

Research on the Implementation Path of Curriculum Ideological and Political Education Based on OBE

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Abstract: This paper studies the important role of curriculum ideological and political education in moral education and teaching in Colleges and universities, analyzes the means and methods of integrating the curriculum ideological and political teaching system into the OBE engineering professional certification, reversely designs the talent training scheme and curriculum system based on the OBE concept, builds a curriculum based on the integration of curriculum ideological and political elements, takes the innovation of Ideological and political content as the guide, and strengthens the curriculum ideological and political evaluation as the guide, The implementation process of Ideological and political education in the curriculum by means of various teaching methods; By decomposing the professional certification indicators, refining the ideological and political examination points of graduation requirements, establishing the supporting relationship matrix between graduation requirements and curriculum objectives, promoting the effective implementation of teaching content, teaching methods and evaluation methods with curriculum objectives, and finally realizing the curriculum ideological and political objectives of building virtue and cultivating people in the teaching of professional courses.

1. Introduction

Chinese higher education must insist on taking moral education as the central link, put ideological and political work throughout the entire process of education and teaching, realize the whole process of educating people, all-round education; Insist on the unity of explicit and implicit education, tap the ideological and political education resources contained in other courses and teaching methods, and realize all-around education for all students. It can be seen that teachers should find an organic fit between professional courses and ideological and political elements ^[1].

In the design process of a professional talent training program based on OBE engineering certification standards, there are no reasonable graduation requirements, curriculum objectives, and evaluation standards for curriculum ideological and political education. It can enable college students to establish a correct outlook on life, values, and world outlook. To truly implement ideological and political education in the curriculum, we must reform teaching skills, teaching content, teaching methods, and teaching evaluation based on the OBE concept, effectively achieve ideological education in teaching materials, classrooms, and minds, and truly give full play to the powerful role of ideological and political education in building morality and cultivating people.

2. Ideological and Political Education and Curriculum Ideological and Political Construction of the overall Ideological and Political Pattern

The core purpose of curriculum ideological and political construction is to require other professional courses and ideological and political education courses to carry out effective ideological and political education activities for students, and to ensure that the curriculum ideological and political education model is synchronized with other professional courses in terms of education.

Curriculum ideological and political education is based on drawing up a blueprint for educating people. By deepening the reform of curriculum goals, content, structure, mode, etc., the ideological and political education orientation such as political identity, national consciousness, cultural self-confidence, and personality development are organically integrated with the inherent knowledge and skills of various courses, to promote the free and comprehensive development of students and maximize the effect of curriculum ideological and political education.

The implementation of curriculum ideological and political education should improve the ideological and political level of the curriculum teaching team, strengthen the ideological and political research consciousness of the curriculum, and form a full-staff education mechanism that coordinates ideological and political teachers, professional teachers, and experts inside and outside the school; Clarify the functional positioning of ideological and political theory courses and professional courses in the process of ideological and political education, Solve the dilemma of "Islanding" of ideological and political theory course and the phenomenon of "two skins" of ideological and political education and professional education.

To carry out ideological and political education in a professional course, it must follow the characteristics of professional talent training and professional ability and quality requirements, Scientific and reasonable design of curriculum ideological and political teaching content, Innovate the new model of curriculum ideological and political education, strengthen each teacher's awareness of moral education, organically integrate ideological and political education elements into professional courses, and form an educational pattern that combines professional course teaching and ideological and political teaching closely and superimposes effects.

To carry out moral education at the university stage, it is necessary to strengthen students' value rationality through classroom education, but also to encourage students to transform value rationality into conscious behavior in practice, to realize the unity of knowledge and action. Integrate explicit education and implicit education in educational methods, and strengthen students' ideological education through curriculum teaching, campus atmosphere, practical training and practice. In explicit education, it is necessary to give play to the role of ideological and political courses and carry out education on the three views, education on ideals and beliefs, and education on national identity; It is necessary to break down the curriculum barriers, incorporate general education courses and professional courses into the ideological and political curriculum system, and build a "big thinking" pattern of ideological and political course + curriculum political thinking.

3. Curriculum Ideological and Political Design based on OBE Concept

3.1. Engineering Professional Certification based on OBE Concept

OBE (outcome based education) is a learning outcomes oriented, student-centered, continuous improvement education model^[5] proposed by Spady et al. In 1981.^[2] American engineering professional certification field has fully accepted the OBE idea, especially emphasizing the top-level reverse design concept, which runs through the engineering professional certification standards. OBE-based engineering professional certification adapts to the macro social background of the transition from industrialization to the information age and has also become an important concept that affects the development and reform of Chinese universities. The OBE concept is widely used in higher education engineering professional certification. This is no longer a narrowly defined result-oriented education. OBE embodies a systematic concept and action framework of professional education, including the core ideas, operating mechanisms, and results requirements of higher education.

Students at the center, emphasizing the resource allocation and teaching implementation to achieve the training objectives and graduation requirements; The teaching design and implementation are guided by learning outcomes, and the effectiveness of professional education is evaluated based on whether the student's learning achievements meet the core competence and requirements of graduates; Continuous improvement requires that the specialty must establish effective quality monitoring and continuous improvement mechanism, continuously track and

improve the effect, and promote the continuous improvement of engineering talent training quality^[3].

3.2. Curriculum Ideological and Political Integration into Engineering Professional Certification Index System

The guiding outline of ideological and political construction of courses in colleges and universities points out that the education of Marxist standpoint, viewpoint and methods should be combined with the cultivation of scientific spirit in the course teaching of engineering courses, so as to improve students' ability to correctly understand, analyze and solve problems. We should pay attention to strengthening students' engineering ethics education, cultivate students' spirit of great national craftsmanship, and stimulate students' national feelings and mission^[4] of serving the country through science and technology. Combined with the talent training objectives and graduation requirements of network engineering specialty and the support relationship matrix of the two, and in accordance with the requirements of the "guide for interpretation and use of general standards for engineering education accreditation 2018 edition", this paper decomposes the indicators of engineering and Society (Article 6), professional norms (article 8) and communication (Article 10) of graduation requirements of network engineering specialty, According to the requirements of item 8, the evaluation index of graduation ideological and political talents in Item 6 and item 10 of the graduation evaluation plan are broken down into two parts.

Table 1 Evaluation index of Ideological and Political Education.

Graduation requirements	First level indicators (part)	Engineering and Society (Article 6)	Professional norms (Article 8)	Communication (Article 10)
		Ability to make sound analyses based on engineering-related background knowledge, evaluate the social, health, safety, legal and cultural impacts of professional engineering practices and solutions to complex engineering problems, and understand the responsibilities to be assumed.	Have humanities and social science literacy, social responsibility, be able to understand and abide by engineering ethics and norms in engineering practice, and fulfill responsibilities.	Be able to effectively communicate and communicate with colleagues in the industry and the public on complex engineering issues, including writing reports and design manuscripts, making statements, clearly expressing or responding to instructions, and have a certain international perspective, and be able to communicate and communicate in an intercultural context.
	Principle of index decomposition	Relevant majors of each university decompose this examination point, and it is necessary to adhere to the guidance of Life Tree and Three All-Round Education, and examine the impact of engineering problem solutions on society, health, safety, law and culture.	Guided by the cultivation of the sense of unity of the Chinese nation, it emphasizes professional ethics and core socialist values	It emphasizes the importance of popularizing the universal language and characters, and firmly adheres to the major strategy of promoting the application of universal language and characters and textbooks compiled by the three subjects. We should strengthen Chinese cultural identity, strengthen cultural confidence and carry forward Chinese culture.
Second level ideological and political indicators	6.1 Understand the impact of technical standard system, intellectual property rights, industrial policies, laws and regulations, and different social cultures on engineering activities. Have conscience and abide by laws and regulations. 6.2 Be able to analyze and evaluate the impact of professional engineering practice on society, health, safety, law and culture. Abide by professional ethics and norms, respect life and health, high integrity and self-discipline.	8.1 Professional ethics of honesty, justice and integrity code; 8.2 Correct values, outlook on life and world outlook; 8.3 Practice the core socialist values; 8.4 Social responsibility to safeguard national unity.	10.1 Be able to use a common language to accurately express your views on professional issues, dare to think and dare to do, dare to try, pursue excellence, respond to questions, and understand the differences in communication with industry colleagues and the public. 10.2 Understand the international research hotspots in the professional field, have an international perspective of understanding and respecting different cultures in the world, and have the language and written expression skills for cross-cultural communication. Have innovative thinking and the spirit of dedication.	

3.3. The Supporting Relationship between the Ideological and Political Objectives of the Course and the Graduation Requirements

The curriculum ideological and political education in application-oriented universities is the integration process of moral cultivation, all-round education and whole process education. It requires all courses of various majors to contribute to education and establish the concept of collaborative education. Based on the supporting relationship between the ideological and political objectives and graduation requirements of the OBE concept design course, whether the curriculum objectives can effectively support the achievement of the corresponding graduation requirements is the main criterion to measure whether the curriculum system meets the OBE professional certification standards. The ideological and political objectives of professional courses with moral education as the core should effectively support the ideological and political indicators in the graduation requirements.

Graduation requirements determine the content of the curriculum objectives. Relying on the teachers team, enterprise experts and experts in the industry, we should fully investigate the talent training objectives, OBE professional certification indicators and ideological and political indicators of graduation requirements, establish the support relationship matrix of Ideological and political objectives of professional courses to graduation requirements, and determine the strong, medium, and strong of different professional courses for graduation ideological and political indicators^[5] 2 lists the supporting relationship of some courses, and formulates the ideological and political objectives of professional courses according to the ideological and political index points of graduation requirements.

Table 2 Supporting relationship between Ideological and political objectives and graduation requirements.

Graduation requirements	Primary indicators	Engineering and Society (Article 6)		Professional norms (Article 8)				Communication (Article 10)	
	Second level ideological and political indicators	6.1	6.2	8.1	8.2	8.3	8.4	10.1	10.2
Objectives of Ideological and Political Courses	Computer network	M	L	H	L	L	L	L	M
	Computer network security	H	H	L	L	L	M	L	L
	Cloud computing technology training	L	M	L	L	H	L	H	L
	Quality development course	L	L	L	H	H	H	L	L

According to Table 2, the computer network course has 1 high support point and 1 medium support point, and the rest is a weak support point, so the computer network engineering can establish 1-2 course ideological goals, weak support points ignore the establishment of course goals, according to Bloom's new teaching goal classification (Bloom's Taxonomy) as the framework to describe the course goals, the keywords that can be used in the course goals include "know, understand, apply, analyze, evaluate and create", compared with the system, Each professional course can carry out the construction of a multi-level classification of ideological and political material library and the formulation of the curriculum outline, and the design of professional teachers in the ideological and political education link of the professional course outline can be more focused, which greatly improves the effectiveness and pertinence of ideological and political education. Table 3 formulates an OBE-based syllabus framework that links the ideological objectives of the curriculum with supporting graduation requirements decomposition indicator points; links the teaching content and teaching methods of the curriculum with the ideological and political objectives of the

curriculum; Link assessment methods and scoring standards of the course with the ideological and political objectives of the course.

Professional practice courses and quality development courses are important comprehensive learning courses for engineering majors. They are mainly concentrated in the senior year. At this stage, the learning effect is tested through professional experiments and a graduation thesis (design). While guiding their studies, teachers should also highly attach importance to guiding and helping students to establish a correct outlook on employment and career selection, professional ethics and dedication.

Table 3 Syllabus framework.

Syllabus						
Curriculum	Ideological and political objectives of curriculum	Correspondence of graduation requirements	Content of courses	Teaching method	Assessment method	Evaluation criterion
Computer network	Course Ideological and political goal 1	Graduation requirements 8.1 (H)	Excavate the teaching content of professional ethics contained in the course.	Teaching method Discussion method ...	Usual performance Homework after class Periodic examination ...	The evaluation criteria for effectively achieving the ideological and political objectives of the curriculum.
	Course Ideological and political goal 2	Graduation requirements 6.1 (m) and 10.2 (M)	The course carries the teaching contents of law-abiding, dedication and innovation ability.	Practice method Case law ...	Usual performance Practice project Essay	The evaluation criteria for effectively achieving the ideological and political objectives of the curriculum.
Computer network security
Quality development course	Course Ideological and political goal 1	Graduation Requirements 8.2 (H)	Correct values, outlook on life and world outlook	Project Teaching Case teaching On-the-spot investigation Red Education	Comprehensive consideration of learning attitude, professional quality, political quality and social responsibility and other unstructured data	In addition to homework and attitude evaluation, more attention should be paid to practice evaluation and self-evaluation
	Course Ideological and political goal 2	Graduation Requirements 8.3 (H)	Practicing Socialist Core Values			
	Course Ideological and political goal 3	Graduation Requirements 8.4 (H)	Building a strong sense of community of the Chinese nation			

4. The Implementation of Ideological and Political Teaching Based on OBE Concept

4.1. Ideological and Political Teaching Framework based on OBE Concept

In the network engineering specialty, the teaching system of professional course and curriculum ideological and political education is formulated. In accordance with the spirit of General Secretary Jinping Xi's moral education and implementation of curriculum ideological and political education, and with the guidance outline of curriculum ideological and political construction in colleges and universities as the teaching guidance, the OBE certification index is fully interpreted, and the ideological and political education of curriculum is integrated into the OBE engineering education certification, realize the organic unity of Ideological and political education and professional knowledge system education. Education and teaching will discard the traditional education concept, break through the traditional education paradigm, build a new education carrier, and construct a four-in-one curriculum ideological and political teaching system based on the OBE engineering certification standard, which is based on the ideological and political integration of curriculum, guided by innovative ideological and political content, guided by strengthening the ideological and political evaluation of curriculum, and using various teaching methods as means.. The fundamental task of teaching and educating people is to integrate ideological and political education into the

teaching system of professional courses and penetrate into the whole process of school education and teaching.

4.2. Research on the Integration of Innovative Professional Courses and Ideological and Political Elements

Based on the research on the talent training mode of Ideological and political education and network engineering, this paper constructs a three-dimensional teaching system with ideological and political education courses as the main body, which runs through the whole process of education, innovates the new mode of Ideological and political elements integration, and explores the new method of seamless integration of Ideological and political elements into professional courses teaching.

(1)The ideological and political content is embedded in the professional teaching content^[6]. For example, the basic course in computer application can use national unity cases or excellent Chinese cultural stories as documentary materials to explain the knowledge of text typesetting. In the process of learning to typeset, students implicitly accept the education of national unity and traditional Chinese culture. Through the association of professional knowledge points to the ideological and political elements, using a mind map to carry out ideological and political teaching design in professional course teaching, for example, computer network course can extend the corresponding ideological and political elements through professional knowledge points.

(2)In the process of experiment, practice and training, the ideological and political contents of the course are implemented, and the network engineering projects with the ideological and political background are used as the practical training contents, such as deploying the Huawei network communication system, designing Ruijie network engineering wiring, etc., so as to deepen the understanding of domestic brands and establish national pride.

Rich professional courses and ideological and political knowledge point to a variety of ways to achieve ideological and political education and professional education opposite, forming a superposition effect.

4.3. Carefully Design the Ideological and Political Content of the Course

In the university stage, we should cultivate high-quality talents and carry out teaching according to the talent training plan and curriculum objectives. The teaching content of professional courses should not only reflect the characteristics of high-level, innovation and challenge. In addition, the teaching content should be scientific, professional and ideological and political. The curriculum objectives should be in line with the industry and social needs. Teaching should not only reflect the teaching of professional knowledge and skills, but also have the innovative thinking of Integrating Ideological and political education into the teaching of professional courses. In the process of Ideological and political content construction, innovative thinking should be used to promote new ideas and seek new development with new ideas^[7] hods are used to solve new problems.

The ideological and political content of the course should closely follow the mainstream of social development, reflecting historical thinking, dialectical thinking, systematic thinking and innovative thinking. The content design should be combined with universality and pertinence, unity and diversity, and regional and national characteristics. The ideological content context should be clear to form a complete ideological and political education content system. Teachers need to study systematically the important documents of General Secretary Jinping Xi on ethnic work; We should deeply grasp the core meaning and rich connotation of "building a strong sense of community of the Chinese nation"; Accurately understand the important contents of socialist core values and "five identities"; We should firmly adhere to the major national strategy of promoting the application of common language and characters and textbooks compiled by the three subjects; Carry forward the excellent Chinese culture and enhance the self-confidence of national culture. Ideological and political education is carried out through philosophical thinking, advanced deeds of characters, national current affairs and policies, major historical events, heavy equipment education of great powers, and typical cases of national unity.

4.4. Research on Innovative Teaching Methods

The teaching of professional courses should reflect ideological and political education, but professional courses are not equal to ideological and political courses, The teaching process avoids the color of ideological indoctrination, and it is necessary to be silent, and in the reform of curriculum teaching methods, make full use of case teaching, associative teaching, task teaching, project teaching, inquiry teaching, and inspirational teaching, and fully combine ideological and political elements with the knowledge points of the curriculum and integrate them naturally. For the teaching of different knowledge links, targeted design, the theoretical system link can flexibly use MOOCs, micro-lessons, flipped classrooms and other online and offline hybrid teaching modes, supplemented by problem inspiration, case analysis, teamwork, group discussion, group competition and other methods. Deeply excavating the combination of ideological elements and professional knowledge points of the embedded curriculum, the integrated curriculum and the experimental practical training course, students can not only master the professional knowledge and skills of this course but also receive ideological and political education with patriotism as the core.

4.5. Innovative Curriculum Ideological and Political Evaluation Mechanism

If professional courses want to implement curriculum ideological and political, they must evaluate the effect of ideological and political teaching, and pay attention to whether the curriculum goals are achieved, otherwise it is difficult to reflect the results of curriculum reform and teaching. Many ideological and political teaching goals belong to implicit results, such as cultural literacy, professional literacy, values, etc. The ideological and political content is not only learned through book knowledge, but also requires students to experience, observe, and perception. Therefore, many ideological and political teaching indicators are difficult to measure significantly.

The ideological and political assessment and evaluation of the curriculum should adhere to the educational orientation of Lide Shuren, and implement the principle requirements of "improving the evaluation of results, strengthening the evaluation of the process, exploring value-added evaluation, and improving the comprehensive evaluation" proposed in the "Overall Plan for Deepening the Evaluation of Education in the New Era", strictly evaluate the process, and increase the proportion of the process assessment score in the course performance. In the entire teaching stage of professional course from the beginning to the end of the course, a variety of assessment and evaluation methods such as process evaluation, performance evaluation, comprehensive evaluation and outcome evaluation can be adopted.

The evaluation of the final examination cannot significantly measure the effect of ideological and political teaching, it is suggested that the weight of this part can be moderately reduced, and the weight of the ideological and political evaluation of the curriculum can be explored in the process evaluation, such as classroom questions, classroom performance, inquiry-based homework, phased program development, staged papers, group discussions, etc. The evaluation methods can be integrated into the ideological and political evaluation indicators, and the evaluation pays more attention to the evaluation of the internal indicators such as students' attitudes, emotions, professionalism and values in the learning process.

Different types of courses and course objectives adopt different evaluation methods, and the ideological and political evaluation ratio of courses with higher support for courses with higher ideological and political goals and graduation requirements, such as graduation thesis, graduation design, graduation internship training and quality development courses, has a higher degree of support for graduation requirements, so the overall evaluation score of these courses has significantly increased the proportion of course ideological and political evaluation, and the comprehensive evaluation method has been increased.

4.6. Continuous Improvement

Important part of OBE engineering professional certification is continuous improvement, and the concept of continuous improvement is to emphasize the all-round and whole-process monitoring and evaluation of talent training; And there is a system guarantee that this evaluation result will be

used for teaching improvement, forming a closed loop of "evaluation, analysis, feedback and improvement".Promote the improvement of the quality of engineering professional training.The focus of evaluation is whether the teaching effect meets the requirements of the curriculum objectives, whether it meets the graduation requirements, and whether it meets the requirements of the talent training objectives. Through these achievement evaluations, we can find shortcomings, find problems, and continuously improve the quality of the curriculum.

The analysis of the achievement of the ideological and political goals of the course should change the traditional analysis of only the achievement of the assessment score and ignore the analysis of the performance and development of the ideological and political aspects, and the ideological and political objectives of the course should be analyzed one by one under the concept of OBE, such as the assessment method, the weight of the score, the evaluation standard, the target score, the actual score and the goal achievement degree score of a certain course, analyze the achievement of the ideological and political goals of the course, find the main problems, and propose rectification measures.

In the process of evaluation and analysis of curriculum ideological and political goals, it is necessary to avoid the emergence of problems such as single result evaluation, proposition non-benchmarking, lack of high-order ability test, process evaluation flowing into form, no standard score, and simple calculation of support index points.Effectively improve the course assessment methods, promote the achievement of abilities related to the ideological and political goals of the course, provide ability evaluation data for the evaluation of graduation requirements, and provide the most basic data support for continuous improvement.

5. Conclusion

According to the 12 graduation requirements proposed by the Chinese engineering professional certification standards, many of them are not technical level ability. requirements but involve personal literacy and spiritual level, such as engineering and society, professional norms, environment, sustainable development, individuals and teams, etc. This paper explores the cultivation of these non-technical qualities and abilities into the scope of great political thinking, constructing professional course ideological indicators and integrating them into engineering certification standards, according to the correspondence between graduation requirements indicator points and professional course ideological goals. Clarify the functional positioning of each professional course in the process of ideological and political education.

The integration of curriculum ideological and political education into the professional engineering certification is an attempt and exploration of curriculum ideological and political teaching, which will provide theoretical support for discipline construction and application-oriented talent training.

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