

Course Certificate Integrated to Strengthen Profession, Production and Education Integrated to Talents Training

-- The Practice of the 1+X Sewage Treatment Vocational Skill Level Certificate System

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Abstract

The pilot work of the 1+X certificate system is a major institutional innovation in the field of vocational education in China. It is also an important starting point for improving the quality of talent training, expanding employability, and promoting the empowerment and quality of vocational education. During the pilot construction of the 1+X sewage treatment vocational skill level certificate, the Water Supply and Drainage Engineering Technology Major of Guangxi Construction Vocational Technical College actively trained the X-certified "School-enterprise integration" teachers through the construction of the integration of industry and education, and proposed the "class certificate integration" "The teaching mode of "Sewage Treatment Technology", the organic integration of sewage treatment skills in the "Sewage Treatment Technology" curriculum standards and the water supply and drainage engineering technical personnel training program, combined with the curriculum ideological and political education, carry out the reform of the water supply and drainage engineering technical professional training model, in 1+X Good results have been achieved in the implementation of the certification system.

Keywords

1+X Certificate System; Vocational Skill Level Certificate; Talents Training Model.

1. Introduction

The 1+X certificate system, as a new type of vocational education talent training and education model, is a concrete manifestation of documentary and certification integration, and it is based on the logic of documentary certification integration. The implementation of the 1+X certificate system in higher vocational education under the background of documentary certificate integration has profound significance [1]. In order to implement the "Notice of the Ministry of Education and other four departments on the "Implementation of the "Education Certificate + Certain Vocational Skill Level Certificates" System Pilot Program" in colleges and universities" [2], Guangxi Construction Vocational College the College of Technology actively promotes the pilot work of the 1+X certificate system, and was approved as a pilot unit for the sewage treatment vocational skill level certificate in July 2020. Guangxi Construction Vocational and Technical College was approved by the Ministry of Education and the Ministry of Finance as the first batch of "high-level vocational schools and professional construction plan construction units with Chinese characteristics", and was approved as "Guangxi High-level Vocational School Construction Units by the Autonomous Region Education Department and the Finance Department" "The water supply and drainage engineering technology and environmental engineering majors have opened the road to high-level professional construction. The sewage

treatment vocational skills are the core skills of the two majors. The pilot work of the 1+X certificate will be carried out as a key task.

2. Practical Measures for the 1+X Sewage Treatment Vocational Skill Level Certificate System

At present, in the 1+X certificate pilot work, there are major problems such as incomplete job skills to meet the needs of industry and enterprise talents, lack of incentive guarantee mechanism, imperfect quality and efficiency evaluation mechanism, and flexible course certificate integration curriculum structure to be constructed. Based on this, the Water Supply and Drainage Engineering Technology Major of Guangxi Construction Vocational and Technical College aims to comprehensively improve the 1+X certification system pilot course certificate integration and integration of production and education as the construction goal, and try to pilot the internal reform practice path from seven aspects-combing the needs of industry and enterprise talents Difficulties, coordinate the external environment, build a "Five-party coordination" 1+X certificate mechanism, coordinate internal relationships, create a "five integration and three transformations" education model, realize the training of "double-qualified" teachers, and form a community of student and teacher development; open up Horizontal communication path, build an interactive platform for talent training and social service integration of production and education; enhance the vertical development dimension, and promote the coordinated and sustainable development of professional education integration of production and education. Among them, the emphasis is on strengthening the collaborative internal "five integration and three transformations" education model, constructing pilot "certificates" corresponding to majors, promoting the ecological connection of pilot certificates "School-enterprise", and promoting the education effect of "integration of production and education" [3].

2.1. Sort out the Dilemma of Talent Demand in Industry Enterprises, and Establish a Concept of Education that Adapts to the Industrial Chain Structure

Scientifically position the talent training goals of water supply and drainage engineering technology and environmental engineering in the industry, firmly establish a talent training concept that serves and adapts to the structure of the water supply and drainage industry chain, transforms teachers' education concepts and teaching concepts, and educates new people for the integration of industry and education Create an efficient and scientific way of 1+X course certificate integration and integration of production and education.

Several special teaching seminars have been held to discuss the implementation plan, assign tasks, and check the list of tools to ensure that the integration of the 1+X vocational skill level certificate system is implemented.

2.2. Coordinate the External Environment and Build a "Five-party Collaboration" 1+X Certificate Mechanism

Establish a multilateral cooperation relationship between school, government, operation, and enterprise, and form a joint force of the 1+X certificate system for the integration of production and education. The five parties "government, industry associations, enterprises, undergraduate colleges, and higher vocational colleges" are jointly built to achieve government leadership, industry association guidance, and enterprise Participation and multiple models implemented by the school. Build a construction model that emphasizes the integration of theory and practice in the 1+X sewage treatment vocational skill level certificate training that emphasizes the integration of production and education at the micro level, and emphasizes the integration of

government economic departments, enterprises, and education departments at the macro level, and the integration of industrial demand and vocational education supply.

2.2.1. School-school Communication

During the pilot work of the 1+X sewage treatment vocational skill level certificate, we proactively contacted brother colleges and universities to communicate closely and discuss the certificate assessment form and the content of the relevant documents issued by the training evaluation organization. Invite brother colleges and universities to participate in the procurement of training equipment related to this certificate and the construction of test centers.

2.2.2. School-enterprise Cooperation

XX Water Co., Ltd., XX Water Investment Group, XX Architectural Research and Design Institute, XX Environmental Protection Technology Co., Ltd., Water Supply and Drainage Association, and Water Supply and Drainage Society are pilot cooperation units for water supply and drainage engineering technology and environmental engineering. The industry, schools and enterprises jointly formulated the implementation plan for the pilot work of the 1+X sewage treatment vocational skill level certificate, and initially completed the top-level design. Jointly formulate training plans, course modules, course standards, job requirements, teacher training, evaluation systems, etc.

Through the expert committee of Beijing Huayu Houde Consulting Co., Ltd. to guide the certificate training and assessment work, carry out the formulation of certificate theory + practical training and assessment plan, establish a pilot work system for the certificate of the college, establish a leading group, personnel system, file system, and quality Accountability mechanism, etc.

2.2.3. Higher Vocational Undergraduate Collaborative Education

Our college and Nanning Normal University's environmental engineering professional teacher team conducted in-depth discussions on the course certificate integration mode of "sewage treatment technology" and "water supply treatment technology", and promoted the integration of the application-oriented undergraduate talent training projects carried out by the two universities into 1+X Certificate system model.

2.3. Constructing a 1+X Sewage Treatment Vocational Skill Level Certificate Training and Assessment Base

In line with the concept of building a teaching environment and professional comprehensive training base integrating "production, learning, research, training, and competition", from the three levels of demonstration practical teaching, basic skill training teaching and project comprehensive practical training teaching, Provide guarantee for internship training and teaching. The training and evaluation base was constructed through the certificate evaluation module, and a total of sewage treatment theory and simulation training room, water treatment analysis training room, and confined space safety operation training room were built.

2.4. Collaborating with Internal Relationships to Create a "Five-In-One and Three-In-One" Education Model

2.4.1. Integration of Theoretical Knowledge Learning and Practical Ability Training

Re-adjust and formulate the "Sewage Treatment Technology" curriculum standards, and formulate the "2020 Sewage Treatment 1+X Vocational Skill Level Certificate Intensified Training Teaching Plan" in detail. According to the requirements of the 1+X certification module, the students majoring in water supply and drainage engineering technology are combined with the content of the "Sewage Treatment Technology" course. The content includes confined space safety operation training, water quality analysis experimental operation training, safety rescue

training, sewage treatment theoretical knowledge and simulation operation training in other aspects, the integration of course certificates has been realized [4].

2.4.2. Integration of Teaching and Production

Theoretical learning is divided into seven major projects. The production tasks of the enterprise and the teaching modules are one-to-one correspondence, and each module is integrated into the production process. According to "theoretical basis-operation preparation-start and stop operation-equipment operation and maintenance-process inspection

2.4.3. Integration of Teachers, Students, and Business Experts

The intensive training of students is fully guided by the hired enterprise experts, and the professional teachers of the class led by the class will go to the water treatment enterprise to cooperate with the enterprise experts to carry out intensive training and safety management, and at the same time to carry out teacher professional skills improvement training.

2.4.4. Integration of Professional Education and Curriculum Ideology

The curriculum focuses on the knowledge system required by the profession, and combines the cultivation of craftsmanship and scientific spirit with curriculum teaching. Curriculum learning starts from the four aspects of laying a good foundation, maintaining advanced, strengthening application, and cultivating abilities. Teaching and educating people are combined, and the typical deeds of engineers and the history of sewage treatment development are comprehensively introduced in combination with the content of the course, to cultivate students' interest in subjects and improve their correct understanding., Analysis and problem-solving ability, guide students to establish lofty ideals and beliefs [5].

After the 1+X sewage treatment vocational skill level certificate realizes the integration of the course certificates, the students can fully apply their professional skills and use the 1+X sewage treatment knowledge to apply to the water quality improvement project volunteer activities to help improve the drinking water quality of poverty alleviation and rural revitalization. During the construction of the project, a total of more than 20 students with this certificate will participate in the voluntary service of the water quality improvement project from 2020 to 2021, and participate in the design and installation of 3 water quality improvement systems in Zicheng Village, Duan County, Guangxi, which solves the water problem of local villagers. Praised by the local government and the masses.

2.4.5. Integration of Online and Offline Resources

Offline resources form a 1+X docking course modularization, content project-based, project-based "Three-In-One curriculum integrated curriculum system". The "three-stage process of educating people" of school study, course training, and on-the-job internship. The "dual docking evaluation mechanism" of examination docking assessment and 1+X certificate docking to professional qualification certificates realizes the "four identity conversions" of students → apprentices → prospective employees → employees.

1+X Sewage Treatment Vocational Skill Level Certificate Assessment Curriculum Construction, the production of micro-courses, courseware, multimedia materials and dynamic teaching resources, and successfully applied to the Guangxi Autonomous Region-level Vocational Education Professional Teaching Resource Library Construction Project-"Water and Drainage Engineering Technology Major "The construction of online resources for the "Sewage Treatment Technology" course realizes innovative new information teaching methods.

2.5. Realize the Training of "Dual-qualified" Teachers and Form a Community for the Development of Students and Teachers

The "Sewage Treatment Technology" course group composed of School-enterprise-industry experts and the 1+X sewage treatment vocational skill level certificate teacher team, through

the theory of each module, training and assessment standards, cooperative dialogue and sharing activities to achieve Teacher's practice reflection, peer mutual assistance and other behaviors to improve teachers' teaching organization ability and promote teachers' professional growth.

2.6. Open up the Path of Horizontal Communication and Build an Interactive Platform for Talent Training and Social Service Integration of Production and Education

It has 6 national-level training and training bases, including the "National Demonstration Base for Training High-skilled Talents", and provides training for sewage treatment workers, pumpers, water purifiers, plumbers and other professional and technical personnel for Guangxi water supply and drainage enterprises. It has sewage treatment Vocational skills training requires high-quality teachers and practical training conditions. According to the actual needs and development potential of industry enterprises, establish close ties with related industries and gradually form multi-level, multi-field, and multi-form cooperation relationships, and promote the development of 1+X sewage treatment vocational skill level training and assessment base through multiple models. In the process of using the 1+X certificate system to promote the integration of industry and education, certain integration results will be used for social services. In the process of building the certificate system, the 1+X sewage treatment vocational skill level certificate assessment base was used to complete the special ability training for professional and technical personnel in the water supply and drainage industry in Guangxi. The training totaled 620 hours and nearly 200 person-times.

2.7. Enhance the Vertical Development Dimension and Promote the Coordinated and Sustainable Development of Professional Education, Production and Education Integration

Give full play to the role of School-enterprise collaboration in educating people, and promote the deep integration of production and education in higher vocational education; play the role of government in leading and regulating, provide various types of support for the integration of production and education in higher vocational education; play the role of guidance and evaluation of industry associations to ensure the smooth integration of production and education in higher vocational education run.

3. The Main Results of the Practice of 1+X Sewage Treatment Skill Level Certificate System

3.1. Successfully Constructed the 1+X Certificate Model of "Five-party Collaboration, Five Integrations and Three Integrations"

The construction of the certificate system makes up for the lack of school running on campus, incorporates it into industry enterprise standards, and makes up for the disconnection between school education and the market. The "Five-party coordination model" of government, industry, enterprise, undergraduate colleges, and higher vocational colleges has been constructed. Through the full play of the function of the 1+X certificate system, promote the integration of theoretical knowledge learning and practical ability training, the integration of teaching and production, the integration of teachers and students and business experts, the integration of professional education and ideological education, online and online The integration of lower resources has formed a "three-information curriculum integrated curriculum system" of curriculum modularization, content project-based, and project-based job-based. The pass rate for the first textual research was as high as 94.73%, ranking among the best in the country.

3.2. A Benign Model of Teacher Improvement has been Formed

Taking the promotion of the sewage 1+X certificate system as an opportunity, the training of professional teachers has been increased. Under the background of the sewage 1+X certificate system, higher vocational teachers are concurrently educators and trainers to achieve the goal of optimizing the teaching team. Close communication and practice exercises with corporate mentors, combined with guiding students' skill competitions and teachers' participation in teaching competency competitions, is a starting point for young and middle-aged teachers to build a platform for self-exhibition and learning exchanges, which will improve the teaching level of young and middle-aged teachers in an all-round way. It is of great significance to promote the improvement of teaching quality.

3.3. Accelerated Student Career Development and Innovation Ability Enhancement

The integration of production and education 1+X sewage treatment certificate model is oriented to the needs of enterprises, and skill training is in line with the needs of enterprises. Students have passed the certificate training and assessment and successfully participated in the water quality research work of relevant water supply and drainage enterprises. Students can adapt to the needs of water supply and drainage engineering majors and environmental engineering majors more quickly, speed up their career development, and continuously improve their employment competitiveness and sustainable development capabilities. Relying on the 1+X Sewage Treatment Vocational Skills Certificate Course Certificate Integration Teaching Mode, the teacher-student co-creation content results won the title of "Excellent Team" and "Excellent Instructor" in the 2020 National "Three Going to the Countryside in the Lens" selection activity, and won the title of 2020 Silver Medal in the Fifth China Youth Volunteer Service Project Competition. Won more than 14 awards in the provincial innovation and entrepreneurship competition.

3.4. Alleviated Structural Employment Contradictions

Through the integration of production and education to train sewage treatment technical talents, it has supplemented the shortcomings of the lack of skills of current students, filled the gaps in the evaluation of skills in the sewage treatment industry, reduced the flow of employees, effectively guaranteed the stability of the company's employment, and enabled the company to obtain a group of high loyalty. , The prospective employees who have a high degree of recognition of the corporate culture, are familiar with the production process and technology of the company, and have high skills and quality can be employed upon graduation and become the backbone and reserve cadres of the company. They have won unanimous praise from related companies.

4. Conclusion

The connection and integration of academic certificate "1" and vocational skill level certificate "X" is an important measure of my country's modern vocational education system. In the higher vocational "Sewage Treatment Technology" course, only the skill requirements of the "X" certificate are integrated with the course content, and simultaneous examinations and evaluations are carried out through the reform of the course assessment method, to continuously enrich and improve the integration of industry and education, and School-enterprise cooperative education. Personnel mechanism and continuous deepening of the reform of the "three educations" can enable the docking of professions and positions, the integration of knowledge and skills, the realization of high quality, the satisfaction of the needs of professional positions in urban sewage treatment, and the integration of production and education to cultivate skilled talents.

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