives

1) The implementation of "school-enterprise cooperation, work-study" talent training model

To serve the regional economic construction 1, training innovative, complex, application-oriented talents. The four-year training period is divided into seven modules, including basic skills, professional skills, and comprehensive skills, which are carried out in schools. They are familiar with the practice, social practice, production practice and project. Internship 4 modules in the enterprise. Through professional basic course experiment, master professional basic theory knowledge and skills; through professional basic skills training, cultivate professional practice ability and engineering consciousness; through outside project internship and internship, improve job occupation ability and production knowledge, make professional quality and Capacity-building systematic, concrete, and explore the formation of both quality and skills, work-study personnel training model. Market-oriented, and actively explore the school-enterprise co-built courses, cooperation in training personnel, to build a joint laboratory and practice base, so that skills training and technical training targeted to cultivate a rapid adaptation of the work of the composite, applied talents.

2) To promote the application of innovative personnel training model to promote the application of innovative personnel training model

To further update the teaching concept, clarify the reform ideas, and strive to explore and build "engineering awareness, build engineering capacity, obtain the certificate and" consciousness · ability · certification "application innovation talents training mode. Based on the requirements of professional competence, deep integrate the teaching content and the professional skills certification requirements.

3) Improve the awareness of innovation and engineering capacity training system

To "applied" personnel training as the core, strengthen the foundation, professional, research three platform about experimental. Build "innovative leadership group + innovation interest group + innovation base + open management mechanism + innovation activities" scientific and technological innovation training system.

B. Curriculum Construction and Teaching Content Reform

1) Curriculum Content and Course System Reform

Practice teaching and the construction of the contents of the course and the construction of the system of the school and enterprise reform will build a typical technology, the typical design process or product line of the main course of electronic information engineering curriculum system structure and content to adapt to the type of personnel training problems, And constructs the content structure of the course with the project as the unit and the typical product design as the carrier, and solves the problem of segmentation of professional theory and practice, teaching content and enterprise demand.

2) *The Construction of Practical Teaching*

To change the past theory, practice teaching fragmented teaching methods to project design to build the situation, practice training process around a task or project to organize teaching, learning by doing, learning while doing, learning unity. According to "task-driven, project-oriented" principle, by professional teachers and enterprise engineers to complete the above stages of teaching work and organize the implementation of task-oriented development of the project curriculum to explore the "teaching, learning and integration" Teaching methods, the formation of process monitoring as the main characteristics of the assessment methods, and ultimately explore suitable for electronic information engineering education curriculum development and teaching mode.[6]

3) *Quality Course and Construction of Teaching Material*

The construction of excellent course and teaching material is the important support of curriculum construction. Continue to build quality courses, will lead to other courses, and improve teaching quality.

4) *Construction of professional teaching resource pool sharing*

In order to give full play to the functions of experimental training room, to improve the level of teaching and scientific research teachers, make full use of the provincial experimental teaching demonstration center hardware teaching resources, by the faculty by improving the utilization of equipment and teachers of engineering practice ability; improve training courses curriculum standards And teaching design, to achieve the experiment, training and teaching resources sharing;

C. *Experimental and training conditions*

1) *On - campus training base construction*

Through the reorganization of resources and rational distribution, focusing on the construction of electronic information engineering school engineering training center, requires students to master theoretical knowledge, experimental and practical hands-on training, students practical technical ability. Through the construction, so that the school production training base to achieve a high level, so that the production of practice to achieve the entire practice of teaching more than 50%. Support students' extracurricular activities group to carry out practical activities, electronic competitions and teaching and research activities. In the construction of the focus on innovation, comprehensive open features, emphasizing the practicality of engineering education for students engaged in electronic creation to create conditions.[5]

2) *Off - campus training base construction*

Formulate internal and external training base operation and management system, the implementation of the base responsible person, and signed the project mission book. Through the construction and improvement of long-term mechanism of cooperation between schools and enterprises to amend the feasible and effective operation of the base and management system, professional teachers, part-time teacher management system, student internship management system, student training assessment system, and enterprises signed a long-term training base outside the agreement, To meet the main skills training and technical innovation services.

D. *Professional teaching, scientific research team building*

Present situation: The professional teachers, to associate professors, PhD as the backbone, the lecturer as the basis; At present, the electronic information engineering professional teachers, the proportion of senior teachers account for 60%, teachers with doctoral degree in the proportion of teachers For the 30%, the old, the ratio of green: 2: 2: 6.

VII. SUMMARY

In the mode of cultivating innovative entrepreneurial talents, from the four aspects of "knowledge", "ability", "thinking" and "practice" to balance students' innovative ability and entrepreneurial consciousness, from the "broad and deep" (The strong will, mission responsibility, innovative professional understanding), can strengthen the comprehensive scientific quality of the students (engineering and technical operation ability, knowledge transfer and innovation ability), professional innovation thinking (strong will, mission responsibility, innovative professional understanding) And the cultivation of innovative consciousness, enhance students' innovative thinking and ability.

In this paper, we should strengthen the construction of students' ability of innovation and entrepreneurship in higher education, and improve the students' ability of applying theoretical knowledge, comprehensive practical ability and innovative design ability. To train students' comprehensive engineering practice ability, Students through the cultivation of re-learning skills all-round and three-dimensional, with sustainable development capacity and guarantee.

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