

Research on the Teaching Reform of Electrical Automation Technology Major in Higher Vocational Colleges Based on Curriculum Ideological and Political Education

Weiyu Deng, Zongyou Duan, Xibo Xue

Shaanxi Energy Institute, Xianyang 712000, Shaanxi, China

Copyright: © 2026 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: Against the background of the country vigorously promoting the high-quality development of vocational education and the collaborative education of curriculum ideological and political education, the electrical automation technology major in higher vocational colleges, as a key position for cultivating technical and skilled talents in the field of intelligent manufacturing, urgently needs to break through the traditional teaching limitation of “valuing skills over ideological and political education” and construct a trinity education model of “knowledge impartment, ability training and value guidance”. Based on this, this paper deeply explores the background and significance of integrating curriculum ideological and political education into the electrical automation technology major in higher vocational colleges, the existing problems of curriculum ideological and political education in the electrical automation technology major in higher vocational colleges, and the teaching reform strategies of the electrical automation technology major in higher vocational colleges based on curriculum ideological and political education. It aims to improve the quality of talent training through different strategies and transport more high-quality technical and skilled talents with exquisite skills and family and country feelings to the industry.

Keywords: Curriculum, ideological and political education; Higher vocational colleges; Electrical Automation Technology major

Online publication: February 9, 2026

1. Introduction

Talent training in institutions of higher education is a unified process of educating people and cultivating talents. To build a high-level talent training system, it is necessary to integrate the ideological and political work system into it, pay close attention to the construction of curriculum, ideological and political education, and solve the problem of “two skins” between professional education and ideological and political education. We must firmly establish the central position of talent training, and continuously improve the curriculum, ideological and political work system, teaching system, and content system around the construction of a high-level talent training system.

The main responsible comrades of colleges and universities should directly grasp talent training work, and make overall plans for the construction of curriculum, ideological and political education in various disciplines, majors, and courses. We should closely focus on the needs of national and regional development, combine the school's development orientation and talent training goals, and build a comprehensive, diverse, progressive and mutually supportive curriculum ideological and political system. We must effectively take education and teaching as the most fundamental work, deeply tap the ideological and political education resources contained in various courses and teaching methods, so that students can master the laws of things development, understand the principles of the world, enrich their knowledge, broaden their horizons, shape their personalities, and strive to become socialist builders and successors with all-round development of morality, intelligence, physical fitness, aesthetics and labor ^[1]. In the process of talent training, higher vocational colleges should follow the path in line with national development according to national policy documents, so as to better cultivate more outstanding talents.

2. Background and significance of integrating curriculum, ideological and political education into Electrical Automation Technology major in higher vocational colleges

2.1. National education policy orientation

- (1) Policy guidance: In recent years, the state has attached great importance to ideological and political education in vocational education, emphasizing the integration of ideological and political education into different majors to cultivate talents needed by society ^[2].
- (2) Industry demand: As the core field of modern industry, electrical automation technology puts forward higher requirements for practitioners' professional ethics, social responsibility and innovative spirit. Curriculum ideological and political education has become an important way to meet industry needs.
- (3) Update of educational concepts: The traditional education model focuses on skill implementation and ignores the cultivation of students' values. The integration of curriculum ideological and political education promotes the transformation of educational concepts to "fostering morality and cultivating people", realizing the organic unity of knowledge implementation and value guidance ^[3].
- (4) All-round development of students: Curriculum ideological and political education pays attention to the individual growth of students. Through the ideological and political elements in professional courses, it promotes students to form a correct world outlook, outlook on life and values, laying a solid foundation for their career development.

2.2. Compatibility between professional characteristics and ideological and political elements

- (1) Technical ethics: Electrical automation technology involves ethical issues, such as the safety of automation systems and privacy protection. Curriculum ideological and political education can guide students to think about the moral boundaries of technical applications.
- (2) Craftsman spirit: The spirit of striving for excellence emphasized in professional courses is consistent with the professional spirit and craftsman spirit in ideological and political education, jointly shaping students' professional attitude.
- (3) Innovation awareness: Innovation is the driving force for the development of electrical automation technology. Through telling scientific and technological innovation stories, curriculum ideological and

political education stimulates students' innovation awareness and cultivates the spirit of courage to explore.

(4) International perspective: In the context of globalization, curriculum ideological and political education can integrate international cooperation and exchange cases, broaden students' international perspective, and cultivate technical talents with international competitiveness ^[4].

2.3. Promoting the role of curriculum, ideological and political education in professional teaching reform

- (1) Innovation of teaching content: Curriculum ideological and political education promotes the transformation of teaching content from single skill impartment to comprehensive quality cultivation, adding ideological and political elements to make professional courses richer and more diverse.
- (2) Reform of teaching methods: To effectively integrate ideological and political elements, teaching methods need to be more flexible and diverse, such as case teaching and project-based learning, so as to improve students' learning interest and participation ^[5].
- (3) Improvement of evaluation system: Curriculum ideological and political education requires the establishment of a more comprehensive evaluation system, which not only evaluates students' professional skills but also their ideological and political literacy, promoting the all-round development of students.
- (4) Construction of teaching staff: Curriculum ideological and political education puts forward higher requirements for teachers. It is necessary to strengthen the training of teachers' ideological and political literacy and improve their ability to integrate ideological and political elements into professional courses.

3. Existing problems of curriculum, ideological and political education in Electrical Automation Technology major in higher vocational colleges

3.1. Problems in the integration of ideological and political education and professional education

In the promotion of curriculum ideological and political education in the electrical automation technology major of higher vocational colleges, there are many deficiencies in the integration of ideological and political education and professional education. In terms of the depth of integration, most of them stay on the surface, and the connection between ideological and political elements and professional knowledge is loose. For example, a few ideological and political words are simply added at the beginning or end of the course, and the ideological and political connotation behind the major is not deeply explored. The timing of integration is not accurately grasped. Sometimes, ideological and political content is forcibly inserted when explaining professional difficulties, which interrupts the teaching rhythm and affects students' understanding of professional knowledge. The integration content is also relatively limited, mostly focusing on professional ethics and patriotic feelings, and insufficient excavation of cultural confidence and innovative spirit ^[6].

3.2. Problems in teaching methods

On the one hand, some teachers adopt traditional teaching methods to teach students, resulting in low enthusiasm of students and inability to better apply what they have learned; on the other hand, some teachers cannot better use innovative methods such as case teaching and project teaching, thus making ideological and political

education a mere formality and affecting the teaching method of curriculum ideological and political education^[7].

3.3. Problems in teachers' ideological and political literacy

Teachers' ideological and political literacy is a key factor affecting the effectiveness of curriculum ideological and political education in the electrical automation technology major of higher vocational colleges. Some professional teachers have weak ideological and political awareness, insufficient understanding of the importance of curriculum ideological and political education, and only focus on professional implementation and ignore the integration of ideological and political education in teaching. They lack ideological and political knowledge and systematic training, and are unable to do what they want when integrating ideological and political elements, making it difficult to accurately grasp the connotation requirements. Their ideological and political ability is insufficient. For example, they cannot skillfully design teaching links to naturally integrate ideological and political content, and their ability to guide discussions on ideological and political issues is also weak.

3.4. Problems in the imperfect evaluation system

The curriculum ideological and political evaluation system of the electrical automation technology major in higher vocational colleges has obvious defects. The evaluation indicators are single, mostly focusing on professional skill assessment, with few and vague indicators for evaluating ideological and political literacy, making it difficult to comprehensively and objectively evaluate students' ideological and political level. The evaluation methods are simple, mainly based on traditional examinations and assignments, lacking diversified ways, and cannot fully reflect students' ideological and political performance and progress in the learning process. The evaluation subjects are limited, mainly evaluated by teachers, lacking students' self-evaluation, mutual evaluation, and the participation of external subjects such as enterprises and society, resulting in the lack of comprehensiveness and objectivity of evaluation results^[8].

4. Teaching reform strategies of Electrical Automation Technology major in higher vocational colleges based on curriculum ideological and political education

4.1. Optimize the curriculum system and deeply integrate ideological and political elements

The curriculum system is the carrier of talent training, and optimizing the curriculum system is the key to realizing curriculum ideological and political education. Therefore, in the teaching process, teachers should redesign the existing curriculum system according to the professional characteristics and the educational and teaching goals of ideological and political education, so as to better ensure the integration of ideological and political elements into the electrical automation technology major and thus better teach students^[9].

When teachers explain PLC programming to realize industrial automation control in "Electrical Control and PLC Application", they can select the automation production line transformation projects of large enterprises, and let students fully understand the development level and international competitiveness of China's industrial automation technology by explaining the project background, implementation process and achieved results, so as to further enhance students' national pride and self-confidence, and cultivate students' professional quality and craftsman spirit^[10].

4.2. Innovate teaching methods and enhance the effect of ideological and political education

Teaching methods are an important means to realize curriculum ideological and political education. Innovating teaching methods can improve the attractiveness and appeal of ideological and political education. Teachers can choose appropriate teaching methods (case teaching method, project-based learning method, discussion-based teaching method) to educate students according to the characteristics of the electrical automation technology major and the content of ideological and political elements, to better stimulate students' learning interest^[11].

Teachers can adopt the project-based learning method to teach students in the "Motor and Drag" course. Among them, teachers can design a project of "Design and Implementation of a Small Elevator Control System" and divide every 4-5 students into a group. Each group should complete the entire process of the project so that students can better integrate theory with practice. For example, after the project starts, teachers guide students to think about the importance of the safe operation of elevators, to cultivate students' safety awareness and sense of responsibility; during the project, encourage students to explore independently and try different control methods to realize the control of elevator lifting, to improve students' practical ability; after the project is completed, organize students to communicate, so as to deepen students' understanding of the integration of ideological and political education and electrical automation technology^[12].

4.3. Strengthen teacher training and improve teachers' ideological and political literacy

In the teaching reform of curriculum ideological and political education for the electrical automation technology major in higher vocational colleges, strengthening teacher training is a key link. It is necessary to build a normalized training mechanism, organize teachers to participate in ideological and political thematic training and enterprise practice research, strengthen their ideological and political awareness and industry cognition, and promote teachers to improve their ideological and political literacy and teaching ability.

Schools regularly organize teachers to participate in ideological and political education training and academic exchange activities, invite ideological and political education experts to give special lectures for teachers, introducing the latest concepts and methods of curriculum ideological and political education^[13]. At the same time, carry out on-campus teacher teaching observation and discussion activities, allowing teachers to improve their ideological and political teaching ability through mutual learning and exchange. For example, organize teachers to observe excellent teachers' demonstration lessons on integrating ideological and political elements in the "Power Electronics Technology" course. After the lesson, organize teachers to discuss, analyze the ways and effects of integrating ideological and political elements in the demonstration lessons, summarize experiences and lessons, and provide reference for other teachers^[14].

4.4. Improve the evaluation system and comprehensively evaluate students' literacy

In the teaching reform of curriculum ideological and political education for the electrical automation technology major in higher vocational colleges, improving the evaluation system is crucial. We should abandon the single knowledge assessment model and build a multi-evaluation system covering professional skills, ideological and political literacy, and professional spirit. By combining process evaluation (such as classroom performance and practical participation) with summative evaluation (such as project results and ideological and political reports), we can comprehensively measure students' level of moral and technical cultivation, ensuring that the effectiveness of ideological and political education is quantifiable and traceable^[15].

Adopt a diversified evaluation method in the evaluation of the "Automatic Detection Technology" course.

Process evaluation accounts for 40% of the total score, including classroom performance, homework completion, and group discussion participation. For example, in the classroom discussion session, observe whether students can speak actively, put forward valuable views, respect others' opinions, and reflect the spirit of teamwork. Summative evaluation accounts for 60% of the total score, including the final exam and curriculum design report. While examining students' theoretical knowledge, the final exam also sets up some experimental report contents, so that students can better give play to their abilities.

5. Conclusion

The teaching reform of the electrical automation technology major in higher vocational colleges based on curriculum ideological and political education is an inevitable choice to implement the fundamental task of fostering morality and cultivating people, and serve the national strategic needs. Through systematically constructing the integration mechanism of ideological and political elements, innovating the “post-course-competition-certificate” integrated teaching model, and improving the multi-evaluation system, this study has realized the collaborative improvement of professional skills and ideological and political literacy. In the future, it is necessary to continuously deepen the integration of production and education, dynamically update the ideological and political case database, promote the in-depth development of teaching reform, and cultivate more new-era craftsmen with both moral and technical skills for the transformation and upgrading of the manufacturing industry.

Disclosure statement

The authors declare no conflict of interest.

References

- [1] Zhou H, Wu W, Yan H, 2024, Research and Practice on the Formulation of Standards for “Double-Qualified” Teachers in Higher Vocational Colleges Under the Background of the “Double High Plan”——Taking the Electrical Automation Technology Major as an Example. *Guangdong Vocational and Technical Education and Research*, 2024(12): 39–43 + 53.
- [2] Cui Z, Zhang X, Zhao K, et al., 2024, Integrating Party History Stories into Professional Course Teaching, and Realizing Resonance Between Curriculum Ideological and Political Education and Party History Learning and Education. *Journal of Chengde Petroleum College*, 26(06): 71–74.
- [3] Chen J, Deng Q, Zhang L, et al., 2024, Discussion on Talent Training of Electrical Automation Major in Colleges and Universities in Agricultural Development in Hilly and Mountainous Areas Under the Background of New-Quality Productive Forces. *Modern Vocational Education*, 2024(35): 61–64.
- [4] Ou X, Ouyang Y, Dong J, 2024, Research on the Training Model and Path of “Double-Qualified” Teachers in Higher Vocational Colleges Under the Background of Integration of Production and Education——Taking the Teaching Innovation Team of Electrical Automation Technology in Foshan Polytechnic as an Example. *Journal of Taiyuan Urban Vocational College*, 2024(11): 104–106.
- [5] Yang C, 2024, Research and Practice on the Curriculum System of Electrical Automation Technology Major Based on the Integration of “Post-Course-Competition-Certificate”. *China Packaging*, 44(11): 152–157.

[6] Cao Y, 2024, Research and Practice of C Language Course Teaching Under the Background of Diversified Student Sources in Higher Vocational Colleges——Taking the Electrical Automation Major of Zhejiang Tongji Vocational College of Science and Technology as an Example. *Office Informatization*, 29(21): 35–37.

[7] Zhu Z, 2024, Research on Preventive Maintenance Scheme of Electrical Automation Control System in Metallurgical Enterprises. *Metallurgy and Materials*, 44(10): 10–12.

[8] Zhang C, 2024, Research on the Practical Value and Path of Integrating the Improvement of Higher Vocational Students' Labor Literacy with Professional Education——Taking the Electrical Automation Technology Major as an Example. *Gansu Education Research*, 2024(16): 143–145.

[9] Zhao F, Cao W, 2024, Research on the In-depth Integration of Curriculum Ideological and Political Education and Teaching Under the New Form Model——Taking the Course “Factory Electrical and PLC Control Technology” as an Example. *Education and Teaching Forum*, 2024(41): 151–154.

[10] Zhong J, Hu X, Hou J, 2024, Metallurgical Electrical Automation Control Technology and System Design——Review of “Automation Technology for Metallurgical Raw Material and Fuel Production”. *China Nonferrous Metallurgy*, 53(05): 159.

[11] Xie J, Yu J, Su G, et al., 2024, Practice and Exploration of Teaching Reform of Higher Vocational “Digital Electronic Technology Experiment” from the Perspective of Curriculum Ideological and Political Education. *Industrial and Science Tribune*, 23(12): 164–166.

[12] Qiu M, Zhang L, Liu R, et al., 2023, Construction of Curriculum Ideological and Political Education for Electrical Automation Technology Major in Higher Vocational Colleges Under the “Post-Course-Competition-Certificate” Integrated Education Model——Taking the Course “Servo Control Technology” as an Example. *Journal of Anhui Vocational College of Electronics and Information Technology*, 22(04): 42–45.

[13] Xu L, Niu J, Jiang C, et al., 2023, Exploration on the Design of Curriculum Ideological and Political Education for Electrical Majors in Higher Vocational Colleges——Taking the Course “Power Electronics and Inverter Technology” as an Example. *Teacher*, 2023(30): 120–122.

[14] He X, Li J, Zhu K, 2023, Exploration and Practice of Curriculum Ideological and Political Teaching in Electrical Engineering Major Under the Background of Engineering Education Accreditation——Taking the Demonstration Course “Electrical Part of Power Plant” in Hunan University of Technology as an Example. *Educating People (Higher Education Forum)*, 2023(30): 81–87.

[15] Zhang L, Li D, Liu X, 2022, Exploration and Practice of Curriculum Ideological and Political Education in Higher Vocational Colleges Under the “1+X” Certificate System——Taking the Course “PLC Technology and Application” as an Example. *Modern Agricultural Machinery*, 2022(03): 85–86.

Publisher's note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.