Research on curriculum ideological and political design based on online and offline mixed teaching

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Abstract. "Curriculum ideological and political education" is to integrate ideological and political education elements into professional courses, imperceptibly influence students' ideology and behavior, and give full play to the function of cultivating virtues and cultivating people. This paper explores ideological and political elements deeply, according to the requirements of curriculum standards, centering on teaching objectives and teaching content, carries out curriculum ideological and political design based on blended teaching mode, runs ideological and political education throughout education and teaching, implements the goal of "three-in-one education", and cultivates students' good professional quality and professional skills.

1 Introduction

On May 8, 2020, the Ministry of Education issued the Guiding Outline of Curriculum Ideological and Political Construction in Colleges and Universities (JG [2020] No. 3), which raised the curriculum ideological and political construction to the level of strategic measures to implement the fundamental task of establishing morality and cultivating people, and pointed out that "this strategic measure affects and even determines the long-term stability of the country, the national rejuvenation and the rise of the country."

As a higher vocational college, how to excavate the ideological and political elements in the professional courses, organically integrate the ideological and political content into the professional course teaching, give full play to the educational function of the professional courses, guide the students silently, and realize the "all-staff, all-process, all-around" education. The author believes that the best model is to organically integrate ideological and political elements into the teaching process before, during and after class through the combination of online and offline teaching. Adopt a variety of teaching methods and means, such as project-based teaching, case teaching, flipped classroom, micro-class, video, etc., to guide students to love their country, love their home, and cultivate patriotic feelings, so as to cultivate compound high-skilled talents with feelings of home and country for the construction of socialist modernization with Chinese characteristics.

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2 Overview of mixed teaching

In the era of information technology, there are multiple ways to learn knowledge, and the combination of online and offline hybrid teaching emerged as the times require. This teaching model is student-centered, combines the advantages of traditional learning methods with the advantages of digital or networked learning, and carries out personalized learning independently according to the needs of students, without time and space constraints. Teachers have changed from former knowledge imparters to designers and instructors of learning activities. Teachers and students can communicate and interact online, forming a new type of partnership learning relationship. In the teaching process, teachers recommend the network resources screened on the learning platform to students, enriching the teaching content. The classroom teaching under the line is mainly to break through the key and difficult points, answer questions and solve doubts, effectively help students solve problems and carry out discussions, which is conducive to improving students' self-learning ability, expression ability and communication ability, and comprehensively improve students' comprehensive quality.

3 Curriculum ideological and political design based on mixed teaching

3.1 Overall design idea of curriculum ideological and political

The course "Building Mechanics and Structure" is an online high-quality course of vocational education in Gansu Province completed in 2019. This course is the core course of civil engineering majors in higher vocational colleges. It plays an important role in the professional course system as a link between the preceding and the following. The course content and overall design ideas are shown in Figure 1 and Figure 2:

![Fig. 1. Course content.](https://doi.org/10.1051/shsconf/202316601041)

![Fig. 2. Overall design ideas of curriculum ideological and political.](https://doi.org/10.1051/shsconf/202316601041)
Table 1. Course content and mapping points of ideological and political elements.

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<tr>
<th>Learning situation</th>
<th>Mapping point of ideological and political elements</th>
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<td>Learning situation I: basic knowledge of building mechanics</td>
<td>When learning the basic knowledge of the course, introduce the videos of Huoshen Mountain and Leishen Mountain Hospital. It reflects that in the face of emergencies in China, the people of the whole country worked together, united and cooperated to overcome difficulties, stimulate students' strong patriotism, enhance national pride, establish a sense of professional honor and social responsibility, and firmly adhere to the &quot;four self-confidence&quot;.</td>
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<td>Stress analysis of learning situation II structure Stress analysis diagram and balance conditions</td>
<td>In the process of learning component force analysis, take the force analysis of Chinese athletes in horizontal bars, Trojan horses, rings and other sports as an example, integrate the spirit of athletes' hard work, hard training, love for the motherland, and win glory for the country into the teaching content, and cultivate students' patriotism.</td>
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<td>Internal force and strength analysis of three components of learning situation Internal force, stress and strength</td>
<td>Integrating the feelings of family and country - the influence of the penetration of &quot;external forces&quot; on us under the great changes that have not occurred in a century, and the interference of &quot;external forces&quot; is reflected in all aspects of life; Especially since the outbreak of the COVID-19 epidemic, it has had a great impact on our production and life. Through group discussion, students can understand that since &quot;external forces&quot; are beyond our control, we can keep our &quot;Chinese heart&quot; to cope with the interference of &quot;external forces&quot;.</td>
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<td>Learning situation IV Concrete structure Design principles and methods, concrete materials, flexural members, compression members</td>
<td>Play the video of structural collapse and building collapse during the earthquake. Through social hot events, educate students to be scientific and rigorous, practical and realistic, safety first and quality first at all times, always take people's life and property as their own responsibility, abide by professional ethics, keep improving, and be meticulous.</td>
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<td>Learning situation V: concrete structure construction reading frame structure construction drawing</td>
<td>Firmly adhere to the &quot;four self-confidence&quot; and enhance the sense of national pride - science and technology will make the nation prosperous, and science and technology will make the country strong. Science and technology is the foundation of the development of the motherland, and science and technology can lead in all directions;Through the study of 3D flat method atlas 16G101-1 and the application of BIM technology in the construction drawing reading, students can establish the ideal belief of a powerful country in science and technology.</td>
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<td>Learning situation VI Masonry structure Masonry materials</td>
<td>Taking Zhaozhou Bridge as an example, the case teaching method is used to guide students to understand and identify with national policies, establish environmental awareness, achieve sustainable development, live in harmony with nature, establish environmental awareness, and understand that green waters and green mountains are golden mountains and silver mountains.</td>
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<td>Learning situation VII Steel structure Steel structure material, type selection and construction requirements</td>
<td>Introduce world-famous steel structure engineering videos such as Beijing Daxing International Airport, Hong Kong-Zhuhai-Macao Bridge, Sea-crossing Bridge, and Deep-sea Tunnel. Through the application of a large number of new materials and new technologies in super projects, let students understand the importance and urgency of technological innovation. Core technologies should be in their own hands, break through themselves, move forward in continuous innovation, and cultivate students' awareness of innovation and entrepreneurship.</td>
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3.2 Mining of ideological and political elements of the course

According to the talent training plan, the goal is to cultivate compound high-skilled talents with all-round development of morality, intelligence, physical fitness, beauty and labor. The teaching content is student-centered, and the teaching content is reconstructed based on students' cognitive ability and students' characteristics according to the analysis of learning situation. In the process of teaching design, we should pay attention to the organic integration of teaching content and ideological and political education elements. See Table 1 for the mapping points of ideological and political elements of the curriculum:

3.3 Course ideological and political teaching design

3.3.1 Select teaching content

According to the teaching standards of the course, the learning situation IV concrete structure and learning task I structural requirements of reinforced concrete beam are selected as examples. The teaching objectives are as follows:

Knowledge objectives: understand the section size and material requirements of reinforced concrete frame beams, and master the structural requirements of upper and middle full-length reinforcement, lower full-length reinforcement, erection reinforcement, stirrup and side structural reinforcement of frame beams.

Competence objectives: be able to correctly read the types of reinforcement in the frame beam, and be able to read and turn over the construction drawings of beam plane method in the given project drawings.

Ideological and political objectives: through the study of the structural requirements of reinforced concrete beams, especially the reinforcement of beams, cultivate students' rigorous and conscientious scientific attitude, establish the sense of responsibility of safety first, quality first, and the ideal belief of innovation and progress, and the power of science and technology.

3.3.2 Teaching content design

Before class, release learning tasks on the learning platform of the online excellent course "Building Mechanics and Structure", set up discussion questions, urge students to independently study the basic theoretical knowledge of the teaching content of this lesson, and complete the corresponding discussion and question and answer. Guide students to learn independently, make good knowledge reserves, and lay a foundation for further in-depth study. Focus on cultivating students' ability of independent inquiry, independent thinking and problem finding.

In the class, case teaching, BIM technology and other methods are used to break through the key and difficult points and answer questions. Key knowledge When explaining the structural requirements of frame beam reinforcement, play the video of building structural damage and the pictures of structural damage during the earthquake, so that students can have a perceptual understanding of the huge loss caused by building structural damage. Integrating professional spirit, we should first ensure the safety of the structure, be rigorous, meticulous, keep improving and abide by professional ethics when designing and calculating the structure.

After class, publish assignments and expand learning resources on the teaching platform, consolidate and expand the knowledge learned, and submit learning results in groups. Cultivate students' team spirit and communication skills, and carry out self-learning management.
4 Conclusion

To sum up, as a front-line professional course teacher in higher vocational colleges, we should constantly explore the ideological and political elements of the curriculum and improve the ability to integrate them. Based on the mixed teaching mode, the ideological and political education content is organically integrated into the professional course teaching, and the main channel of classroom teaching is well used, so that the ideological and political education of the curriculum is throughout the education and teaching, reflecting the educational value of the professional course.

References

1. New Era (ZBF [2019] No. 47)