

# *Practice and exploration of "history, time and reality" curriculum ideological and political teaching reform based on the OBE concept*

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**Abstract:** OBE education concept is a result-oriented, student-oriented and reverse thinking curriculum system construction concept, which is an advanced education concept. The implementation of ideological and political courses has become an important measure of the current classroom education. The deep integration of OBE education concept with curriculum ideological and political education, and the optimization of various teaching stages of the course, will help to achieve the goal of "three-wide education" and improve the quality of talent training. First of all, the OBE concept and ideological connotation is introduced in this paper, and then the idea of the necessity of ideological construction in China is described. In the third part, the idea, the scheme and specific implementation steps of construction of "history, time and reality" fusion curriculum ideological and political reform based on the OBE concept emphatically studied in the major of electronic information engineering. Finally, the of construction effect is objectively evaluated. Through the exploration and practice. The construction of ideological and political for the electronic information engineering professional course has made certain achievements, which is helpful to improve the comprehensive quality of students.

## **1. The background of curriculum ideological and political based on OBE concept**

OBE (Outcome based education) is achievement-oriented, competency-oriented, goal-oriented, or demand-oriented education. OBE education concept is a result-oriented, student-oriented and reverse thinking curriculum system construction concept, which is an advanced education concept [1]. In June 2013, China was accepted as a contract member of the Washington Agreement. It is of practical significance and academic value to guide the engineering education reform with OBE education concept [3]. The OBE education concept is in the core position in the professional certification of engineering education, and it has a series of standardized requirements for the educational effect. The implementation of ideological and political courses has become an important measure of the current classroom education. The deep integration of OBE education concept with curriculum ideological and political education, and the optimization of various teaching stages of the course, will help to achieve the goal of "three-wide education" and improve the quality of talent training[2].

On May 28th, 2020, according to the "Guidelines for Ideological and Political Construction of

Higher Education Courses"[1], comprehensively promoting the ideological and political construction of the curriculum is a strategic measure to implement the fundamental task of moral education, ideological and political construction of courses is an important task to comprehensively improve the quality of talent training. We need to clarify the objectives, requirements and priorities of ideological and political construction, scientifically to design the course of ideological and political teaching system, to promote the ideological and political construction of courses combining with the characteristics of majors, to integrate the ideological and political curriculum into the whole process of classroom teaching and construction, to enhance teachers' awareness and ability of ideological and political construction, to establish and improve the quality evaluation system and incentive mechanism of curriculum ideological and political construction, as well as to strengthen the curriculum ideological and political construction organization and implementation and condition guarantee[4].

In terms of knowledge level, knowledge effect is also the teaching of theoretical knowledge. Therefore, we need to consider that how the teaching purpose, teaching method, teaching content and other indicators should be implicitly integrated into the ideological and political content of the course. In terms of emotional level, consider the personality of emotion and value effect. In the final analysis, ideological and political evaluation belongs to moral education, so ideological and political evaluation focuses on students' emotional cognition and fixed thinking mode, namely, the identification of value elements, the identification of traditional excellent cultural elements, the constitutional elements of the rule of law, the identification of professional ideal elements and professional ethics elements. In terms of value effect, considering the uniqueness of behavior effect, we need to consider the degree of students' theory with practice. In the dimension of value effect, the proper meaning of talent training is to guide students to shape the correct world outlook, outlook on life and values. Therefore, the evaluation of value effect in the evaluation of ideological and political teaching effect should include the evaluation of world outlook, outlook on life and value evaluation. In the behavioral level, it can be evaluated from three levels. The low level is to evaluate whether the students can actively explore the ideological and political elements in the course content. The middle level is to evaluate whether the students use the ideological and political content in the course to solve the problems encountered in life and study. The high level is to evaluate whether students can combine the professional knowledge of public security with ideological and political elements for innovation.

## **2. The necessity of construction curriculum ideological and political**

### **2.1. The complements to education pattern**

With the development of the information age, the social environment is becoming increasingly complex and changeable. Students have increasing access to information, and various ideological trends, non-mainstream ideas, and network public opinion have brought serious ideological impacts on the values of college students. These influences affect their correct understanding and perception of their own situation and the social environment. This situation poses serious educational impacts and challenges to the ideological and political education of college students. Relying solely on ideological and political education within ideological and political classes results in minimal educational effects. In a single educational context, integrating ideological and political education into other teaching subjects, aligning them with the ideological and political course, can give full play to the teaching advantages of various subjects. This comprehensive approach to ideological and political education can significantly enhance educational outcomes.

Therefore, course education has further refined and supplemented the main body of ideological and political education and its ideological pattern. The diversification of ideological and political education forms and the expansion of its scope further strengthen and improve its educational effect,

providing a powerful supplement to current ideological and political education in colleges and universities.

## **2.2. The inevitable demand for college students to grow up comprehensively**

In the tertiary education environment, the country and society have more and more demand for technical talents and compound talents. As students of higher education, they should not only have relevant professional theoretical knowledge and skills, but also have high-quality abilities such as moral quality, national feelings, political accomplishment, legal concept and cultural accomplishment. Higher education stage is the critical stage of youth growth. It is also a key period for further improving and shaping and developing itself. The effective implementation of the curriculum ideological and political education just plays a complementary and perfect role to the students themselves. It is the most important that to give full attention to the systematic education effect of ideological and political education, to integrate the ideological and political elements of history, humanities, law and politics into the whole teaching process of various courses, to understand the mainstream values of college students in higher vocational colleges, to eliminate their homogenization of various negative mechanisms and false values, and to help college students to establish a correct world outlook, outlook on life and values. At the same time, it is conducive to the all-round development of students, and effectively become a comprehensive college student in the new era with innovative thinking, strict self-discipline, wide vision, strong politics, deep feelings and positive personality, which lays a strong talent foundation for the construction and development of the country.

## **2.3. The inevitable requirements for the formation of collaborative education**

The proposal of ideological and political education standards in the curriculum further expands the channels of ideological and political education, and incorporated it into the professional talent training plan. Establishing Morality and Cultivating People has become the main post responsibility of each in-service teacher and the mission of teaching and education. In addition to the professional ideological course teachers who adhere to the ideological and political course teaching work, teachers of other subjects should also shoulder the responsibility of ideological and political education for students. By integrating ideological and political teaching into various subjects, a powerful educational cohesion is formed. This integration allows the students' ideological and political education to achieve a synergistic effect, improving the timeliness and effectiveness of ideological and political education through collective efforts. "History, time and reality" integrated into the construction of curriculum ideological and political under the concept of OBE

## **2.4. Top-level design process**

Step 1: led by professional team, head of the course group, full-time teachers write this professional course education teaching reform, submitted to the professional "engineering certification team" review, and solicit the opinions of our school of marxism school teachers, eventually reviewed by the Teaching Steering Committee of the School of Electronic Information, approved by the electronic information institute, and carried out by the course leader. The requirements of IEET certification must be combined when formulating the ideological and political objectives of the major. The educational objectives of the major of electronic information engineering should be decomposed into "professional knowledge education goal" and "curriculum ideological and political education goal", that is, the "learning results" of OBE education concept should be defined first.

Step 2: According to their different attributes, all courses in the teaching plan of this major are

divided into three groups: the major basic course group, the professional core course group, and the general course group. Because the opening unit of general education course is not affiliated to the School of Electronic Information, the key research object of this paper is the first two professional course groups.

Step 3: define the ideological education objectives in the syllabus of basic courses such as “Advanced Language Programming”, “Circuit Analysis Foundation”, “Simulated Electronic Technology” and “Digital Electronic Technology”, and define the ideological education objectives in the syllabus of core courses such as “signal and System”, “Information Theory and Coding”, “Complex Change Function and Field Theory”, “Electromagnetic Field and electromagnetic Wave”, “Sensor Technology and Application”, and “Communication Principles”. At the same time, through the coordination of the general education center opened by our school, the ideological and political education objectives of the course are also defined.

Step 4: decompose the ideological and political objectives of a certain course into several ideological and political modules, including the patriotic rule of law module, moral education module, engineering ethics module, craftsman spirit module and innovation ability module. Specific plan according to the class conditions, not demanding full coverage, avoid strong pull hard pull, mechanically copy. The teachers of the School of Marxism can provide professional suggestions on the ideological and political construction of courses for the major. The teachers of the major can give full play to the advantages of familiarity with the professional courses, find out the combination of ideological and political points of courses, and finally realize the organic integration of ideological and political courses with ideological and ideological and political courses.

Step 5: Find out the knowledge points associated with the ideological and political modules of a certain course. Establish the mapping relationship between the ideological and political module and the professional knowledge points. Since each course has its own characteristics, it is unrealistic to require that every course and every class can cover all the ideological and political modules of the course. Take the course of Advanced Language Programming as an example, with 32 (theoretical) + 24 (experimental) credit hours. In the syllabus of the course, it not only indicates the overall educational objectives of the ideological and political education of the course, but also suggests the ideological and political elements related to the knowledge points of each chapter. The subsequent modification of the syllabus should ensure that the ideological and political elements of the course should keep pace with The Times.

Step 6: Clarify the related knowledge points and courses of each session and the related ideological and political modules and educational objectives in the teaching calendar. Follow the principle of step by step, timely and moderate matching.

Step 7: Clarify the realization of ideological and political elements of the course in the lesson plan, and make the teaching design of each class by the class hour. Teaching plan design is an important material in the teaching process, and it is the key to affect the teaching quality and the achievement degree of educational goals. Because the teaching calendar is limited by the inherent format, there is not enough space and reasonable form to express the mapping relationship between the knowledge points and the ideological and political modules of the curriculum and the educational objectives, so it can and needs to be elaborated in detail in the teaching plan. Teaching plan design is an important supporting material for the evaluation of future curriculum ideological and political education objectives and teaching quality.

Step 8: To evaluate the performance of each professional teacher and the construction effect of each professional course according to the evaluation plan of the achievement of ideological and political education objectives. If the achievement is high, the successful cases are summarized and promoted to other majors; if the achievement is low, the failure lessons are summarized and the ideological and political elements of the course are improved. Integrate ideological and political

elements into the final paper, the entire teaching process (before, during, and after class), and guide students to participate in social practice outside of class. Utilize red resources and implement ideological and political education collaboratively between teachers and students.

## **2.5. The specific implementation the three integrated courses of "history, time and reality"**

The college classroom should be both rich and rigorous. In teaching, we should not only impart knowledge and cultivate ability, but also integrate value shaping into classroom teaching and education. In teaching, we should pay attention to political identity and feelings of family and country, cultivate students' pride of the Chinese nation and technology confidence, enhance their confidence and ability to deal with complex problems, as well as the responsibility of contributing to the society, and pay attention to cultivating students' awareness of the rule of law and professional quality. This paper carries out from the three aspects of history, time and practice and excavates the ideological and political integration points of the course.

### **2.5.1. Historical**

With the help of excellent national history and life physics courses, excavate the ideological and political elements, educate students to establish a correct view of the country, the nation and the history, improve the sense of national pride and belonging, and promote the spirit of patriotism. In the digital signal processing course, integrate the teaching content with scientific knowledge, abilities, methods, consciousness, and quality. The implementation of digital signal processing systems includes both hardware components, such as adders and delay units, and programmable DSP software and hardware. Extend the course to cover DSP chip design and the development of the chip industry in China. Cultivate students' perseverance, extraordinary courage, and determination to tirelessly advance the chip field in our country.

### **2.5.2. The Times**

Professional teaching teaching professional knowledge is not enough, but also with the system point of view, the development of the view of the emergence of technology and change, the application of technology will affect the country's political, economic, social, diplomatic, and other fields, so to combine the student's era and social environment, speak, social and enterprise reality case, at the same time pay attention to home and abroad and social each big hot issues, advancing with The Times, cultivate students pay attention to social issues, enhance professional confidence and social responsibility. In the mobile communication course, the teacher not only teaches the development of mobile communication technology in China but also includes the rapid advancement of quantum communication technology and the application of 5G technology, such as village disinfection drones and city express UAVs. By incorporating brief yet impactful facts or cases, the teacher connects professional knowledge to arouse students' interest and resonance. This approach broadens students' perspectives, guiding them to use their professional knowledge to solve practical problems in life. Throughout this process, the concept of contributing to the country and society is instilled. In the "Python program design" course in the word frequency statistics project case, closely follow the current political hot spots, respectively analyzed the report of the 19th National Congress of the Party, the 20th report, network security law, etc., through the Chinese word segmentation technology to generate word cloud, map, objectively and effectively show the key tasks and key direction of national development. In the web crawler project, we climbed the comments of the popular movies "Operation Red Sea", "My Motherland and Me", "Changjin Lake" and "The Journey Back", and then analyzed the word frequency to understand the audience's evaluation and emotional development trend. In addition, to address the widely discussed quality issues of e-commerce online

shopping products, we can scrape user comment information from e-commerce platforms and conduct statistical analysis of word frequency and text sentiment. This helps us understand user feedback on the advantages and disadvantages of the goods, enabling us to make improvements.

### 2.5.3. Practice

The professional knowledge of electronic information is highly theoretical, and the practice is also important. Theory and practice are dialectically unified, with consistency. Theory guides practice, and practice helps to understand theory. The practice teaching of each major includes not only the practice of professional courses, but also the labor practice and social service practice carried out by the professional directors. In the teaching practice of professional courses, it is necessary not only to integrate the craftsman spirit, teamwork spirit and engineering ethics into the teaching, but also to cultivate students' sense of rules, responsibility and integrity in their professional quality. Wear shoe covers in and out of the laboratory, arrange equipment and instruments in time, take good care of the laboratory environment, complete simple programming tasks honestly and independently, and actively participate in team cooperation to complete complex projects. Also through the labor education practice, summer social practice and city youth artificial intelligence science base practice to the community of the old people to solve the problem of using mobile computers in daily life, to primary and secondary schools and poor mountainous areas, the children teach new information technology knowledge and product application services, etc., drum, encourage them through learning and practice, set up the lofty ideal and goal, climb the peak of science and technology.

Scientific research education is an important part of practical education. It not only involves the dissemination of scientific knowledge, but also the training of scientific thinking and the exploration of scientific methods, as well as the teaching of innovative technical methods, especially paying attention to academic integrity. In the course "Electromagnetic Field and Electromagnetic Wave", scientific research achievements are integrated into teaching cases, such as the signal receiving system of a certain fighter, so as to improve the high order and innovation of the course, increase the challenge of the course, increase the cutting-edge technical knowledge of professional development, and stimulate students' interest and enthusiasm in learning. In the courses of "Internet of Things Communication Technology", "Machine Learning" and other courses, students are guided to carry out effective scientific research by guiding innovation and entrepreneurship projects and competitions. The topic of the project also increases the difficulty of the graduation project. The sub-project of the instructor is the final project. After the complete training process of literature review, proposal report, design research, practice verification, conclusion analysis, and defense, undergraduates laid a foundation for students to continue their professional study.

## 3. Effect evaluation

University education is the unity of teaching and learning, the unity of the class and after class, and the same frequency resonance and mutual achievement between teachers and students. Based on the teaching reform concept of OBE concept of "history, time and reality", we should go deep among students and make warm ideological and political courses. In the process of deepening the teaching reform practice, the students have achieved fruitful results. In the past three years, students have won the bronze prize in the "Internet +" competition, the special prize in the provincial competition, more than 20 third prizes in the national competition in the Lanqiao Cup National Software and Information Technology Professional Talent Competition, 2 innovation and entrepreneurship projects above provincial and ministerial level, 5 students have been approved as utility model patents, 4 software Copyrights, and published more than 10 subject papers. Teachers in ideological education, teaching reform, scientific research feedback teaching is also fruitful, 2 people won the honorary title of ethics

pacesetter, 4 people won excellent teachers, many people won field "advanced individual" disease resistance, approved the provincial course education demonstration class 3, provincial teaching achievement award third prize 1 item, in the teaching innovation competition for provincial 3 people.

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