

# Research on curriculum innovation path of integrating curriculum ideology and politics into functional materials and devices

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**Abstract:** This paper studies the innovative path of integrating curriculum ideology and politics into the course of functional materials and devices. The importance and necessity of integrating ideological and political thinking into the course of functional materials and devices are discussed by analyzing the internal relations between the course of ideological and political thinking and the course of functional materials and devices. At the same time, this paper also puts forward the concrete innovation path, including optimizing the course content, innovating the teaching method, strengthening the practice link, improving the quality of teachers and so on. Through the implementation of these measures, the goal of curriculum ideology and politics can be better realized, and excellent talents with social responsibility, innovative spirit and practical ability can be cultivated.

**Key words:** curriculum thought and politics; Functional materials and devices; Curriculum innovation; Teaching path

## I. Introduction

With the continuous development of society, the demand for talents is constantly changing. In order to adapt to this change, college education needs to constantly innovate and improve. Curriculum thinking and politics is a new educational concept that emphasizes the integration of ideological and political education into professional courses to cultivate outstanding talents with a sense of social responsibility, innovative spirit and practical ability. The course of Functional Materials and devices is one of the important courses of materials major, which has strong practical and theoretical properties. By integrating the course ideology and politics into the course of functional materials and devices, the training objectives can be better achieved and the comprehensive quality of students can be improved.

## II. Curriculum ideology and politics and functional materials and devices course overview

### 1. Analysis of curriculum ideological and political concepts

Curriculum ideological and political education refers to the integration of ideological and political education into the subject curriculum, through the design and adjustment of teaching content, teaching methods and evaluation methods, etc., to cultivate students' ideological and moral quality, innovation ability and social responsibility awareness. The purpose of curriculum thinking and politics is to enable students to accept the influence of ideological and political education in the process of learning subject knowledge through curriculum teaching, improve their comprehensive quality and social responsibility, and train socialist builders and successors with all-round development of morality, intelligence, physique, the United States and labor.

### 2. Features and objectives of the course of functional materials and devices

The course of Functional Materials and Devices belongs to the field of engineering, mainly involving chemistry, materials science, electronics and other contents. It is characterized by focusing on practical application and innovative research, and cultivating students' professional knowledge and experimental skills in the field of materials and devices. The goal of this course is to enable students to master the basic concepts, principles and technologies of functional materials and devices, have the ability of device design, preparation and testing, cultivate students' innovative thinking and hands-on practice ability, and improve students' professional quality and comprehensive ability in related fields. Therefore, the combination of ideological and political courses with functional materials and devices, through the integration of ideological and political education concepts and content, can enable students in the process of learning functional materials and devices, not only master professional knowledge and skills, but also can be influenced and guided by ideological ethics and professional literacy, so as to better cultivate students' comprehensive quality, innovation ability and social responsibility awareness. This integration can make students better adapt to social needs and challenges, and become excellent professionals with values, professional ethics and sense of responsibility.

## III. The necessity and importance of integrating curriculum ideology and politics into the course of functional materials and devices

### 1. The need to cultivate students' ideological and moral qualities

In the course of functional materials and devices, it is a necessary means to cultivate students' ideological and moral quality. This professional course itself has a high degree of technology and professionalism, students tend to pay more attention to the mastery of professional skills in the learning process, but ignore the cultivation of ideology and morality and other core values. Therefore, through the integration of ideological and political education, students can be guided to cultivate scientific spirit, moral ethics and social responsibility and other aspects of quality, improve their humanistic care and professional ethics, so that they have a higher ideological realm and behavioral norms.

## 2. Enhance students' comprehensive quality and innovation ability

The integration of curriculum ideology and politics into the course of functional materials and devices can effectively enhance students' comprehensive quality and innovation ability. The field of functional materials and devices requires students to have a wide knowledge reserve, innovative thinking and practical ability, while ideological and political education emphasizes the cultivation of students' comprehensive quality and innovative spirit. Through the combination of the two, it can stimulate students' independent thinking and innovation potential, cultivate their teamwork and problem solving ability, and enhance students' comprehensive quality and innovation ability. This kind of education mode will help students better adapt to the needs of social development in their future careers, and make contributions to promoting scientific and technological progress and social progress.

## IV. Research on curriculum innovation path of integrating curriculum ideology and politics into functional materials and devices

### 1. Design and adjustment of teaching objectives

In the process of designing and adjusting teaching objectives, teachers need to fully consider the needs of ideological and political education and the actual situation of students, and combine the objectives of ideological and political education with the teaching objectives of functional materials and devices courses, so as to achieve the integration of ideological and political education and subject education. Specifically, teachers can integrate the objectives of ideological and political education into the teaching objectives of the course of functional materials and devices, such as cultivating students' innovative consciousness, practical ability, teamwork spirit and social responsibility, so as to make the teaching objectives more comprehensive and specific. Such a design helps to better realize the integration of ideological and political education in the course, so that students can improve their ideological and political quality while learning professional knowledge. In the specific teaching process, teachers can help students better understand the knowledge points of the course of functional materials and devices by introducing 800 cases of graduates from HIT, and cultivate students' teamwork spirit and social responsibility in the process. For example, teachers can lead students to discuss in groups the teamwork spirit of the 800 graduates of HIT in the research and development process, and ask students to analyze the positive role this spirit has played in the innovation and development of functional materials and devices. At the same time, teachers can also organize students to do group projects, so that students can experience the importance of teamwork spirit in practice, so as to better cultivate students' teamwork spirit and social responsibility.

### 2. Adjustment and update of teaching content -- with the entrepreneurial spirit of Shenzhen's Ruzi Niu and BYD

The adjustment and update of teaching content is an important link of integrating ideological and political thinking into the course of functional materials and devices. Teachers need to adjust and update the teaching content according to the requirements of teaching objectives, so that it is more in line with the needs of ideological and political education and the actual situation of students. Specifically, teachers can integrate the content of ideological and political education into the teaching content of the course of functional materials and devices. For example, by explaining the application cases of materials and devices, teachers can guide students to pay attention to the national science and technology development strategy and social needs, for example. The spirit of the Shenzhen Ox stands for a spirit of diligence, steadfastness and selfless dedication, which is consistent with the rigorous, realistic and innovative spirit that needs to be cultivated in the course of functional materials and devices. Teachers can guide students to establish a correct outlook on life and values, and cultivate their sense of social responsibility and dedication by explaining the connotation and practical cases of the Ruzi Niu spirit. So as to make the teaching content more rich and practical. In addition, teachers can also introduce the latest scientific research results and industry trends, so that students can understand the latest development trends and application prospects of functional materials and devices, so as to stimulate students' interest and enthusiasm for the major. For example, BYD's entrepreneurial spirit represents a spirit of innovation, courage to work hard and continuous progress, which is consistent with the innovative spirit and practical ability that need to be cultivated in the course of functional materials and devices. Teachers can guide students to establish correct entrepreneurial concepts and professional qualities by explaining BYD's entrepreneurial process and successful experience, and cultivate their innovation awareness and practical ability.

### 3. Innovation and improvement of teaching methods

The innovation and improvement of teaching methods is an effective way to integrate curriculum ideology and politics into the course of functional materials and devices. Teachers need to innovate and improve teaching methods according to the requirements of teaching objectives, so as to make them more in line with the needs of ideological and political education and the actual situation of students. Specifically, teachers can adopt teaching methods such as case teaching, group discussion and practical teaching to guide students to actively participate in ideological and political education, so as to make teaching methods more flexible and diversified. For example, teachers can organize students to have a group discussion and let students have an in-depth discussion on a hot issue in the field of functional materials and devices, which can cultivate students' teamwork spirit and communication skills. At the same time, teachers can also adopt the method of case teaching. By analyzing real cases, teachers can adopt the case teaching method, and guide students to understand the development trend and application prospect of the space field by showing Sun Jiadong's development history and achievements in the space industry. This method can stimulate students' interest and enthusiasm in learning, and cultivate their spirit of exploration and awareness of innovation. At the same time, teachers can also guide students to think about the reasons and scientific principles behind Sun Jiadong's success through case analysis, cultivate their scientific thinking and innovation ability, and enhance students' sense of social responsibility and mission.

## V. Evaluation and prospect of integrating curriculum ideology and politics into the course of functional materials and devices

### 1. Evaluation system construction of curriculum ideology and politics in the course of functional materials and devices

In the course of functional materials and devices, the evaluation system of curriculum ideology and politics should comprehensively consider students' performance in multiple aspects. First of all, students' mastery of basic concepts, principles and related knowledge of functional materials and devices should be evaluated, which is an important reflection of students' learning results. Secondly, evaluate whether students have the innovative ability of functional materials and devices design, preparation, testing and other aspects, including students' innovative thinking, problem-solving ability and practical ability, which is the key to cultivating students' innovative spirit and practical ability. In addition, evaluate whether students have good scientific research ethics and professional ethics, including students' academic integrity, team spirit and social responsibility, which is an important aspect of cultivating students' good moral sentiment and professional quality. In addition, evaluating whether students have the correct national consciousness, including students' understanding of the national science and technology development strategy and the sense of contribution to the national development, is an important content of cultivating students' national consciousness and social responsibility consciousness. Finally, evaluate whether students have the consciousness and action that are beneficial to the society, including students' awareness of environmental protection, resource utilization and human health, which is the key to cultivating students' sense of social responsibility and sustainable development. Through the evaluation of these aspects, students' academic level, innovation ability, moral sentiment, national consciousness and social responsibility can be comprehensively understood, and students' all-round development and growth can be promoted.

### 2. The development direction of integrating ideology and politics into the course of functional materials and devices in the future curriculum

In the future, the development direction of integrating curriculum thought and politics into the course of functional materials and devices can include the following aspects: First, strengthen the training and development of teachers, improve teachers' ideological and political education training and research, enhance teachers' theoretical cultivation and practical ability, so as to better guide and guide students. Secondly, improve the evaluation system, establish a specific and clear curriculum ideological and political evaluation system, so that it can more accurately reflect the situation and progress of students in ideological and political education. At the same time, to deepen the integration of disciplines, the course of functional materials and devices should be deeply integrated with other disciplines to expand the comprehensiveness and practicality of the course, so that students can learn and think in an interdisciplinary context. In addition, it is necessary to strengthen the training and guidance of students, through carrying out scientific research projects, participating in social practice and other ways, to cultivate students' sense of innovation, teamwork and social responsibility, and further improve the comprehensive quality of students. Finally, it is necessary to increase the investment in teaching resources, strengthen the investment in teaching resources such as laboratory equipment and materials, improve students' practical ability and innovative ability, and provide effective support for the cultivation of students' comprehensive ability. To sum up, the future development direction will focus on teacher training, improvement of evaluation system, integration of disciplines, student training and teaching resources investment, and strive to combine curriculum ideology and politics with functional materials and device courses to provide better education for students' overall development and growth.

## VI. Conclusion

This paper studies the innovative path of integrating curriculum ideology and politics into the course of functional materials and devices. Through the analysis of the internal connection and importance necessity of curriculum ideology and politics and functional materials and devices courses, the research background and significance are indicated. According to the current situation, some specific implementation measures are put forward, such as optimizing course content, innovating teaching methods, strengthening practice links, improving teachers' quality, etc., so as to better achieve the goal of curriculum ideology and politics, cultivating outstanding talents with social responsibility, innovative spirit and practical ability to adapt to the development and change of society, laying the foundation for making greater contributions in the future. It has strong practicability and application.

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