

Research on the Teaching Innovation Path of Installation Engineering Measurement and Pricing through “OBE Concept Plus Course Ideological and Political Education”

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Abstract: Installation engineering measurement and valuation is a theoretical and practical professional course. This study mainly explores the construction of the course from the aspects of course characteristics, students' learning situation, teaching methods, teaching modes, etc., integrates the OBE concept into the curriculum politics and actual teaching of the course, explores the ideological and political elements in combination with the exact links of the course teaching, combines the ideological and political goals with the course tasks, and provides student-centered teaching resources. The optimization methods of teaching links, such as teaching strategies and teaching assessments, complete the transformation from “teacher teaching” to “student learning”. This is to cultivate students' interest in learning and establish correct socialist core values.

1. Introduction

Based on the notice of 2020 *University Curriculum Ideological and Political Construction Guidance* issued by the Ministry of Education, this study will incorporate ideological and social education into the entire system of providing talents for the motherland, and promote the ideological and political construction of college curriculum in an all-round, multi-angle and multi-level way. This study gives full play to the educational effect of various courses and improves the construction of college talent team; Cultivate comprehensive quality [1, 2]. The purpose of this study is to extract ideological and political elements from professional courses in order to guide students in the practice of socialist core values, while also promoting the ideological and political construction of college courses in a comprehensive manner, taking the study on installation engineering measurement and pricing as an example. The OBE concept is certified by the American Engineering Education Accreditation Association. It aims to break through traditional teaching problems. From the perspective of results-oriented and continuous improvement, it highlights the frontier of teaching resources and the key to educational results, innovates the traditional single teaching mode, and focuses on training students' practical ability. This study integrates ideological

and political elements in installation engineering measurement and valuation [3, 4]. It aims to break traditional teaching problems. From the perspective of achievement orientation and continuous optimization, students are confident to establish lofty ideals, shape the teaching system of *Installation Engineering Measurement and Valuation* with craftsman spirit, and finally promote the achievement of the teaching goal of “OBE concept + curriculum ideological and political education”

2. The Necessity of Ideological and Political Teaching Reform of Installation Engineering Measurement and Valuation Course under the OBE Concept

The difference between the OBE education concept and the traditional teaching concept lies in the different perspectives on imparting knowledge. It pays more attention to learners' feelings and aims at their learning results. That is to formulate the educational concept of talent training goals oriented by learners' future achievements such as professional knowledge, basic quality and basic skills. The state points out that the effectiveness of moral education is the fundamental requirement for testing all the school work. Therefore, when designing the reverse teaching task in combination with the OBE education concept, it is necessary to refine the ideological and political elements in each chapter carefully. It is also required to run ideological and political content throughout the whole teaching process. This will not only help to achieve teaching reform but also further enhance students' ideological and political quality.

3. The Current State of Installation Engineering Measurement and Valuation Course Teaching

3.1 The ideological and political teaching ideas of the Installation Engineering Measurement and Valuation Course under the OBE concept are unclear

At present, the teaching of engineering measurement and valuation courses focuses on professional practice and practical application. However, it often ignores the integration of process assessment and ideological and political education. The main goal of teaching is to impart professional knowledge, and to evaluate students' learning results through grades, showing a passive mode of “teacher teaching” instead of “student learning”. Teachers' teaching ideas are often limited to the completion of curriculum requirements, with less ideological and political content in the curriculum. In addition, there is a lack of interaction with students. Teaching fails to find, analyze and solve problems independently in practice and lacks opportunities for independent learning. It is not conducive to students' independent exploration and interest cultivation and the establishment of good socialist core values. This is not in line with the needs of today's society for independent and talented talents. While some colleges and universities actively promote the application of the OBE concept to the installation engineering measurement and valuation course, their effectiveness is not obvious. The main problem is that the connection between the professional course content and the ideological and political course is more difficult, and some teachers are not in place to condense the ideological and political elements in the course, which makes the introduction of ideological and political content in the classroom stiffer.

3.2 Lack of professional teacher training

The implementation of ideological and political education in the course of installation engineering measurement and valuation under the OBE concept is inseparable from teachers who have a comprehensive and profound understanding of the construction of specialized courses. At

present, the teaching method of the Installation Engineering Measurement and Valuation course has not fully met course construction requirements. The main reason is that teachers have not deeply explored ideological and political elements in the teaching content. In addition, the arrangement of class hours is insufficient, which leads to the neglect of the cultivation of students' problem-solving abilities when completing teaching tasks. In addition, there is a lack of effective communication between installation engineering measurement and valuation teachers and ideological and political teachers. This largely hinders the effective implementation of curriculum ideological and political education under the OBE concept.

3.3 The installation engineering measurement and valuation course teaching method is not flexible enough

Traditional courses teach several cases in textbooks. Teachers focus on imparting professional knowledge, and the teaching of courses is out of touch with ideological education, ignoring the development of students' moral education. Due to limited class hours and heavy tasks, most teachers ignore ideological and political education and lack incentives for students to complete teaching tasks. This leads to students' lack of recognition of professional learning. In addition, they fail to clearly understand the far-reaching impact of the knowledge they have learned on the future construction of the motherland. The traditional “curriculum ideological and political” construction method is too narrow to arouse students' national self-confidence and pride. It fails to give affirmation and enough attention to students' emotional expression in time. There are problems such as poor pertinence and weak timeliness, resulting in the poor effect of “curriculum ideological and political”, and efforts yield little results. The instructor dominates the students' learning process; the assessment method is single, and the lack of process assessment, especially the integration of ideological and political content, is less. Students are in a state of passive learning, lack enthusiasm for learning, and teachers struggle to achieve the expected teaching effect.

4. The Implementation of Ideological and Political Teaching Reform of the Installation Engineering Measurement and Valuation Course under the OBE Concept

4.1 Ideological and political education ideas for installation engineering measurement and valuation course based on OBE concept

The teaching objectives of the installation engineering measurement and valuation course are employment-oriented, with ability training as the core, students' independent mastery of installation engineering measurement and valuation skills as the goal, the general process of installation engineering measurement and valuation as the main line, the whole process of student-centered, teacher counseling. By testing whether the students achieve the specific training objectives to test the teaching results, and then reversely designing the teaching courseware, syllabus and other contents that are both interesting to the students and consistent with the teaching objectives and in the teaching process through repeated exploration and continuous improvement by the students, we are committed to creating a complete set of student-centered teaching results to meet the training objectives of an efficient and feasible teaching theory system.

The construction of the “4+6” teaching mode: summarize the current teaching mode and dig deep into the ideological and political elements of the course. Here, 4 is based on modular teaching considering “four play”. (That is, to give full play to the accuracy of offline practical operation, to give full play to the openness of excellent online courses, to provide full play to the innovation of group cooperation, and to provide full play to the dominance of their ability). The foundation of ideological and political education is to cultivate people by virtue; 6 is “six forces” (That is: to

strengthen students' ideals and beliefs, to develop students' patriotism, to strengthen students' moral cultivation, to exercise students' unity and cooperation, to cultivate students' concern about current affairs, and to enhance students' professional ethics). The central idea is to work together to educate people. It takes students as the center and implements the “six ideological and political” education in concentric circles. The main framework is to add specific content, such as on-site visits and field trips, to the three-dimensional multi-combination teaching content. The particular means are the combination of explicit and implicit, exploring the ideological and political elements of each chapter and integrating them into the teaching process. This is so that students can improve their self-cultivation and cultivate good quality while learning professional courses. The teaching idea is scientific innovation, paying attention to teaching students in accordance with their aptitude, combining students ' thinking mode, learning method, behavior habits and other characteristics to design ideological and political content, stimulate students' patriotic enthusiasm, and make them confident to become a qualified socialist builder and successor.

4.2 Reform and innovation of teaching modes and teaching carrier

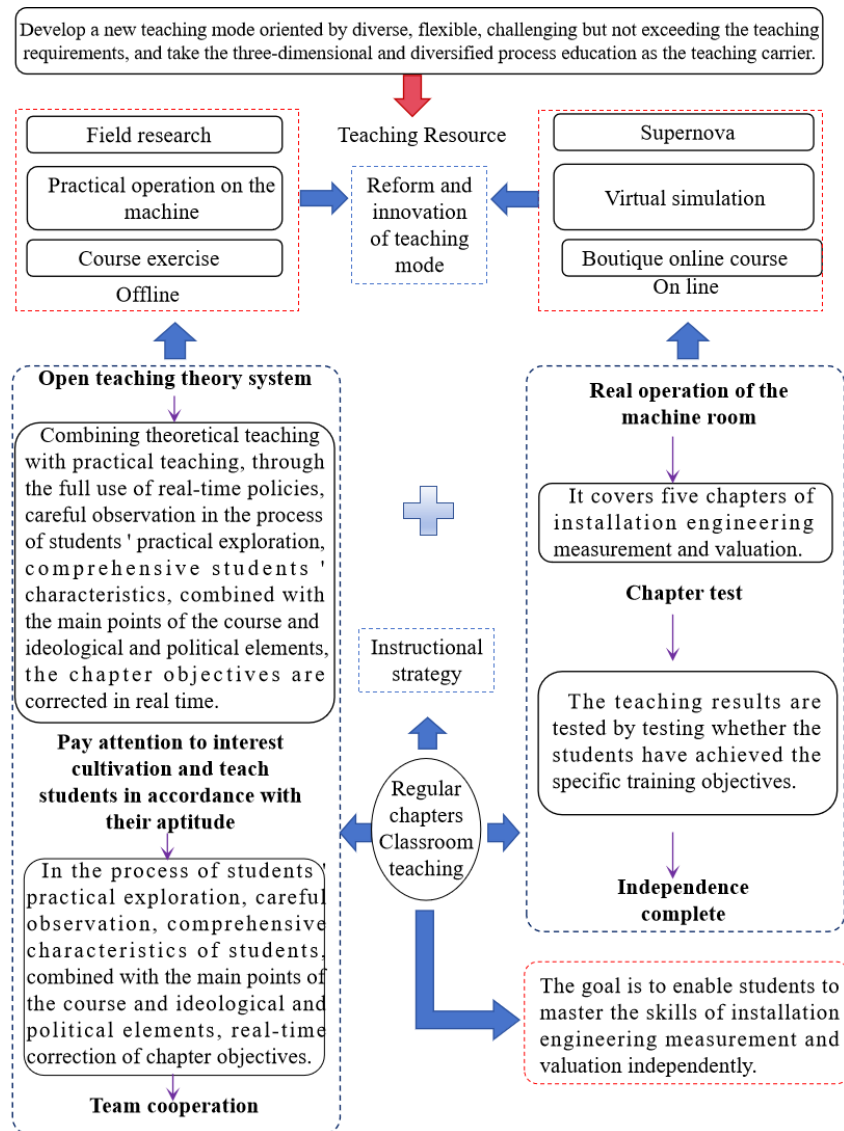


Figure 1. Reform and innovation of teaching mode and teaching carrier

There are also differences in talent demand at different stages. Under the guidance of the “OBE concept + curriculum ideological and political”, we must dare to explore innovative teaching models. This requires teachers to explore ideological and political elements in the four modules of using offline practical operation, using online excellent courses, using team cooperation, and using their own abilities. Set the goals of each chapter and take this as a guide, guide students to carry out purposeful, practical exploration through real-time correction of subsequent chapters through actual effects, and implement diversified teaching methods such as network platforms and multimedia teaching to help students establish correct values. The combination of theoretical teaching and practical teaching, through the full use of real-time policies, careful observation in the process of students' “practical exploration, comprehensive students” characteristics, combined with the main points of the course and ideological and political elements, correct the chapter objectives in real-time, through more diverse, flexible, challenging but not exceeding the teaching requirements. The goal is oriented, and concise ideological and political content is integrated into the process to give full play to the function of process education. The specific reform and innovation teaching modes and teaching carriers are shown in Figure 1.

When explaining the course of installation engineering measurement and valuation, teachers should not only pay attention to students' intellectual education but also to the development of moral education. Moral quality is the soul of humans. What kind of people to cultivate, how to grow people and for who to cultivate people have always been considered the fundamental problem of education. The innovative teaching mode of “OBE concept + curriculum ideological and political” should take three-dimensional and diversified process education as the carrier. Table 1 shows the ideological and political education method of the installation engineering measurement and valuation course based on the OBE concept.

Table 1. Ideological and political education method of installation engineering measurement and valuation course based on OBE concept

Chapter Name	Knowledge Points Covered	Ideological and Political Entry Point	Intended Learning Out Comes
Overview of installation engineering cost	Installation project budget quota, installation project cost basic concept, installation project cost calculation, list quotation preparation	Socialist core values and personal ideals are integrated into social ideals	Let students establish correct socialist core values, spread social positive energy, and correctly understand the relationship between personal ideals and social ideals. This is while learning and understanding the courses they have learned.
Bill of quantities measurement valuation	Preliminary understanding of engineering quantity list valuation, preparation requirements and content of engineering quantity list	Craftsman spirit, honesty and trustworthiness, social responsibility.	In the process of operation, students intentionally grasp the accuracy of each data in each process, clearly understand the origin of the data, and make students realize that the data derived from the course itself can contribute to the construction of the project, have practical significance and play a decisive role.
valuation measuring in water supply and drainage engineering	Water supply engineering, drainage engineering, sanitary equipment, calculation regulations	National self-confidence, national pride	Combined with practical problems and engineering cases, students can be praised as a good "shoddy" one. We can't lose the big because of the small, and don't do it because the evil is small. It cultivates students' national self-confidence, national pride and craftsman spirit.
Heating and oil brushing insulation engineering	Heating engineering, oil brushing insulation engineering, calculation regulations	Promote the 'double carbon' goal and practice low-carbon travel	When teaching the content of the class, combined with micro-video, students are encouraged to think about environmental issues, and students are encouraged to build an

measurement valuation			ecological civilization. They believe that green mountains and green mountains are golden mountains and silver mountains. They firmly believe that people cannot afford green mountains and green mountains.
Measurement and pricing of building electrical engineering	Electrical equipment installation cases, electrical engineering quantity list pricing rules and methods	Energy saving, environmental protection, green development	Enhance students' awareness of energy conservation and environmental protection, cultivate students' good habits of 'energy conservation and environmental protection, green life', and let students understand through micro-video: although China is a populous country, why does China not lack electricity, or even external transmission. Cultivate students' national self-confidence and pride, and feel the power of a big country.

4.3 Teaching design of Installation Engineering Measurement and Valuation Course under “OBE concept + curriculum ideology and politics”

Taking the measurement and pricing module of water supply and drainage engineering as an example, after the release of the chapter task, the group independently discusses the harm caused by the leakage of floor heating so that students can realize the loss caused by the bad project to the owner, understand the importance of ensuring construction quality, and firm the determination to do the conscience project. In the process of learning professional knowledge, the elastic oil tank of a hydro-generator, which big country craftsmen have mainly processed for more than 30 years, is introduced to process high-precision parts for *J-15* carrier-based aircraft. Its self-made improvement tools are hundreds of pieces, and the machining accuracy is close to zero tolerance to cultivate students' basic consciousness of fine measurement and valuation skills.

In terms of learning the measurement and valuation of installation engineering, through the content of Yin Yilin's "Engineering cost is a small professional Article on Big Management Problems", this study makes students realize that the engineering cost major is "small major and big energy", and the so-called "small major" means that the output value of engineering cost consulting is 1/5 of the entire survey and design industry and 1/2 of the engineering supervision industry. There are 240,000 cost engineers and 800,000 cost consulting practitioners in the project cost output value. One million employees manage more than 60 trillion yuan of fixed asset investment in China. The preparation of construction project pre-settlement is a very complex process that must be carefully handled with the integration of technology and economic accounting work.

At the symposium on cultural inheritance and development, it was emphasized that the creative transformation and innovative development of Chinese excellent traditional culture. This is, to transform classical Chinese into a variety of easy-to-understand ballads and further develop and improve the wonderful works. Similarly, in the teaching design of the installation engineering measurement and valuation module, teachers can transform the teaching content into a teaching form that students love when designing tasks. The whole process is mainly based on students "learning and supplemented by teachers" teaching, subtly integrating ideological and political elements into it, firmly casting the soul for the national rejuvenation bacon, paying attention to the cultivation of students' core literacy, and creating open conditions to diverge the unique pioneering thinking of the student era. In the process, we encourage and respect every seemingly unrestrained idea of students so as to stimulate students' subjective initiative in learning, pay attention to teaching students in accordance with their aptitude, correct the follow-up content in real-time according to the test performance of each chapter of students, establish industry confidence, and

show industry responsibility. In the application process, we design feasible teaching objectives according to the actual situation.

Combining ideological and political content requires a professional teacher team. Therefore, when forming a curriculum ideological and political team, a professional ideological and political course teacher is hired as a team instructor. This teacher guides team teachers in ideological and political teaching design, enters the classroom for on-site review, and helps team teachers find problems and solve problems. Additionally, team teachers are encouraged to participate in various teaching competitions to promote teaching and improve ideology and political integration abilities.

5. Conclusion

Installation engineering measurement and valuation are closely related to practical engineering. Cost personnel needs to have a correct outlook on life, values, and the world. These excellent qualities will be subtly integrated into the post. This course is rich in ideological and political elements, and it is also necessary to explore the core ideological and political elements in depth.

At the individual level, the social level and the national level, students are guided by ideological and political education. At the same time, the student-oriented curriculum content is designed to make students more purposeful, more confident and more responsible to carry out learning and practical exploration. By strengthening the cultivation of practical teaching ability, students can enhance their practical ability. They can also master theoretical knowledge and practical ability, and have a good reference value for the improvement of the comprehensive quality of applied undergraduate colleges and universities.

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