

Research on the Way of Integrating "Curriculum Ideology and Politics" into Technical Courses under the Background of Engineering Certification

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Abstract. In the new situation of engineering education certification, this paper analyzes the significance and practical significance of "curriculum ideological and political" integrating into technical courses. In view of the problems such as the absence of ideology, the lack of information means and the lack of ideological and political teaching ability of teachers, the specific implementation path is put forward. We should focus on optimizing the teacher system, teaching system and evaluation system, and actively build a series of typical examples of engineering certification and ideological and political education and form a system.

Keywords: Engineering certification; Curriculum ideological and political; Teaching mode; OBE

1 Introduction

At present, the integration of "Curriculum Ideology and Politics" into undergraduate professional courses is a major trend in the development of higher education in China. General Secretary Xi Jinping emphasized at the National Conference on Ideological and Political Work in Colleges and Universities in 2016 that to do a good job of ideological and political work in colleges and universities, it is necessary to change according to the events, advance according to the times, and be new according to the situation. To use the classroom teaching as the main channel, ideological and political theory courses should adhere to the improvement in the strengthening, so that all kinds of courses and the ideological and political theory courses are in the same direction to form a synergistic effect^[1], thus pointing out the direction of China's higher education career development.

Engineering accreditation is an important foundation for realizing international mutual recognition of engineering education and international mutual recognition of engineers' qualifications. With engineering certification as the carrier of technical courses, 12 specific graduation requirement standards have been proposed, which take complex engineering problems as the core, and through analysis, research, design and development of solutions, cultivate students' ability to solve complex engineering problems, as well as the ability to comprehensively apply multidisciplinary knowledge to conduct cross-disciplinary research, and students should be guided to recognize the connectivity between things in the process of researching and solving problems, and also Students are required to establish correct values

and scientific practice literacy^[2]. Therefore, Therefore, the combination of engineering accreditation and "Curriculum Ideology and Politics" is an inevitability of the times.

2 The Main Problems of Integrating "Curriculum Ideology and Politics" into Technical Courses

2.1 Professional Ideology is Lacking and the Disciplinary System Needs to be Optimized

The difficulty of implementing "Curriculum Ideology and Politics" in technical courses lies in the fact that the nature of the courses determines that there is an imbalance between the cultivation of knowledge and the cultivation of ideology. The "Professional Norms" and "Lifelong Learning" indicators included in engineering certification put forward specific requirements for students' humanistic qualities, sense of social responsibility, sense of independent learning and adaptive development ability. The teaching and learning process of most technical courses includes various principles and technical applications, and the teaching focuses on the truth-seeking of knowledge and the cultivation of practical ability, with weak ideology, which gradually hides the rich ideological and political connotations of national sentiment, the four self-confidence, traditional virtues, engineering ethics and the spirit of science, etc., which are closely related to the specialty and indispensable to students' entry into the society and their workplaces in the future. Under the background of engineering certification, it is clear that the key of "Curriculum Ideology and Politics" lies in the implementation of Civic and Political Education into the whole process of professional talent cultivation, and in every link of student cultivation such as cultivation program, teaching syllabus and teaching organization, which is closely aligned with its own characteristics and social needs. The syllabus must keep up with the development of the times and reasonably integrate the elements of Civics and Politics into the course content on the basis of the OBE teaching concept, and reflect them in the graduation requirement index points, so as to make the professional courses reach the standard of "Golden Course" and turn the specialty into a first-class specialty.

2.2 Informatized Teaching Means are Scarce and the Mechanism of Collaborative Education Needs to be Reformed

Engineering certification puts forward requirements for students in several aspects of mastering engineering knowledge, analyzing the ability to analyze problems and proposing solutions to complex engineering problems. However, in the process of promoting the practice of technical courses' Civics construction, there are a series of imbalances, which include the status of the courses, the degree of attention and the level of professionalism^[3]. On the one hand, because the training process of technical courses is more skill-oriented and practical, mainly based on offline courses, it is easy to focus on the cultivation of logical thinking and less on humanistic thinking, and more practical links can not be well combined with Civic and political education, resulting in students' low motivation for Civic and political education^[4]. Therefore, under the call of promoting "Curriculum Ideology and Politics" in the whole person and in the whole process, technical courses should actively expand the means of informatization parenting, carry out the reform of blended teaching, treat the theory of

network parenting as a long-term exploration and research topic, and constantly discover and summarize the new development, new laws and new methods of ideological education in the network environment.

2.3 Teachers' Teaching Ability is Challenged and the Awareness of Civics Needs to be Improved

Teachers are the key subject of "curriculum politics" to play the role of a link, which puts forward higher requirements for each professional teacher, the most basic change is that teachers have to change from the past education focusing only on the transmission of knowledge to the dual task of both knowledge transmission and value leadership^[5]. On the one hand, teachers are required to maintain political sensitivity, and dig deeper into the different elements of Civic and Political education contained in different majors, different courses, and even different chapters of the same course, which greatly increases the difficulty of teachers in preparing and teaching, and greatly tests their knowledge and ability to always integrate the basic Marxist position and viewpoints and methodology into the education and teaching of the courses. On the other hand, teachers are required to have certain teaching wisdom, which not only requires teachers to have good political quality, but also requires teachers to have imagination, creativity and superior teaching skills.

3 The Implementation Path of "Curriculum Ideology and Politics" into Technical Courses

3.1 Fostering a System of Teachers that Combines Ethics and Competence with Humanistic Endeavors

In the context of engineering professional certification, the main body of classroom teaching is changed from the teacher to the students, and the teaching mode is changed from the one-way mode of "the teacher imparts knowledge and the students receive knowledge" to the two-way mode of "student-centered, tailored to the needs of the students"^[6]. The teaching process focuses on interactive innovation, such as in the group cooperation session, the teacher combines the knowledge of the course to design a rich selection of Civics and Politics, giving students more choice; in the classroom debate session, the teacher takes the interesting Civics and Politics case as the inspiration point, the teacher-student and the student-student interactions, giving students more discourse rights, focusing on increasing the sense of identity of the students on Civics and Politics education.

3.2 Constructing a Teaching System that Synergizes the Transfer of Knowledge and the Development of "Curriculum Ideology and Politics"

The engineering professional certification puts forward 12 graduation requirements and corresponding index points, which increase the implementation of the fundamental task of moral education, how to combine the moral education elements of "Curriculum Ideology and Politics" with the certification of the engineering profession to form a new teaching system is the focus of the current teaching reform^[7].

The first is to plan the teaching path and integrate the elements of political thinking. First of all, teachers are the designers of the teaching path, and the integration of Civics into technical courses should always be centered on the "two goals" of Civics education, and be implemented in accordance with the "three-step" program of "before class, during class and after class"(see Figure 1). Before the class, reasonable planning, clear professional knowledge and humanistic objectives, formulate the teacher team capacity enhancement plan, and reasonably design the way of integrating Civics and Politics; During the class, teachers should naturally teach, find the right time to enter the timing and length of the class, strengthen the interaction between teachers and students, and tap the potential of the students; After the class, integrate the application, and cultivate the students' daily manners and awareness of rules. Secondly, the technical courses are mostly professional backbone courses and core courses, and in the development of the content system, they follow the composite route of "upward - downward", and "upward" tapping into the elements of Civic and Political Integration, which can be from the rise of a great nation, moral education, philosophical thinking, scientific methods, four self-confidence, national sentiment, engineering ethics and awareness of the rule of law, etc., to form the knowledge system and map of the ideological and political education of technical courses, and "downstream" to design the way of integrating the ideological and political elements to form the unique arrangement of the knowledge of the ideological and political education of the courses.

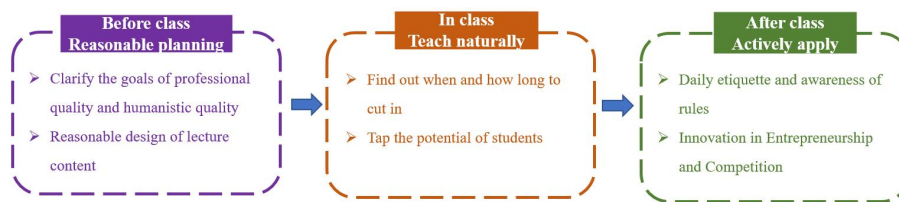


Fig.1. Three steps to integrate " Curriculum Ideology and Politics " into technical courses

The second is the development of teaching and learning software, expanding the platform for educating people. Engineering certification has put forward higher requirements for the "depth" and "breadth" of the professional curriculum in the industry and industrial areas, which also echoes the goal of "curriculum politics" to --Cultivate students with comprehensive development of knowledge, ability and moral values^[8]. The teaching team can develop teaching aid software to provide various complex algorithm demonstrations, special tests and online interactive functions included in technical courses, turning abstract into concrete. On this basis, students are instructed to develop microclasses on important algorithms such as encryption and decryption and digital signatures, which will enhance the fun of learning with animation, help students understand abstract algorithms, eliminate the fear of difficulty, and stimulate the interest and confidence in their professional learning^[9]. Meanwhile, in teamwork, students further enhance their practical and cooperative abilities, and shape the vocational skills and professionalism of the successors of the Internet industry in the new era.

3.3 Improvement of Assessment Methods and the Evaluation System of Feedback Improvement of "Curriculum Ideology and Politics"

On the one hand, combining the 12 index points of graduation requirements for engineering certification and the achievement goal of "Curriculum Ideology and Politics"^[10], the assessment system of "Curriculum Ideology and Politics" can be refined under the original blended teaching and assessment method, and the assessment system can be adopted to evaluate the teaching of the course from the aspects of course achievement from the pre-course, in-course and post-course^[11]. On the other hand, based on the development of students, we adopt the "four-side" mode of "teaching-evaluation-reflection-improvement", which adopts both quantitative and qualitative evaluation. Quantitative evaluation is mainly based on the assessment indicators to find out the problems in the teaching process, improve the teaching methods and optimize the teaching design in a targeted and timely manner; qualitative evaluation is mainly based on the questionnaire survey method, which is carried out at the end of the semester after the completion of the teaching tasks and statistically analyzed in response to the teaching situation of the "Curriculum Ideology and Politics", and at the same time, "teaching observation" is introduced.

4 Conclusions

The integration of engineering certification and course ideology and politics is a major trend of the times. Combined with the engineering certification and the teaching requirements of technical courses, this study points out the three major problems of the current technical courses, such as the lack of ideology, the lack of informatization means of educating people, and the lack of teachers' ability in Civics and Politics teaching. Aiming at these problems, specific implementation paths are put forward from the teacher system, teaching system and evaluation system, which provide references for the integration of Civic-Political thinking into technical courses under the background of engineering certification.

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