



# Exploration and Research on Ideological and Political Thinking of Engineering Curriculum under the Background of New Engineering

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## Abstract

Under the background of new engineering, the combination of engineering teaching and curriculum ideological and political education is of great significance for cultivating high-quality engineering professionals in the new era. Through the "multi-dimensional" reform of stimulating consciousness, exploring elements, building team, combining production and education, and integrating media, it has injected rich ideological and political elements into professional education, changed the traditional teaching paradigm of "teaching" and "learning", and built a set of ideological and political education program of natural integration. Under the background of new engineering, a prominent and warm case teaching model of "specialty + initiative + immersion + interest + feature" has been formed, creating a new way of engineering ideological and political education + engineering teaching. Based on this, this paper carries out research to explore the ideological and political integration of engineering courses under the background of new engineering, hoping that the research of this paper will play a reference role in the teaching of the majority of colleagues in practice.

## Keywords

New engineering, Engineering teaching, Ideological and political education, Curriculum construction

## Introduction

In view of the task of higher education centering on moral education and the training goal of "three education", Chinese colleges and universities actively explore and practice the thoughts and methods of curriculum ideological and political construction according to their own reality. Ideological and political teaching is different from that based on specialized courses. Make full use of ideological and political elements, realize the organic combination of the two, and achieve the collaborative education effect of professional courses and ideological and political courses. The two complement each other and inspire resonance. Engineering is professional, practical, innovative and scientific. Compared with humanities and social sciences, the integration of ideology and politics faces many difficulties and problems. How to effectively carry out ideological and political education, establish correct values and improve moral cultivation while teaching professional curriculum knowledge is a problem that professional teachers need to think about.

## 1. Feasibility of ideological and political integration in engineering curriculum under new engineering background

Under the background of new engineering, engineering teaching is more than just technical teaching. The training

goal of engineering majors is expanded from professional training to the cultivation of comprehensive technical talents such as humanistic spirit and social service. The full combination of professional teaching and humanities teaching, constantly improve the engineering education system. Therefore, humanistic education needs to be combined with engineering education, the main aspects of which include ideological and political education. Compared with the traditional ideological and political courses, the combination of engineering education and ideological and political courses has higher acceptability, penetration and better teaching effect (Wang Tiebin, 2022).

First, under the background of ideological and political integration, students have a deeper understanding of their major, which is more interesting than simple ideological and political courses. Meanwhile, their learning ability of professional courses will also be improved. Students' academic performance and professional ability are related to their future employment problems, so college students are more willing to learn professional courses in their limited learning time. Ideological and political elements are added to practical courses and professional courses to supplement and supplement the content of professional courses, which not only increases the interest of courses, but also enables ideological and political education to be carried out in an appropriate, timely and without deliberate traces, so that students unconsciously accept ideological and political education (Fan Yu et al., 2022).

Secondly, the characteristics of professional course teachers determine that they can penetrate moral education in teaching, which is conducive to the internalization of professional moral education into the ideological and moral quality of students. Professional course teachers also need to improve their professional quality and moral education. Due to the authority of professional knowledge of full-time teachers, in the daily teaching process, teachers' professionalism, professional ethics, personality charm, moral quality and even appearance are affecting students, affecting students' judgment of major right and wrong, balance of code of conduct, grasp of interpersonal communication and so on. Therefore, professional teachers should improve their own quality, strengthen curriculum education consciousness, make ideological and political education work twice the result with half the effort.

## **2. The strategy of ideological and political integration in engineering curriculum under the new engineering background**

### **2.1 Arouse students' subjective consciousness**

College students in the new era are a group rich in thought and execution. Their way of thinking contains not only national culture and traditional thoughts, but also features of The Times and personalities. In fact, college students have long dealt with the problem of "thought disorder" according to their own needs. However, in the traditional ideological and political education framework, the teaching content is too dogmatic, difficult to arouse resonance, the overall sense of acquisition is low. In the teaching process, students are in the object position for a long time, and teachers often fall into the awkward situation of singing "one-man show".

Therefore, it is necessary for colleges and universities to mobilize students' social subjectivity, help students to establish the relationship between life value and self-value in the process of quality education, so that students in the process of quality education through a wide range of ideological practice activities and valuable experience, deal with their own realistic ideological problems, so as to achieve a leap of self-thought and life value sublimation. Only in this way can we realize the substantive transformation of ideological and political classroom, strengthen students' sense of belonging, and promote the integration of ideological and political theory and engineering teaching in colleges and universities, so as to achieve the ultimate goal of moral education (Zhao Hanqing et al., 2022).

In teaching implementation, flipped classroom teaching method or innovative course carrier can be used to mobilize students' subjectivity, and the practical content of traditional ideological and political course teaching can be gradually developed and enriched, so that students, as organizers and participants, can improve their understanding of traditional ideological and political teaching through personal experience.

### **2.2 Explore the ideological and political elements that reflect values**

Basic engineering courses, including mathematics, physics, biology and other courses, are an important basis for the subsequent study of professional knowledge. The teaching of scientific knowledge, scientific derivation and logical derivation should be emphasized. Therefore, schools should give full play to students' knowledge of Marxism and create teaching contents full of characteristics and values when conducting science teaching of specialized courses. Take industrial design major as an example. When introducing the knowledge point of "static force application" in Ergonomics, students need to be guided to understand different working postures, angles of force and conditions of force, so as to cultivate students' correct design thoughts, observation and thinking abilities. In teaching, teachers should not only describe the scientific principles in the design clearly, but also introduce the visual "aesthetic education" nature

into the abstract theoretical teaching, so as to feel the unique "aesthetic" characteristics of natural science. Lead the students to understand the laws of science and technology from the perspective of "beauty", improve the aesthetic value in the objective review of the world, understand the practice of science and technology, and cultivate students' outstanding ability of scientific and technological independence (Wang Jinxi et al., 2022).

### 2.3 Construction of professional teachers

Engineering teachers are the backbone force to promote the realization of "ideological and political courses" in the construction of "new engineering". In this process, as direct practitioners, the moral education ability and consciousness of engineering teachers are the key factors that affect the effectiveness of the construction of "discipline + ideology and politics". At present, due to the special subject background of some engineering teachers, their traditional consciousness and ability are still different from the teaching requirements of "ideological and political courses". Therefore, in the construction of "curriculum ideological and political education" under the background of "new engineering", it is necessary to rebuild the traditional skills and consciousness of engineering teachers, which will fundamentally change the current tendency of some teachers of specialized courses to "preach and speak morality", and promote the "collaborative combat" between teachers of ideological and political courses and teachers of specialized courses in training (Xi Yanhui & Tang Xing, 2020).

According to the situation of engineering teachers in some colleges and universities, from the setting of training objects, we can try to set up ideological and theoretical training courses for teachers specially oriented to new engineering majors. For pre-service and post-service education of engineering teachers, the corresponding teaching and training framework of "curriculum ideology and politics" has been established and provided. To help engineering teachers and teaching assistants understand the basic connotation structure of ideological and political teaching, master its main content and logic, master the ideological and political requirements of the subjects they teach, discover the value of the ideological and political courses they teach, further improve the ideological and political quality of teachers, and thus promote the completion of teachers' ideological and political teaching tasks.

### 2.4 Construct ideological and political education work field that combines production and education

Under the background of "new engineering", colleges and universities have accelerated the updating of training plans, the formulation of teaching arrangements, the development of curriculum teaching and other aspects have their own characteristics, and the cooperation between schools and enterprises and the combination of industries is also an inevitable trend. Its main way of talent training is to let students directly into the factory to learn about new products, and participate in the enterprise training closely combined with the production, education and research. In combination with the characteristics and resource advantages of engineering major, we should pay equal attention to job training and ideological and political education.

Meet the needs of the industry, strengthen the linkage positioning. Engineering majors in colleges and universities will closely follow the major needs of industrial and regional development, provide a strong ideological and political teaching position for enterprises to build with leading companies in the industry and small and micro companies, comprehensively promote school-enterprise collaborative education, and actively promote the organic integration of the components of the supply side and the demand side of the talent training market. Actively cultivate high-level innovative applied talents in line with industry development trend and enterprise innovation demand. According to the law of education, the construction of multiple fronts. Engineering majors in colleges and universities can also organically integrate the main channels of ideological and political theory courses and multiple fronts of daily ideological and political theory teaching through the integrated teaching of "teaching, production and innovation", thus forming a diversified development platform for professional courses and basic ideological and political theory teaching. Through theoretical teaching combined with extracurricular practice, school training combined with community guidance, cultivate students' good political belief and practical orientation. Thus forming a new position of ideological and theoretical teaching combining production and education. In addition, give full play to the advantages of educational resources and make effective use of ideological practice position. Ideological and political teaching should create a practical classroom environment for ideological and political teaching according to the characteristics of the integration of industry and education, so as to transform from single classroom teaching to open classroom, from emphasizing learning and reflection to combining learning and reflection, and from theoretical teaching to practical testing, so as to improve students' learning experience and improve the quality and effect of ideological and political teaching.

### 2.5 Establish a teaching result feedback mechanism based on big data

The emergence of the era of big data analysis has greatly improved the accuracy of data analysis event characteristics.

It is also of practical value to make full use of this feature and innovate and develop ideological and political teaching approaches. On this basis, the teaching carrier is optimized by means of inclusive media, which will help to effectively improve the teaching effect of teachers and the teaching effect of teaching objects. Teachers can use big data analysis to convert the basic requirements, functions and mechanisms of current ideological and political teaching into historical data, and objectively analyze the operating rules of ideological and political teaching in the actual work of the school through the results of big data analysis, so as to correctly predict the future development trend of data under the background of new engineering, and adjust the content and development mode of ideological and political teaching by predicting the results. In order to realize the ideological teaching of the object of thought and action, and the development trend of the current spirit of The Times is highly consistent.

### 3. Conclusion

To sum up, the new engineering department is oriented by both virtue and talent, and adopts the construction concept of coping with changes and shaping the future, and adopts inheritance and innovation, cross-integration and collaborative sharing as the main approaches to cultivate diversified and innovative outstanding engineering talents in the future. Ideological and political courses are the new requirements of the CPC Central Committee to strengthen the ideological and political work in colleges and universities in the new period. The effective promotion of ideological and political construction in the course not only makes the engineering course teaching and ideological and political theory courses form a synergistic effect, but also greatly improves the ideological and cultural character and attraction of engineering teaching, enriches the ideological and theoretical system of the course construction, promotes the integrity of the course construction, and realizes the overall development of engineering students.

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### References

- Fan Yu, Wu Haitao, Chen Rongrong, et al. Exploration and Practice of "Signal and System" Course Ideology and Politics in Colleges and Universities under the Background of New Engineering—Taking Zhaoqing College as an example [J]. *Journal of Zhaoqing University*, 2022, 43(2):27-32.
- Wang Jinxi, Zhan Huiying, Feng Zhigang, et al. The Reform of Ideological and Political Teaching of Engineering Course to Cultivate Students' Dialectical Thinking under the Background of New Engineering [J]. *Journal of Lanzhou University of Arts and Sciences (Natural Science Edition)*, 2022(03): 125-128.
- Wang Tiebin, Guan Xuemei, Wang Rong, et al. Research on Engineering Teaching Reform under the dual background of Artificial Intelligence and New Engineering [J]. *Education and Teaching Forum*, 2022(5):54-57.
- Xi Yanhui, Tang Xing. Exploration and Research of Engineering curriculum Ideology and Politics under the background of new engineering [J]. *Science and Education Guide (mid-day)*, 2020(20): 82-83.
- Zhao Hanqing, DI Kesin, Hu Ming, et al. Exploration on Ideological and political thinking of Mechanical Properties of Materials under the background of new engineering [J]. *Guangzhou Chemical Industry*, 2022, 50(4):174-176. (in Chinese)