

Construction and Exploration of Integrating Ideological and Political Education into The Course of “Tolerance and Measurement Technology”

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Abstract: The course of “Tolerance and Measurement Technology” is a compulsory basic course for mechanical majors. Combining the characteristics of the course and the job requirements of product testing, the knowledge and ideological elements of the course are explored to optimize the teaching design.

Keywords: Tolerance and Measurement Technology; Course Ideology and Politics; Patriotic Sentiment; Craftsmanship Spirit.

1. Introduction

Strengthening ideological and political education in universities is an essential requirement for achieving educational goals, and integrating ideological and political education into professional courses is an important measure to comprehensively implement the fundamental task of cultivating morality and talents. With the increasing emphasis of the country on higher education, professional courses are no longer limited to imparting knowledge and skills, but pay more attention to cultivating students' comprehensive qualities, especially their ideological and political qualities. The ideological and political construction of the course "Tolerance and Measurement Technology" integrates ideological and political education into professional courses, aiming to guide students to form correct worldviews, outlooks on life, and values through the teaching of professional knowledge, cultivate students' patriotism, professionalism, integrity, and friendly character, and better serve the socialist modernization construction.

2. The Construction Goal of Integrating Ideological and Political Education into the Curriculum

The course of “Tolerance and Measurement Technology” is a compulsory foundational course for mechanical majors, with strong technical, practical, and practical aspects. The main objective of this course is to cultivate students' ability to apply tolerance theory knowledge to design geometric accuracy requirements for parts, possess basic skills in measuring geometric errors, and lay a solid foundation for future study of other professional technical courses and practical activities. The course adheres to the school motto of “Noble Virtues and Profound Skills”, and constructs the internal connection between ideological and political education and professional education from the perspective of educational goals. It organically combines value shaping, knowledge imparting, and ability cultivation to achieve the goal of Cultivating Moral Integrity and Developing Talents and “Three All-Round Education” in the course of ideological and political construction [1].

The specific ideological and political quality goals are as follows:

1. Establish a sense of love for the collective, patriotism, national pride, and sense of mission towards the country;
2. Establish the craftsmanship spirit of loving and dedicating oneself to work, striving for excellence, focusing on seeking truth, and being pragmatic and innovative;
3. Establish a sense of safety and compliance with standards and regulations;
4. Establish strong self-learning ability, teamwork ability, and communication skills;
5. Establish the ability to discover, analyze, plan, and solve problems, and cultivate practical and effective professional ethics.

3. Thoughts on Integrating Ideological and Political Education into Curriculum Construction

3.1. Educational Elements and Entry Points

Starting from the professional theoretical knowledge and practical operation skills of the course, we will deeply explore the symbiotic point between professional knowledge and skills and ideological and political elements, integrate ideological and political elements through multiple channels, and integrate them into teaching projects as shown in Figure1. Based on relevant knowledge and skill points, combined with professional frontiers, enterprise cases, job competencies, and other aspects, using real enterprise parts product design, processing, and testing cases, enterprise technical personnel practical videos, positive and negative education cases, teacher demonstrations, student practical exercises, and other forms, cleverly integrating ideological and political points such as patriotism, love for home, dedication to work, standards and norms, and lean pragmatism, and ensuring the integration of value shaping, knowledge imparting, and ability cultivation through student self-evaluation, peer evaluation, teacher evaluation, and other links, to implement the fundamental goal of cultivating morality and talents [2].

3.2. The Path of Implementation

Taking “patriotism” education as the root and “craftsmanship spirit” cultivation as the soul, we will promote the integration of ideological and political education into learning objectives, content, and methods, and fully integrate

the teaching process. Using “platform data” before class, “teacher-student, student, and benchmarking industry standards evaluation” during class, and “platform advancement and labor effectiveness evaluation” after class as the starting point, a craftsman comparison score list is

formed, highlighting the cultivation and improvement of ideological and political qualities and professional ethics, and striving to make students become innovative technical and skilled talents who care about their country and have a sense of responsibility for the times.

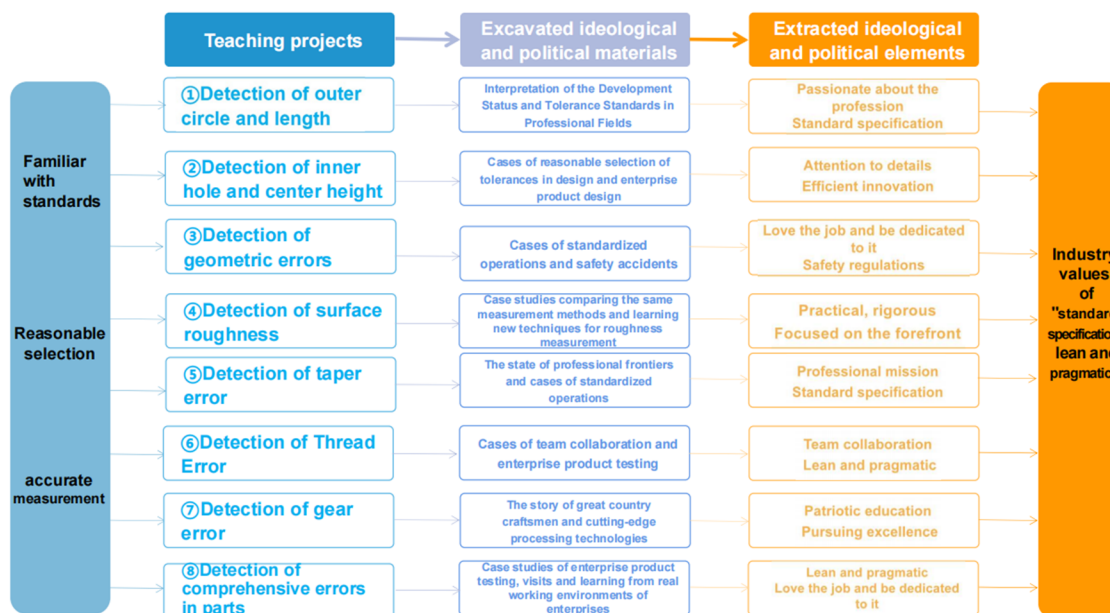


Figure 1. Association diagram of integrating ideological and political elements into teaching projects

Taking the “Selection of Coordination System” teaching project in Project 2 as an example, students will self-learn, self-test and self-train on dimensional tolerance coordination knowledge before class to cultivate their awareness of self-learning and teamwork. During class, teachers and technical personnel from enterprises set an example and demonstrated the principle of selecting tolerances in the design of practical mechanical products, in order to meet the requirements of energy conservation and environmental protection; Reasonably and effectively select tolerance fitting codes to enhance practical confidence; School enterprise dual teacher evaluation, guiding continuous optimization of design and pursuing excellence. After class, team collaboration is used to solve practical problems in real enterprise projects, hone professional skills, and cultivate pragmatic and effective professional ethics.

In addition, various teaching methods such as case-based teaching and scenario introduction are adopted to enhance students' sense of participation and experience. Integrate online and offline teaching resources, such as video recordings and course experiments in online courses, to enhance students' practical abilities and engineering Awareness. By designing specific cases, demonstrate the integration of ideological and political education into the curriculum, and enhance the educational function of professional courses.

4. Deeply Explore the Ideological and Political Elements of the Curriculum, Optimize Teaching Design

Integrating ideological and political elements into the course of “Tolerance and Measurement Technology” and optimizing teaching design aims to cultivate students' professional ethics, social responsibility, and innovative spirit

through the imparting of professional knowledge. The following are specific integration points and teaching designs:

When explaining the national standards for tolerance and fit, emphasize the importance of complying with national standards, cultivate students' legal awareness, and respect for national standards. Combining major national engineering projects or historical events, such as the Chang'e lunar exploration project and the Jiaolong deep-sea exploration, explain the practical application of tolerance and coordination, so that students can not only understand national achievements but also enhance their sense of national pride [3].

In the teaching of measurement technology, emphasis is placed on quality awareness, enabling students to understand the importance of precise measurement for product quality and cultivating their sense of responsibility and mission. By designing enterprise detection scenarios, students can conduct measurement operations in simulated environments, experience actual work environments, and enhance their professional adaptability.

By introducing the development history of high-precision measuring equipment and the pursuit of excellence by craftsmen, students are inspired to identify with and pursue the spirit of craftsmanship. Arrange students to carry out practical operations, such as using coordinate measuring machines, optical measuring instruments, etc., to deepen their understanding of theoretical knowledge through practical operations.

Through group collaboration projects such as measurement competitions or case studies, cultivate students' teamwork and communication skills. Set up interactive discussion sessions in the development of group measurement plans to encourage students to discuss ethical issues, quality control, and other topics related to measurement techniques, and improve their critical thinking skills. By designing course projects, such as designing a measurement plan to solve practical problems, students can comprehensively apply their learned knowledge

and develop the ability to solve complex problems during the project implementation process.

Encourage students to think about how to improve existing technology, cultivate innovative awareness and scientific thinking when explaining advanced measurement techniques. Using the flipped classroom model, students can self-study theoretical knowledge through videos, reading materials, and other means before class, and engage in discussions and practical operations in class to improve learning efficiency.

Establish a diversified evaluation system that not only assesses students' knowledge and skills, but also evaluates their qualities such as teamwork and innovative thinking. Through feedback, help students recognize their shortcomings, encourage them to value the learning of ideological and political education in the curriculum, and promote their self-improvement.

Through these integration points and teaching designs, the course of "Tolerance and Measurement Technology" can effectively integrate ideological and political education while imparting professional knowledge, achieving an organic combination of knowledge imparting and value guidance, and cultivating students' comprehensive qualities.

5. Conclusion

Teaching practice has shown that integrating ideological and political education into the course of "Tolerance and Measurement Technology" is an important measure to implement the fundamental goal of cultivating morality and

talent. By deeply exploring the ideological and political elements of the course and conducting scientific and reasonable teaching design, it can stimulate students' enthusiasm for learning the course, achieve the integrated development of professional education and ideological and political education, cultivate students' efforts to become high-quality technical talents with both morality and talent, comprehensive development, socialist core values and professional qualities, and achieve good teaching results.

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