

Construction and exploration of intelligent control technology innovation teaching team

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Abstract: Intelligent control technology innovation teaching team is to implement the “Made in China 2025” national major strategic deployment, relying on intelligent robot training room, industrial robot training room, AI science and technology innovation studio, PLC association, electronic information Association and other platforms, to the construction of high-level teachers as the starting point, integrate and optimize regional resources, strengthen school-enterprise cooperation, To form an innovative, collaborative, efficient and industry-university-research innovative teaching team. This paper expounds and summarizes the team building process from the aspects of base construction objectives, construction contents, construction paths, construction achievements and construction characteristics, aiming at providing reference for the construction of professional teaching teams in the field of artificial intelligence in higher vocational colleges.

Key words: high-level teaching team; Innovative teaching team; School-enterprise cooperation

I. Construction objectives

Team building closely focuses on cultivating high-quality composite professionals as its work goal, focuses on improving teachers’ teaching, scientific research and teaching research level, and takes the construction of excellent courses such as practical training of basic skills of intelligent robots as the carrier, constantly improves the talent training mode combining work with study, reforms the teaching content and methods, and develops high-quality teaching resources. Strive to build the team into a first-class teaching team in the province and an influential professional and combined teaching team with noble ethics, excellent quality, reasonable structure, scientific operating mechanism, social service and great influence.

II. The construction content

The specific construction content of intelligent control technology innovation teaching team is analyzed from six dimensions, including teacher construction, curriculum and textbook construction, teaching and research projects, social influence, in-depth cooperation between industry, university and research, team operation and management mechanism, and is elaborated as follows:

1. teacher construction: first, hire more robot industry experts to become the professional part-time teachers of enterprises, expand the team of part-time teachers; Second, strengthen the training of full-time teachers, improve the level of teachers’ service industry enterprises, technology development and teaching transformation, and focus on cultivating 1-2 famous teachers and skill masters with outstanding ability; Third, we plan to continue to introduce 2-3 high-level teachers and optimize the professional title, age and educational structure of the teaching team.

2. Curriculum and teaching materials construction: construction of two high-quality online open courses; Participated in or edited the publication of two dual textbooks.

3. Scientific research and teaching research projects: relying on intelligent robot training room, Intelligent robot Research Institute, Industrial robot training room, AI science and Technology innovation Studio and other platforms, actively organize team members to apply for provincial, municipal and university-level teaching and research projects in the field of intelligent robots, such as Guangdong Provincial Education Department, Shaoguan Municipal Science and Technology Bureau, Guangdong Songshan Vocational and Technical College; University-enterprise joint patent application.

4. Social influence: broaden the channels of vocational training and skill appraisal, expand the scope of social services, complete social training and skill appraisal 500 people/time, and visit demonstration colleges and universities to learn and exchange results.

5. in-depth cooperation: actively cooperate with intelligent manufacturing related enterprises, jointly develop new form of teaching materials, teaching and research projects, and promote the win-win development of school-enterprise, production-university-research cooperation projects.

6. Improve the team operation and management mechanism: First, improve the internal management mechanism of the teaching team, establish a series of regulations and systems such as “Leader Responsibility System”, “Training System for Young Teachers” and “Fund use System” to provide support and guarantee for the normal operation and management of the team; Second, establish an external guarantee system to promote the issuance of school-enterprise cooperation policies and measures.

III. The construction path

1. Optimize the teacher team and improve the teaching and scientific research level of team members. The specific measures are as follows:

① give full play to the role of technical experts and excellent teachers, and improve the scientific research and teaching ability of all members in teaching, teaching and research;

② Take advantage of the close connection between this course and industry enterprises, establish an internal encouragement mechanism to promote teachers to go deep into the enterprise temporary training, improve teachers' practical ability;

③ Through visiting students at home and abroad, learning from the advanced teaching experience of Hong Kong, Singapore and other universities, so that our teaching is more in line with the requirements of internationalization;

④ pay attention to the training of young teachers to form a cadre of teachers;

⑤ regularly carry out teacher ethics education and teacher style construction, and cultivate a team of teachers with excellent ideological quality, rigorous study, dedication and innovative spirit.

2. To enhance the influence of the team, the specific measures are as follows:

① Give full play to the existing basic conditions of discipline leaders in each platform, and actively undertake and participate in influential domestic competitions, such as skills competitions at all levels, information technology competitions and related training activities, to further enhance the influence of the industry.

② Relying on Intelligent Robot Research Institute, AI technology Innovation Studio, Internet of Things innovation design studio, electronic information maker studio, build a "skill master studio", give full play to the "teaching and mentoring" role of the master studio, train more craftsmen through technical skills training, guiding skills competitions, and expand the influence of the school.

③ Encourage and support backbone teachers to participate in a variety of influential and valuable training meetings, and introduce and exchange the school, college, professional school-running mode, school-running characteristics.

3. improve the operation mechanism of industry-university-research cooperation, the specific measures are as follows:

① Make use of the existing foundation of vertical and horizontal teaching and research projects and extensive business contacts with society and industry enterprises, according to the requirements of the school's "14th Five-Year Plan", strengthen the technical exchange and resource sharing between the team and related enterprises, and realize the seamless docking of technology improvement, teaching application and engineering results.

② Implement the team teacher enterprise temporary training system. Every year, 1 to 2 teachers are selected to go to the enterprise for temporary training, and field training and internship in its service workshops and production bases. They truly participate in the whole process of product development of the robot industry enterprises. At the same time, they promote the employment of first-line part-time teachers in off-campus enterprises, introduce talents with excellent first-line skills to join the professional part-time teachers and optimize the professional teacher team structure. Improve the professional service ability, and realize the interconnection of technology and teacher resources.

(3) Relying on platforms such as "Off-campus Practice Base for college Students majoring in Intelligent Control Technology" and "Intelligent Robot Research Institute", further improve the school-enterprise cooperation model, and on this basis, expand the cooperation of relevant enterprises to carry out education work, and jointly improve the professional spirit and quality of students.

IV. The construction of achievements

1. The construction results of the team teachers

① Teach and help young teachers grow up

The team has 3 teachers won the honorary title of "Four good teachers", 2 teachers were awarded the outstanding Young teachers of Guangdong Province, 1 teachers won the National metallurgical industry ethics model, the director of the National Metallurgical Industry Outstanding Teaching and Research Office, the National Metallurgical Education System Outstanding Person of the Year award, 9 high-level talents in Shaoguan, 10 people in Shaoguan City "Danxia Talents", 2 people are divided into Guangdong electronics and communication, automation class of high vocational education committee vice chairman and member, 4 teachers as Guangdong Province science and technology special commissioner, 1 person as the third non-partisan intellectual executive director of Shaoguan City. In order to help the new teachers stand firm on the platform, the "Three-year Quality Improvement Plan" for the new teachers is implemented, and one internal and external instructor each with high teaching level and strong practical ability is arranged for them to give guidance in teaching and research, engineering practice, product development and other aspects, so as to improve the "double teacher" quality of the new teachers.

② Integration of production and teaching to build a high-level team of teachers

Team training, optimize the structure of teachers, introduce 2 high-level talents with doctoral degrees as mentors, hire the technical backbone of Guangzhou Wekon Robot Co., Ltd. as part-time teachers, hire a large number of national model workers, national technical experts and other skilled craftsmen as professional mentors, part-time teaching, project cooperation, employment guidance. The formation of a professional combination of "engineering" structured teaching team, 15 full-time teachers in the school, Among them, 2 teachers were awarded as outstanding members of the Communist Youth League of Guangdong Province, 3 teachers were awarded the title of Technical Expert of Guangdong Province, the National metallurgical industry model, the director of the National Metallurgical Industry Outstanding Teaching and Research Office, the National Metallurgical Education system Outstanding Person of the year, Guangdong Province outstanding young teachers, the National mechanical vocational College practice teaching expert, Guangdong Province excellent coach, Southern Guangdong excellent educators, Shaoguan The first period of the city to enjoy the special allowance of the municipal government, Shaoguan City technical expert, Guangdong Province May 1 labor medal each person, 2 people are divided into Guangdong Province electronics and communication, automation class of high vocational education committee deputy director and member, 7 teachers participated in Guangdong Province workers vocational skills competition, won the first prize 2, second prize 1, third prize many.

③ Broaden their horizons and enhance their teaching and scientific research ability

Through self-study, out-of-town training and exchange, we will continuously broaden our academic horizon and improve our professional quality. We will actively organize teachers to declare projects such as teaching research and reform, teaching teams, practice bases inside and outside the school, natural science, engineering fields, and quality course construction, so as to effectively improve the scientific research and innovation ability of professional teachers. In the past 5 years, the team has a total of 43 provincial, municipal and school-level scientific research projects, research ability has been significantly improved, won 8 science and technology awards, and published 56 papers.

2. The achievements of team talent training

① Excellent performance in student skills competition

Adhering to the concept of promoting teaching through competition, promoting research through competition and integrating teaching and research through competition, the team organizes students to participate in vocational skills competitions and college students' innovation and entrepreneurship projects, combines competition content with teaching content, takes AI Technology Innovation Studio, PLC Association, Electronic Information Technology Association and other professional associations as carriers, implements team guidance and tutor guidance, and constantly improves students' skills. And obtained excellent results. From 2015 to 2022, students won 48 awards in various vocational skills competitions, including 10 at the national level and 38 at the provincial level.

② Students have achieved remarkable results in innovation and entrepreneurship practice

Relying on professional associations such as AI Science and Technology Innovation Studio, PLC Association, Robot Association, and Telecommunication Association, the enterprise project-driven initiative of teachers and students in teaching, scientific research and innovative thinking is stimulated, the results of industry-university-research are transformed, and the construction of college students' innovation and entrepreneurship "double creation" base is effectively promoted. After years of practice, remarkable results have been achieved. In the past 5 years, students have won 7 provincial awards, 3 municipal awards and 4 university-level awards in the Guangdong Challenge Cup, Guangdong College Students' extracurricular academic science and technology works and innovation and Entrepreneurship Competition, and 9 neutral projects in the "Climbing Plan", with project funding of 180,000 yuan.

3. Achievements of the team's external technical service construction

The team relies on the industrial robot production training base for higher vocational education of the Ministry of Education, the provincial public training center for Industrial robots, the Science and Technology Education Base of the Provincial Science and Technology Department, the Science and Technology Education base of the Provincial Science and Technology Department, the municipal automation Engineering research and development center, the university student innovation Studio, A.I. Production and education integration innovation education and teaching practice center and other platforms, in recent years for Baowu Shaosteel, Dabaoshan Mining and Shaoguan area technical personnel to carry out technical training, technical training with industry enterprises a total of 42,039 days, education teaching, scientific research, social service platform solid foundation.

V. The conclusion

In a word, high-level teaching staff is the core competitiveness of higher vocational colleges. The competitiveness of higher vocational colleges can be improved by training compound talents with high-quality skills, and the key to talent training lies in the construction of high-quality innovative teaching teams. Therefore, vocational colleges need to further analyze the problems and shortcomings of teaching innovation team in the construction process, optimize the team structure, enhance the comprehensive ability of team members, strengthen collaborative innovation, and constantly improve the quality of innovation team construction.

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Fund project: This paper is the phased research results of the university-level quality engineering project "Intelligent Control Technology Teaching Team" (Project number: 2022JT06) of Guangdong Songshan Vocational and Technical College in 2022; The phased research results of the university-level scientific research platform project "Intelligent Robot Research Institute" (platform number: 2021xjkyp05) of Guangdong Songshan Vocational and Technical College in 2021; The phased research results of the key field project "Research and Development and Application of Intelligent home-based Nursing Robots" (Project number: 2021ZDZX1145) of Guangdong Provincial Department of Education in 2021.