The Reform and Exploration of Special Talent Training Mode of Automation Major under Background of New Engineering Disciplines

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Abstract: Using the automation of the College of Mechanical and Electrical Engineering at Huangshan University as a case study, this paper elucidates the talent training mode, orientation, training objectives, and characteristics of the automation major within the context of new engineering disciplines.It explores ideas for constructing a curriculum system for talent training and reform methods for practical teaching systems while also developing innovative teaching approaches.This lays a solid foundation for cultivating applied and innovative talents in the field of automation that are adaptable to the new economic situation.

Keywords: New Engineering Disciplines; Automation; Applied Talents Training; Hotel Engineering Automation

1. Introduction

In recent years, there has been an accelerated pace of scientific and technological transformation and industrial innovation, accompanied by a sweeping wave of robotics and artificial intelligence technology worldwide.This phenomenon has marked the advent of the era of intelligence in human development.With new technology, new industries, new forms and new model of the new economy is in urgent need of new engineering science and technology talent support, in view of the current engineering education supply and economic and social development demand, contradiction, unified engineering education, facing severe challenges to cope with this challenge, the Ministry of Education after discussion has formed the "Fudan University consensus ","Tianjin University action "and" Beijing guide " and other guidance documents[1-3],Put forward the "new engineering" construction plan.New engineering is not abandon the traditional engineering, but the traditional engineering professional concept, content, standards, methods, technology, combined with the future, the demand of economic and technological development, change the past discipline leading talent training mode, reconstruction industry demand new engineering personnel training mode, training to meet the needs of the future engineering development of innovative spirit and ability of new engineering talents[4].

2. Build a professional and characteristic talent training program

For traditional engineering majors, the construction of "new engineering" is essentially the innovation of talent training, and improves the quality and efficiency of traditional engineering through the reform of talent training mode.The Automation major, as a traditional engineering major, In order to meet the needs of engineering talents under the new economic form, Implement the opinions on the revision of the school's talent training plan, Guided by the concept of achievement-oriented (ODE) training, Build a new mode of talent training integrating "production and teaching" from five aspects: training objectives, training needs, training process, teaching evaluation and teaching reform, Forming " A goal, A concise one, Three transformations " the new concept of application-oriented talent training, That is, training new engineering applied talents as the goal, Focus on the professional characteristics of the concise, Promote the transformation of knowledge indoctrination to ability cultivation, school open-loop education to school-enterprise closed-loop training, and professional reform to discipline construction and interdisciplinary integration.Optimize the process of talent training, improve the quality of talent training, and answer three questions, namely, " what kind of automation professionals does the

industry need under the new economic situation?"," How to better ensure that the trained students to meet the engineering needs?"," How good is the mastery level?".

2.1 Professional positioning and training objectives

In recent years, while constantly strengthening the connotative development, taking the new engineering plan of the Ministry of Education as the starting point, with the goal of supporting regional economic development and industrial transformation and upgrading, clarifying the school orientation of the major, facing the local level and highlighting the characteristics.Adhere to the "local, applied" school-oriented school orientation, based on southern Anhui, facing the whole province, radiating to the whole country, to serve the local economic and social development.The comprehensive development of morality, intelligence, physique, beauty and labor requires students not only to master knowledge in automation, but also to integrate the knowledge of other disciplines; not only to use the knowledge to solve practical engineering problems, especially complex engineering problems,It should also have the ability to use new knowledge and new technology to solve future engineering problems; not only have a strong sense of social responsibility, innovation, industry spirit and practical ability, but also have good humanistic quality and engineering management ability, making it a "zero probation period" to solve the practical problems in the application field of automation technology.

2.2 Highlight the professional characteristics and advantages

Relying on the advantages of southern Anhui International Cultural Demonstration Zone, the advantages of hotel industry scale and manufacturing enterprise agglomeration in East China, combined with the professional positioning, in order to meet the development needs of the current regional industrial structure adjustment and economic transformation, two professional characteristics of process control automation and hotel engineering automation have been formulated.

Process control automation direction, form "a prominent, a attention, eight combination" characteristics, namely the industrial process control, pay attention to engineering ability training, control and management, system and device, strong electric and weak current, hardware and software, teaching and scientific research, theory and practice, in-class and extracurricular, engineering quality and innovation ability training ".Attention should be paid to cultivating students' ability to combine theory with practice and solve practical engineering problems, so that students can have strong engineering application and development ability in industrial process automation system analysis, design, operation, management, teaching and scientific and technological development.

The direction of hotel engineering automation forms the characteristics of "one synergy, one concise", that is, cooperating with the engineering department of hotel enterprise group under Marriott International Hotel Group, and summarizes the internship + graduation design and employment in the professional direction of "hotel engineering automation".Mainly make students have electrical technology, electronic technology, microcontroller technology, testing technology and instrument, building automation technology, information processing, system engineering and other knowledge, and have the knowledge of hotel engineering management.Focus on cultivating students' ability to solve practical engineering problems in the modern hotel engineering department, so that students can have strong engineering application and development ability in the hotel engineering automation system analysis, design, operation, management and science and technology development.

3. Construction of the new engineering automation personnel training course system

3.1 The construction idea of the curriculum system

Automation is the core of the control and system, and the core of the control concept is feedback, combined with intelligent manufacturing of automation knowledge system, according to the teaching refers to appoint automation guidance specification and interdisciplinary integration of new technology, build automation professional curriculum system, make its integrity, systematic and applied architecture, and absorb the latest theory and the latest tools into the curriculum system. Based on the principle of resource integration and sharing, it pays attention to the cultivation of engineering ability, control and system combination, major and ideological and political combination, teaching and scientific research combination,

theory and practice combination, in-class and extracurricular combination, and the cultivation of engineering quality and innovation ability. Advanced disciplines, industry and technology development into the teaching content update, the innovation entrepreneurship education into the whole process of engineering education, actively build reflect automation professional characteristics, suitable for cultivating students' professional ability of characteristic course, demonstration courses and quality courses, form closely with the new economic situation of automation "new engineering" talent training curriculum system.

3.2 Practical teaching system reform

Adhere to the practice ability training as the foundation, fully embody "engineering, improve quality, pay attention to the foundation, strengthening ability, outstanding expertise" education idea, optimize and integrate the original practice teaching system, innovative thinking training as the core, streamline course, increase the proportion of experiment, practice teaching, build the "three levels, five modules" practice ability teaching system, the comprehensive practice ability, innovative practice ability and three levels and experimental teaching, engineering training, skills training, scientific research training, social practice and innovation training of five modules of practice ability teaching system.

4. Innovate teaching methods

In recent years, relying on the provincial excellent engineer plan, the provincial comprehensive reform pilot, and the construction of school-level characteristic majors, the automation teachers have continuously deepened the teaching reform and innovated teaching methods, and achieved remarkable results.

"Control Engineering Mathematics Foundation" and other courses can realize online question answering, online network homework, online test and other ways, mobilize the enthusiasm of students, basically put an end to the phenomenon of copying homework after class.

4.1 Teaching content reform

Based on the orientation of the automation major, according to the correlation matrix of training objectives and courses, and according to the principle of "professional must and professional needs", the course teaching objectives are scientifically designed and the teaching content is reasonably arranged.It is required that the teaching content can adapt to the professional training objectives and reflect the new changes in the needs of talent quality and characteristics.Through course teaching, consolidate students 'professional foundation, and improve students' professional quality, employment competitiveness and comprehensive quality.Professional teachers are encouraged to actively translate their scientific research results into teaching content, and promote the updating and reform of teaching content.

4.2 Innovative and practical ability cultivation

To carry out scientific and technological activities supported by majors, cultivate students' learning interest and practical ability, and effectively supplement and extend the first class.Students are encouraged to participate in teachers' scientific research projects, various innovation and entrepreneurship activities, and various skills and science and technology competitions.Through this stage of training, students can get a more systematic scientific research training, enhance the students 'awareness of innovation, improve the students' innovative practice ability, cultivate the independent scientific research work and the ability to use knowledge, broaden the scope of professional knowledge, and promote the communication between teachers and students.

5. Conclusion

As the first-class major construction of Huangshan University and the characteristic major of the university, automation major has a long way to go in the training mode of applied new engineering talents in response to the needs of national strategic strategy.Combined with the objective laws of engineering education, automation major and discipline development as well as social needs, constantly improve the talent training mode of automation major, improve the construction of curriculum system and deepen the reform of teaching methods, and develop its own characteristics to cultivate more engineering and technical talents for the national economic construction.

Fund project

2022 Anhui Provincial "Four New" research and reform practice project "Research and Practice of school-enterprise Collaborative Education Mechanism of Industrial Process Automation for the needs of the Automobile Industry" (2022 sf 143), 202 university-level teaching research project "Control Theory Curriculum Group Teaching Reform to Solve Complex Engineering Problems" (2022JXYJ40)

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