

# Research on the Construction Path of New Engineering + Curriculum Ideology and Politics

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**Abstract:** With the rapid development of science and technology and the transformation and upgrading of industry, new engineering construction has become the important direction of higher engineering education reform in our country. This research focuses on the “new engineering + curriculum ideological and political new form course construction path,” in order to meet the new requirements of talent training put forward by the development of new engineering. This paper analyzes the educational value and current situation of curriculum ideology and politics under the background of new engineering, and improves the ability of curriculum ideology and politics from the perspective of strengthening the teacher training system; optimizing curriculum ideological and political design, skillfully integrating into the ideological and political elements; and strengthening the cooperation between schools, enterprises, and family associations to enrich curriculum ideological and political resources. To build a collaborative education mechanism and form an all-round education pattern, the four aspects of the new engineering + curriculum ideological and political of the new form course construction path have been preliminarily explored, hoping to provide some references and guidance.

**Keywords:** New engineering; Curriculum ideology and politics; New form course; Construction path

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## 1. Introduction

New engineering is a new direction of engineering education reform based on the new needs of national strategic development, the new situation of international competition, and the new requirements of moral education. The new engineering emphasizes the cross-integration of disciplines, and at the same time, it pays attention to the cultivation of students' ability to solve engineering problems and innovate. It is not only the renewal and transformation of traditional engineering but also the overall innovation of the concept, model, and content of engineering education. Under the background of new engineering, carrying out ideological and political activities in the curriculum not only involves teachers consolidating students' basic professional knowledge and skills, but also cultivating students' ideological and political qualities such as family feelings, professional ethics, and social responsibility, so as to help them better adapt to the challenges and needs of the future engineering field.

## **2. The educational value of curriculum ideology and politics under the background of new engineering**

### **2.1. Accelerating the landing of the fundamental task of moral education**

The ideological and political course is the internal requirement for completing the fundamental task of establishing moral characters and educating people <sup>[1]</sup>. Students undergo the most drastic physiological and psychological changes during college, which is also the golden period when their moral values tend to mature. College students are the main driving force for the construction of society and country, and their moral quality and values largely determine the process of the great rejuvenation of the nation <sup>[2]</sup>. As one of the important channels for colleges and universities to implement moral education and cultivate people, teachers of various professional courses are required to not only impart professional knowledge and cultivate professional quality but also dig deep into the ideological and political education materials contained in the teaching and strengthen the role of curriculum education, so as to effectively achieve the goal of moral education and cultivating people <sup>[3]</sup>.

### **2.2. Improving ideological and political work in colleges and universities**

The essence of ideological and political work in colleges and universities is “how to be a man” and its core concept is people-oriented. To improve the effectiveness of ideological and political work in colleges and universities, we must do both the work of teachers and students well. Although colleges and universities have made remarkable achievements in ideological and political work, there are still some problems to be solved urgently: the poor direction of the special subject of curriculum ideological and political research, the lack of excellent curriculum ideological and political cases, and the problem of poor supervision and rectification mechanism <sup>[4]</sup>. Only by solving these problems can we fully implement the Sanquan education and build a pattern of all-staff education. Therefore, colleges and universities must encourage teachers and students to actively study the new national policies and neo-ism, and integrate them into the curriculum ideological and political design <sup>[5]</sup>. As the foundation and entry point of ideological and political work in colleges and universities, the implementation of curriculum ideological and political work can provide strong support for the establishment of long-term development mechanisms in colleges and universities, and effectively improve the overall effect of ideological and political work <sup>[6]</sup>.

### **2.3. Meeting the development needs of young talents in the new era**

When designing and carrying out curriculum ideological and political activities, teachers should uphold the concept of people-oriented education, focus on the current development and future growth of young talents, and train groups of young talents who can shoulder the heavy responsibilities of the times in the new era according to the development requirements and trends of the country and society <sup>[7]</sup>. With the development of higher education reform, professional courses play an indispensable role in students' learning of professional knowledge and skills. However, in today's rapidly changing society, it is difficult for students to meet the employment needs of enterprises only by relying on basic professional skills, thus falling into the unemployment crisis. However, with the in-depth development of ideological and political courses, the thinking of teachers and students will also develop rapidly, break traditional thinking, balance the relationship between disciplinary, intellectual, and patriotic qualities, and urge teachers to strengthen the value guidance of students while imparting disciplinary knowledge, enhance the value leadership, help students firm ideals

and beliefs, accurately grasp the national and party conditions, and promote their all-round development <sup>[8]</sup>.

### **3. Problems existing in the construction of new engineering + curriculum ideological and political new form course**

At present, there are two prominent problems in the process of implementing curriculum ideology and politics, one is that teachers' cognition of curriculum ideology and politics requires improvement, and the other is that related research is insufficient. Teachers play a leading role in the construction of curriculum ideological and political education system, and they should understand the importance of curriculum ideological and political education and the key position in the process of education. However, the actual situation is not satisfactory. Some professional course teachers believe that ideological and political education belongs to the responsibility of ideological and political course teachers, counselors, and student management personnel, and has little to do with professional course teaching, so they are more willing to devote their energy to the teaching of professional knowledge and skills. At the same time, due to the employment pressure and confusion, some students tend to spend most of their time studying and improving professional knowledge and skills during their college years, hoping to obtain the ideal career position. These students have a weak and vague understanding of the cultivation of values and moral qualities and mistakenly believe that the course ideology and politics will have little impact on their future career selection <sup>[9]</sup>.

Another important problem is that the implementation of curriculum ideology and politics needs to be improved. In the process of promoting curriculum ideology and politics, colleges and universities have made a series of achievements, such as research papers, teaching reform topics, teaching cases, and so on. However, due to the lack of in-depth understanding of the relevant research subjects on the curriculum of ideological and political education, and the influence of traditional school philosophy, there is a phenomenon of curriculum ideological and political education "two skins," and the top to bottom ideological and political education consciousness in some colleges and universities is weak <sup>[10]</sup>.

There are two reasons for this situation. First, some teachers lack the necessary socialist theoretical literacy, during the implementation of curriculum ideology and politics, they fail to accurately grasp the needs of the times for talent training. Second, some teachers lack political accomplishment, historical responsibility, and political acumen. In the implementation of curriculum ideology and politics, they do not fully reflect the sense of mission and responsibility to cultivate reliable successors to the cause of socialism with Chinese characteristics and deviate from the party's situation, national conditions, and learning conditions. There are problems such as insufficient motivation in the innovation and application of teaching methods <sup>[11]</sup>.

In short, the ideological and political construction of the new engineering curriculum has a long way to go. Only by solving the problems of teachers' cognition and implementation ability can we really play the role of education of curriculum ideological and political education and cultivate high-quality talents in line with the needs of the times <sup>[12]</sup>.

## **4. Effective strategies of the new engineering + curriculum ideological and political new form course construction**

### **4.1. Improving teacher training system and enhancing curriculum ideological and political ability**

Teachers are the key to the ideological and political construction and implementation of the new engineering

curriculum, and their ideological and political ability is directly related to the final results of the curriculum construction. Therefore, colleges and universities must improve the teacher training system. First of all, colleges and universities should organize systematic curriculum ideological and political training activities for teachers to participate in on a regular basis, such as inviting experts and scholars to give lectures, so as to deepen their interpretation of the connotation, goals, and methods of curriculum ideological and political thinking, and make them realize that the combination of new engineering + curriculum ideological and political thinking is not a simple “1+1” superposition. Thus, the ideological and political elements should be reasonably and scientifically integrated into the content of professional knowledge <sup>[13]</sup>.

Secondly, the training teachers should also provide relevant practical guidance to college teachers. Through case analysis, field observation, and other means, they should help teachers quickly master the methods of carrying out specific ideological and political activities in the new engineering background. For example, in the engineering design course, the content of how students serve society and promote sustainable development in the process of mass innovation and innovation should be introduced. This aims to cultivate students’ sense of social responsibility and innovative spirit <sup>[14]</sup>.

Finally, colleges and universities should actively establish a platform for teachers to exchange ideas, encourage teachers to upload and share their teaching experience and creative ideas in the course of ideological and political thinking, deepen the strength of learning and reference among teachers, and quickly solve the problems encountered in the course of ideological and political thinking, so as to achieve the improvement of teachers’ ideological and political level. At the same time, colleges and universities need to set up a corresponding incentive mechanism to commend and reward teachers who perform well in ideological and political teaching in both spiritual and material aspects, so as to constantly stimulate teachers’ enthusiasm and initiative in the construction of ideological and political construction in the curriculum. Through these training measures, teachers’ ideological and political consciousness and ability will be greatly improved, thus laying a solid foundation for the construction of the new engineering + curriculum ideological and political course <sup>[15]</sup>.

#### **4.2. Optimizing the ideological and political design of the course and skillfully integrating the elements of ideological and political**

Under the new form of new engineering + curriculum ideology and politics, teachers need to continuously optimize course design, carefully plan teaching activities, and achieve the purpose of improving students’ ideological and political literacy in a way of “smoothing things silently.” First of all, teachers should clarify the ideological and political education goals of the courses they are responsible for, and determine multiple ideological and political education goals including values, professional ethics, and innovative spirit according to the characteristics and requirements of the new engineering and curriculum ideological and political education. Secondly, in some professional disciplines, the professional textbooks themselves have certain ideological and political content. Therefore, under the guidance of the new form of the new engineering + curriculum ideological and political education, teachers need to dig deeply into the ideological and political materials in the course content and textbook content. For example, engineering and technology teachers can introduce the major achievements made by China in related fields to students in the course of teaching to inspire students’ national pride and patriotic feelings, or tell inspirational stories of Chinese scientists in the course of engineering technology development to sublimate students’ scientific spirit and perseverance. Finally, teachers can also adopt a variety of teaching methods, such as project-based learning,

group discussion, case analysis, etc., to present ideological and political content to students, which can not only exercise their exploration, cooperation, and thinking ability, but also deepen their knowledge and understanding of the connotation of ideological and political content. For example, in engineering practice projects, teachers can set some problems that need to be solved by teamwork, so as to achieve the cultivation and improvement of students' diverse abilities.

In addition, teachers also need to establish matching curriculum ideological and political evaluation mechanisms, such as student mutual evaluation, teaching supervision, teacher mutual evaluation, and other mechanisms. Through the application of multiple evaluation mechanisms, teachers can better evaluate and judge the effect and direction of improvement of curriculum ideology and politics, and ensure the completion of curriculum ideology and politics tasks on time. At the same time, in the evaluation process, teachers should fully respect the status of students, attach importance to their opinions, strive to learn from better teachers, and constantly optimize teaching methods. Through this multi-dimensional evaluation mechanism, teachers can find and solve the problems encountered in time, so that curriculum ideology and politics can play a real role in college teaching.

### **4.3. Strengthening the cooperation between universities, enterprises, and academic societies to enrich curriculum ideological and political resources**

Rich curriculum ideological and political resources can increase the attractiveness and appeal of teachers' curriculum ideological and political activities, get rid of the boring didactic mode, present the connotation of curriculum ideological and political connotations to students in vivid, interesting, and diverse forms, and then stimulate students' interest in learning. At the same time, a variety of ideological and political resources can also widen students' thoughts and perspectives, help them correctly and deeply understand the ideological and political connotations in different fields and situations, meet students' personalized ideological and political learning needs, and enhance the pertinence of curriculum ideological and political. However, in terms of ideological and political resources, it is difficult for the school alone to achieve, therefore, it is necessary to deepen the cooperation of schools, enterprises, families, social organizations, and other parties.

As an important force of social and economic development, enterprises can provide rich practical cases and real workplace situations for ideological and political education in colleges and universities. Through cooperation with enterprises, students can personally feel the innovative spirit, sense of responsibility, and professional ethics contained in the corporate culture, so as to deepen the study and understanding of abstract ideological and political theories in practical work. Families play an irreplaceable role in the growth of students. Strengthening the cooperation between colleges and families can make colleges and universities better understand the students' growth background and personality characteristics, so as to formulate targeted curriculum ideological and political plans. At the same time, with the help of excellent family traditions and training in students' native families, it can greatly reduce the difficulty of teachers' ideological and political courses, and further cultivate young talents' feelings of family and country and sense of gratitude. Society is a broad platform for education, and its diverse social resources provide strong support for enriching curriculum ideological and political resources. For example, by participating in various social volunteer service activities, students can feel and enhance their sense of social responsibility and dedication. Cooperation between colleges and social organizations to carry out cultural inheritance projects can stimulate students' cultural confidence and national pride.

In a word, colleges and universities should actively build cooperation platforms, integrate resources from all sides, and form joint educational forces. Only in this way can they cultivate high-quality and knowledgeable talents with both morality and ability and all-round development.

#### **4.4. Establishing a collaborative education mechanism to form an all-round education pattern**

All-round education patterns involve school, family, and society multi-participation in education mechanism mode. To a certain extent, this mechanism guarantees the quality of the construction of new engineering + curriculum ideological and political new form courses. First of all, colleges and universities should break the barriers of disciplines and departments and strengthen the exchanges and cooperation among professional teachers, ideological and political teachers, counselors, and management personnel. Secondly, as one of the subjects of ideological and political curriculum, professional teachers should not only complete professional teaching tasks but also integrate ideological and political elements into them, which greatly increases the work pressure and workload of professional teachers. Through communication with teachers of ideological and political courses, professional teachers can obtain abundant theoretical support and guidance, and combine the guidance counselor's record of students' ideological dynamics and behavior, so as to formulate special curriculum ideological and political content for students that conforms to students' learning wishes. At the same time, administrators can continue to provide policy support and resource guarantees for the ideological and political construction of the curriculum. Through regular exchanges and discussions with professional teachers, collective lesson preparation, and other activities, a strong educational force can be formed. Thirdly, professional teachers should strengthen communication and cooperation with families, let parents understand the concept of curriculum ideology and politics and the importance of students' development, and encourage parents to do a good job in students' daily moral education and value cultivation, which is complementary to school education. Finally, the ideological and political construction in colleges and universities cannot be separated from the participation of social forces. Colleges and universities can invite industry experts and outstanding alumni to participate in the discussion of the ideological and political content of the course and create successful cases based on their personal experiences, so as to achieve the purpose of motivating students. At the same time, colleges and universities should actively make use of social resources such as practice platforms and volunteer service platforms to enable students to practice socialist core values in social services.

### **5. Conclusion**

To sum up, under the background of new engineering, the curriculum ideological and political new form course construction has far-reaching significance to the development of college teaching. Through this study, it is found that there are two main problems in the current curriculum ideology and politics: teachers' cognition of curriculum ideology and politics requires improvement and related research is insufficient. This paper makes a preliminary exploration of the corresponding solution strategies from several aspects. However, curriculum construction is a continuous and changing topic, which requires teachers to constantly find problems and innovate solutions, so as to get closer to the inherent requirements of the fundamental task of cultivating virtues and talents, training more excellent new engineering talents, and promoting China from a major engineering education country to a powerful engineering education country.

## Disclosure statement

The author declares no conflict of interest.

## References

- [1] Wang X, Jiang H, 2023, Research on Innovation of Training Model for Undergraduates Majoring in Information Management and Information System Based on the Integration of New Engineering Concepts and Curriculum Ideology and Politics. *China Educational Technology and Equipment*, 2023(7): 148–152.
- [2] Wu P, Zhang Y, 2023, An Analysis on the Thought and Politics of Science and Technology Courses in Colleges and Universities Under the Background of New Engineering. *Journal of Hengshui University*, 25(1): 61–64.
- [3] Li X, Zhang W, Guo S, 2024, Reform and Exploration of Ideological and Political Teaching in Industrial Design Courses in the Context of New Engineering. *Advances in Education*, (2024): 1481589.
- [4] Li Y, Wang B, Cai Y, et al., 2024, Exploration on Ideological and Political Teaching Reform of Basic Course of Thermal Engineering Under the Background of New Engineering. *Journal of Higher Education*, 2024(20): 34.
- [5] Jin X, Kong J, Bai Y, 2023, The Ideological and Political Education of New Engineering Courses Based on the Point-and-Point Approach: A Case Study of “Freshman Engineering Experience” Course. *Heilongjiang Education: Higher Education Research and Evaluation*, 2023(3): 60–62.
- [6] Li P, Qin H, Zhao B, 2023, A Practical Research on Curriculum Ideological and Political Education Model Under the Background of New Engineering—A Case Study of “Ship and Ocean Engineering Fluid Mechanics.” *Education and Teaching Forum*, 2023(32): 129–132.
- [7] Chen L, Tang Y, 2024, Research on the Path of Cost Control and Economic Benefit Enhancement in Construction Engineering Projects. *Applied Mathematics and Nonlinear Sciences*, 9(1): 2618.
- [8] Zhou X, 2023, The Design of Blended Teaching System on Financial Analysis from the Perspective of Curriculum Ideology and Politics. *Contemporary Education and Teaching Research*, 4(12): 665–670.
- [9] Liu T, 2023, The Exploration and Practice Research of Curriculum Ideology and Politics in Computer Network Courses. *Region - Educational Research and Reviews*, 5(4): 48–51.
- [10] Xu Z, Liu Y, Shao Q, 2023, Effective Implementation of Early Childhood Moral Education Based on Curriculum Ideology and Politics in Art Education. *Advances in Educational Technology and Psychology*, 7(15): 100–104.
- [11] Tan Y, Yang L, 2023, “Quality Engineering” Curriculum Ideology and Politics Exploration and Practice. *Curriculum and Teaching Methodology*, 6(20): 44–49.
- [12] Zhang D, 2023, The Research on the Teaching Model of Personality Development in Comprehensive English Curriculum to Carry out Curriculum Ideology and Politics from the Perspective of “Golden Lesson.” *Frontiers in Educational Research*, 6(24): 163–168.
- [13] Yang J, Zhang X, 2023, Integrating Curriculum Ideology and Politics into Physical Education on Students’ Bipolar Depression. *CNS Spectrums*, 28(S2): S83–S83.
- [14] Meng Y, 2023, Practical Path of “Curriculum Ideology and Politics” in Teacher Education Program, *International Science and Culture for Academic Contacts, Proceedings of the 3rd International Conference on Education, Language and Inter-Cultural Communication (ELIC 2023)*, Sichuan Minzu College, 5.
- [15] Zhang Y, 2023, The Integration Path of Curriculum Ideology and Politics in English Teaching. *Adult and Higher Education*, 5(13): 103–107.

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