

Research on Ideological and Political Teaching of Engineering Management Curriculum under the Background of New Era

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Abstract: In the contemporary era, higher education institutions are tasked with not only imparting professional knowledge but also integrating ideological and political education to cultivate well-rounded individuals who possess both technical expertise and high moral standards. This paper examines the Engineering Management major as a case study to explore the integration of ideological and political education into professional courses, aiming to enhance students' overall quality and social responsibility. Initially, the paper analyzes the existing challenges in the ideological and political education within Engineering Management courses, highlighting the necessity and urgency of such education in the current context. Subsequently, it discusses various pathways and methods for integrating ideological and political elements into these courses effectively. Finally, the paper proposes strategies and recommendations to address current challenges, providing guidance for the comprehensive development of ideological and political education in Engineering Management.

Keywords: Ideological and political education; Engineering management courses; Ideological and political elements

1. Introduction

Since 2004, the CPC Central Committee, the State Council, and the Ministry of Education have underscored the importance of ideological and political education for college students, issuing a series of guidance documents. The initial document, "Opinions on Further Strengthening and Improving the Ideological and Political Education of College Students," set the foundation. By 2014, in response to evolving circumstances, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council reiterated the significance of propaganda and ideological work in higher education, issuing the "Opinions on Further Strengthening and Improving the Propaganda and Ideological Work in Colleges and Universities under the New Situation." In 2017, the CPC Central Committee and the State Council released "Opinions on Strengthening and Improving Ideological and Political Work in Colleges and Universities under the New Situation." Further, in May 2020, the Ministry of Education developed the "Guidelines for the Construction of Ideological and Political Education in Colleges and Universities." These documents collectively reinforced the central role of classroom teaching in ideological and political education, promoting the integration of such education across various disciplines. This comprehensive approach aims to establish a multidimensional ideological and political education system, ensuring that college students develop their ideological and political quality alongside their academic growth.

2. The Problems and Urgency in the Ideological and Political Education of Engineering Management Major

The traditional curriculum of Engineering Management encompasses four primary areas: technology, economy, management, and law. For instance, at Wuhan Polytechnic University, core courses include engineering drawing and CAD, building architecture, engineering mechanics, civil engineering materials, construction laws and regulations, surveying, statistics, urban planning, financial management, engineering project management, engineering structure, project investment and financing, engineering construction technology, and construction engineering budget estimation. Historically, the curriculum

design in various universities has often resulted in a mechanical combination of these courses, leading to disconnection or redundancy [1]. Moreover, there is a notable disconnect between the ideological and political education and the teaching of professional knowledge in Engineering Management. This disconnect is evident in the following ways:

2.1. Lack of Understanding of the Correlation between Professional and Ideological Courses among College Students

To investigate the current state of "ideological and political courses" and "professional courses" and to gauge students' perceptions of ideological and political teaching, a questionnaire survey was conducted in September 2024 among Engineering Management students at Wuhan University of Light Industry using the Questionnaire Star platform. Out of 300 distributed questionnaires, 261 were successfully retrieved and deemed valid, yielding an effective recovery rate of 87%. The questionnaire primarily focused on the correlation between engineering management courses and ideological and political courses, comprising nine multiple-choice questions categorized as strongly related, weakly related, and unrelated. Each question offered four response options: "strongly agree," "agree," "not sure," and "disagree," with varying score values based on relevance. Specifically, in strongly associated questions, "strongly agree" was assigned 9 points, "agree" 6 points, "uncertain" 3 points, and "disagree" 0 points. For weak-association questions, "strongly agree" received 6 points, "agree" 4 points, "uncertain" 2 points, and "disagree" 0 points. In unconnected questions, "strongly agree" received 0 points, "agree" 1 point, "not sure" 2 points, and "disagree" 3 points. Based on the final scores, the questionnaire responses were categorized into three levels: scores between 0 and 8 indicated irrelevance, scores between 9 and 26 indicated weak correlation, and scores of 27 or more indicated strong correlation. The questionnaire content provided a multidimensional analysis of the correlation between engineering management courses and ideological and political courses. Further details can be found in Appendix A.

The analysis was conducted based on the questionnaire content and results (see Figure 1).

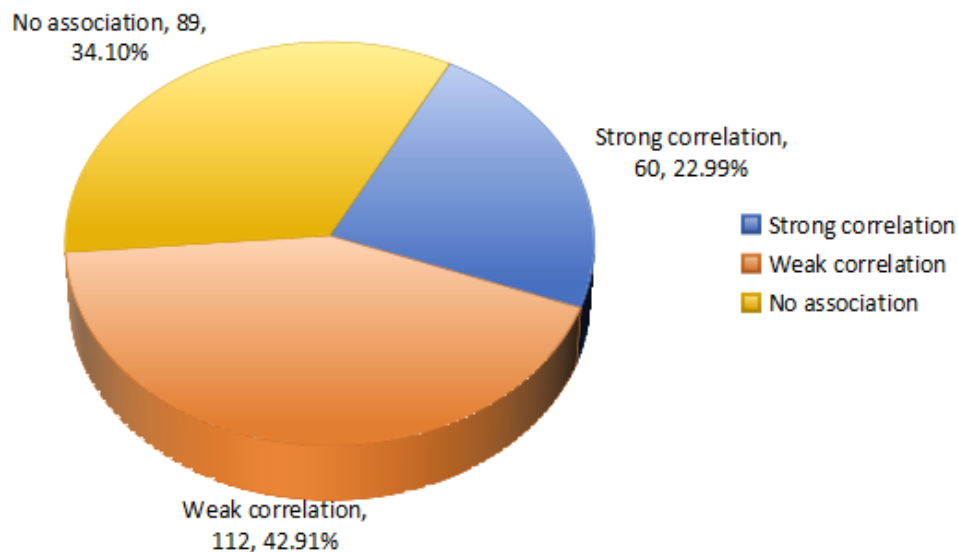


Figure 1: The correlation between engineering management courses and the teaching of ideological and political courses.

The survey results indicate that 112 students (42.91%) from the valid questionnaires collected perceive a certain degree of integration and correlation between engineering management courses and ideological and political courses, although they consider this correlation to be weak. These students acknowledge that while there may be some overlap between professional courses and ideological and political courses, they largely remain distinct entities with minimal connection. Conversely, 89 students (34.10%) believe there is no correlation between the two types of courses. They view professional courses as primarily focused on skills and knowledge transfer, whereas ideological and political courses emphasize the cultivation of ideas, ethics, and values. For these students, the objectives, content, and teaching methods of the two course types are significantly different, making effective integration challenging. Only 60 students (22.99%) perceive a strong correlation between the courses, arguing that project management requires not only solid professional skills but also high moral standards and a strong sense of social responsibility. They see the cultivation of these qualities as a key mission of ideological

and political education, suggesting that professional and ideological courses should support and enhance each other.

Despite these perspectives, only about one-fifth of students recognize the correlation between ideological and political courses and professional courses during teaching by professional educators. Most students tend to view ideological and political courses as an "independent system" separate from professional courses or hold a vague understanding of their relationship, failing to fully appreciate the profound and significant internal connection between the two.

2.2. Challenges in the Teaching Mode of Ideological and Political Courses

The current teaching mode of ideological and political courses faces several challenges that hinder its ability to stimulate students' interest and enthusiasm. In the second classroom, some schools prioritize the form and quantity of activities over their core role in guiding students' thoughts, limiting the educational impact of these activities. Issues such as the lack of attention to the second classroom, insufficient social support for research, and outdated activity designs significantly affect the implementation of second classroom teaching, making it difficult to achieve effective and subtle education [2]. Additionally, some college teachers lack innovation in teaching methods for ideological and political courses, failing to explore engaging and novel approaches. This limitation affects the teaching effectiveness and diminishes students' interest and enthusiasm for learning. To address these issues, a multifaceted approach is necessary, involving continuous exploration and practice to build a more scientific, reasonable, and effective ideological and political curriculum system.

2.3. Insufficient Attention to Ideological and Political Courses in Universities

Some universities and teachers have not adequately recognized the importance of ideological and political courses, as reflected in two main aspects:

2.3.1. Lack of Conceptual Understanding

Many university administrators and teachers have an insufficient understanding of the core value and importance of ideological and political courses, viewing them as supplementary to professional courses rather than as integral to cultivating students' comprehensive qualities. This cognitive bias leads to the marginalization of ideological and political courses in curriculum design, resource allocation, and teaching arrangements, resulting in inadequate attention. Many colleges and universities still face the issue of "two separations," where professional courses overly focus on technical training and neglect the integration of ideological education [3].

2.3.2. Weak Teaching Resources and Faculty

Due to the lack of attention, some universities have insufficiently invested in ideological and political courses, leading to outdated textbooks, inadequate teaching facilities, and a lack of resources. Some teachers hold outdated teaching concepts, neglecting the integration of scientific and artistic teaching, the unity of theory and practice, and the integration of history and reality. Consequently, the teaching content becomes disconnected from reality, failing to engage students and diminishing the appeal of ideological and political theory course [4]. Furthermore, the number of professional ideological and political teachers is unstable, and there is a shortage of educators with strong theoretical foundations and practical experience, resulting in uneven teaching quality. Without systematic training and promotion opportunities, some teachers need to improve their ideological and political literacy and teaching abilities, making it difficult to effectively engage students.

With the rapid development of science and technology and economic globalization, the demand for engineering management professionals is increasing. Simultaneously, society has heightened expectations for the comprehensive and moral qualities of talents. The rapid internationalization trend has accelerated China's economic growth and urbanization, with construction and real estate becoming key industries. The investment boom and large-scale projects have expanded the project management industry's prospects, enhancing the market value of project management professionals [5]. Therefore, it is crucial for universities to educate individuals for the Party and the country, fully implementing the talent training concept centered on students' growth. Cultivating well-rounded talents with both professional skills and high moral qualities is a pressing issue for higher education, highlighting the necessity and urgency of integrating ideological and political teaching into engineering management courses.

The construction of ideological and political courses, daily ideological work, and curriculum progress are vital for enhancing the quality of engineering management professionals, strengthening moral literacy, and cultivating socialist successors with comprehensive development in morality, intelligence, physique, aesthetics, and labor [6]. This is particularly important in the context of China's "double carbon" goal and the transformation and upgrading of the construction industry.

3. Strategies for Integration and Improvement

3.1. Enhancing Understanding of Ideological and Political Courses

To address the superficial understanding and perfunctory attitude of some students towards ideological and political courses, targeted measures should be implemented. First, it is essential to emphasize the importance of these courses, helping students recognize their key role in personal development and changing their learning attitudes. This can be achieved through lectures, seminars, and other activities that explain the core value and significance of ideological and political courses, guiding students to establish correct curriculum concepts. Second, teaching methods should be innovated by breaking away from traditional approaches and introducing diverse methods such as case analysis and group discussions to stimulate interest and promote deep thinking. Additionally, a comprehensive curriculum evaluation system should be established, allowing universities and teachers to assess students' learning objectively and adjust teaching strategies to improve quality. Finally, communication and feedback between colleges, teachers, and students should be strengthened to understand learning needs and provide personalized guidance, promoting the reform and development of ideological and political courses.

3.2. Optimizing and Integrating Second Classroom Teaching

In the practical teaching of the second classroom for engineering management, the primary task is to introduce experimental safety education and engineering safety awareness training. This ensures students understand potential risks in field practice and master prevention and response measures, fostering a safety and sustainable development mindset. Additionally, efforts should be made to help students understand their national mission and responsibility as civil practitioners, stimulating their sense of social responsibility. Organizing visits to civil engineering enterprises and internships allows students to experience industry dynamics, understand professional ethics, and improve their professional quality and social responsibility. Furthermore, guiding students to engage in innovative practices, such as writing papers and applying for patents, encourages them to apply research results to societal benefits and participate in science popularization activities. This integration enhances students' practical abilities and promotes their comprehensive development in values and ethics.

3.3. Addressing Insufficient Attention to Ideological and Political Courses

Universities should focus on innovating ideological and political education systems and implementing comprehensive education concepts. Teachers should explore collaborative education models to meet the needs of all participants at different educational stages. Students' ideological guidance should adhere to "individualization" and "contextualization" principles, promoting the integration of ideological education and professional learning for synchronous development. Additionally, curriculum construction activities should follow government-led responsibilities, establishing a curriculum construction group involving school leaders and department heads. This group should address curriculum design, teaching training, and teacher team construction, utilizing internal and external resources to ensure smooth coordination. Practical strategies and measures should be formulated to guarantee effective implementation of ideological and political curriculum construction.

In terms of faculty development, collaboration between engineering management and ideological and political courses should be strengthened. Universities should organize professional training for teachers to enhance their quality and teaching abilities. Building an interdisciplinary teaching team comprising professional, ideological, and industry experts can facilitate the integration of courses and promote comprehensive education.

4. Designing Curriculum Ideological and Political Teaching Elements

Ideological and political courses and professional courses are both essential educational components. By aligning professional success with whole-person education, a comprehensive ideological and political system can be established, integrating education into each course [7]. Implementing ideological and political elements in engineering management courses requires coordination across objectives, system construction, teaching implementation, practice, and evaluation. A scientific combination of engineering management and ideological courses enables students to achieve balanced development in ideological literacy and professional learning, realizing the simultaneous development of "five education."

Figure 2 illustrates the integration scheme for incorporating ideological and political teaching within the engineering management specialty. As shown in the figure, the integration process involves multiple steps, including setting clear objectives, constructing a comprehensive system, implementing teaching strategies, developing practical activities, and establishing an evaluation framework. This visual representation helps to clarify the relationship between ideological and political education and professional courses, providing a roadmap for educators to follow.

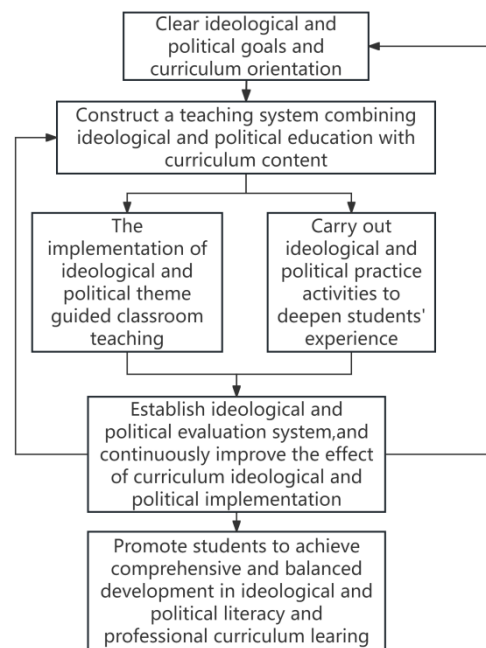


Figure 2: The integration scheme for incorporating ideological and political teaching within the engineering management specialty.

The integration of ideological and political education within the curriculum of engineering management is a multifaceted endeavor that requires a clear articulation of educational goals and curriculum positioning. Initially, it is imperative to define the objectives of ideological and political education, which typically encompass the cultivation of students' socialist core values, professional ethics, and social responsibility. Concurrently, the role of engineering management courses in this educational framework must be clearly delineated to ensure that ideological and political education complements professional knowledge acquisition. To achieve this, the university curriculum development team should thoroughly investigate the intrinsic connections between ideological and political education and project management. Implementing an Outcomes-Based Education (OBE) model, which focuses on learning outcomes, can facilitate this process. By designing teaching activities in reverse from the desired outcomes, educators can specify the requirements and anticipated results of ideological and political education within the curriculum.

Once the ideological and political goals and curriculum positioning are established, the next step involves constructing a teaching system that seamlessly integrates these elements with the curriculum content. This comprehensive system should incorporate ideological and political components into the curriculum objectives, syllabus, teaching content, and methods. Specifically, it is essential to conduct an in-depth analysis of engineering management courses to identify and integrate ideological and political elements, such as integrity and craftsmanship, with practical engineering management applications. To

enhance students' appreciation of ideological and political education, practical teaching methods should be expanded, including organizing social practice activities and volunteer services, which allow students to deepen their understanding through experiential learning. Additionally, fostering a vibrant campus culture through lectures, seminars, and innovation competitions can stimulate students' enthusiasm for innovation and entrepreneurship, thereby promoting the integration of ideological and political education with engineering management.

In the implementation phase, classroom teaching and ideological and political practice activities should be aligned to emphasize the central themes of ideological and political education. Classroom instruction should be oriented around these themes, ensuring coherence and relevance. Universities and educators should explore innovative pathways for integrating ideological and political education with professional knowledge. For instance, when discussing the practical applications of project management, educators can incorporate elements of social responsibility and environmental protection, encouraging students to consider the societal and environmental impacts of engineering projects. Establishing demonstration courses that highlight exemplary cases, such as the construction of the Hong Kong-Zhuhai-Macao Bridge and the achievements of the FAST telescope, can serve as models for integrating ideological and political education with professional courses. Through diverse teaching methods like case analysis and role-playing, students can gain a profound understanding of the value of ideological and political education in engineering management.

To enrich classroom teaching, diverse instructional modes such as case studies, heuristic guidance, and discussion-based communication should be employed. These methods not only emphasize core socialist values and the spirit of craftsmanship but also enhance the appeal and effectiveness of teaching, shaping students' values. During course summaries, students should be encouraged to share their learning outcomes and insights, fostering their expression skills and confidence. Group activities, structured as 'case analysis + group discussion + team summary + personal experience sharing,' provide a comprehensive platform for learning, reflection, and personal growth.

The autonomous learning component involves students engaging in independent study, attending academic lectures, and collecting project management examples, aiming to cultivate their self-directed learning abilities and lifelong learning awareness. Simultaneously, a variety of ideological and political practice activities, such as field visits to project sites and volunteer services, should be organized to enhance students' emotional and cognitive understanding. By participating in these activities, students can observe the planning, construction, and operation of projects firsthand, gaining insights into their social, environmental, and economic impacts, and fostering a strong sense of social responsibility.

Following a cycle of classroom teaching and practice activities, universities and educators should promptly establish an evaluation system for ideological and political education to continuously improve its implementation. This evaluation system should be constructed with consideration of three dimensions: subject definition, object clarity, and methodological rigor. Firstly, the evaluation subject must be clearly defined to guide and regulate the evaluation process effectively. Education managers should ensure the standardization and target orientation of the evaluation subject, implementing it at micro, meso, and macro levels. Secondly, the evaluation object should be clearly identified, aligning with the strategic educational goals set by the Party Central Committee. The evaluation system should incorporate 'follow-up measures' and 'object feedback' to enhance its relevance and effectiveness. Finally, employing a scientific evaluation method is crucial for the system's smooth operation, directly impacting the quality of student and teacher evaluations. Evaluators should balance quantitative and qualitative assessments, aligning specific situations with universal principles to improve the timeliness and accuracy of evaluations.

In this stage, universities can establish a multi-dimensional comprehensive teaching evaluation system involving school leaders, teaching supervisors, Marxist college team members, ideological and political teachers, and students. Emphasizing the evaluation of teaching processes and increasing the weight of teaching research and outcomes in the evaluation system can enhance its effectiveness. Utilizing the results of ideological and political teaching evaluations as a basis for teacher performance appraisals, promotions, and awards can further strengthen the system. Encouraging universities to engage retired ideological and political teachers as mentors can also contribute to a more robust evaluation framework. These measures provide solid support for the teaching system that integrates ideological and political education with curriculum content.

5. Conclusion

In summary, the implementation path for integrating ideological and political education into engineering management courses involves a coordinated approach across multiple steps: setting clear objectives, constructing a comprehensive system, implementing teaching strategies, developing practical activities, and establishing an evaluation framework. Each step requires careful design and execution to ensure the effective and continuous enhancement of ideological and political education. Following the latest guidelines from the Ministry of Education, the core educational goal for engineering management majors is to cultivate well-rounded talents who contribute to national economic and social progress. These individuals should possess a deep understanding of engineering, management, and economics, alongside the ability to apply modern scientific theories and methods. By integrating ideological and political concepts with engineering case analysis, this teaching approach has been shown to stimulate students' enthusiasm for learning and improve their problem-solving abilities. Ultimately, this educational model aims to cultivate engineering management professionals with both technical expertise and moral integrity.

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Appendix - Questionnaire survey

Appendix A: The Relationship Between Engineering Management Courses and Ideological and Political Courses

This study aims to explore the relationship between engineering management courses and ideological and political courses. Your participation and honest feedback are crucial for enhancing our understanding of the integration of teaching and learning in these areas. The questionnaire is designed to be anonymous, ensuring that your responses remain confidential and are used solely for research purposes. Comprising nine multiple-choice questions, the survey invites you to select the option that best reflects your perspective. Your responses will serve as valuable references for improving the quality of teaching. We sincerely appreciate your participation and support, as your opinions are of great importance to us.

1. Do you believe that case studies in engineering management courses effectively reflect the principles of social responsibility and professional ethics taught in ideological and political courses? [Multiple choice] *

- A. Strongly agree
- B. Agree
- C. Not sure
- D. Disagree

2. Do you think that the content of engineering management courses and the values education in ideological and political courses complement each other, thereby promoting your holistic development? [Multiple choice] *

- A. Strongly agree
- B. Agree
- C. Not sure
- D. Disagree

3. In your engineering management coursework, do you frequently apply theories or principles from ideological and political courses to guide project decision-making or team collaboration? [Multiple choice] *

- A. Strongly agree
- B. Agree
- C. Not sure
- D. Disagree

4. While studying engineering management courses, do you find that you have limited time to consider how to apply principles from ideological and political courses to practical engineering projects? [Multiple choice] *

- A. Strongly agree
- B. Agree
- C. Not sure
- D. Disagree

5. Do you perceive differences in teaching methods and evaluation standards between engineering management courses and ideological and political courses? [Multiple choice] *

- A. Strongly agree
- B. Agree

C. Not sure

D. Disagree

6. Do you think that the technical and management knowledge in engineering management courses has minimal overlap with the theoretical content in ideological and political courses? [Multiple choice] *

A. Strongly agree

B. Agree

C. Not sure

D. Disagree

7. Do you believe that engineering management courses and ideological and political courses are entirely independent in terms of teaching content, with no intersection or influence? [Multiple choice] *

A. Strongly agree

B. Agree

C. Not sure

D. Disagree

8. Do you think that integrating engineering management courses with ideological and political courses does not contribute to enhancing your personal abilities, cultivating your values, or developing your future career? [Multiple choice] *

A. Strongly agree

B. Agree

C. Not sure

D. Disagree

9. During your studies, do you perceive engineering management courses and ideological and political courses as completely separate, without mutual support or promotion? [Multiple choice] *

A. Strongly agree

B. Agree

C. Not sure

D. Disagree