

Exploration the Ideological and Political Education in College Curriculum Based on the Concept of Ecological Civilization——A Case Study of Engineering Ethics

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Abstract: How to strengthen the ideological and political courses construction in college? It should be guided by the ecological civilization construction and value shaping, combined with the model by salutary influence of education. It also integrates the characteristics of college teaching and curriculum construction under the new situation, and insists on establishing morality education and all-round Development. With the rapid development of social economy, the engineering ethics issues are increasingly prominent. It explores the teaching reform of Engineering Ethics and innovates the teaching model. It also integrates the ideological and political elements in an all-round way, and strengthens to train students' engineering ethics awareness. By the way, it will cultivate the social responsibility of engineering talents, penetrate the core values of socialism in all aspects of education and teaching, and enhance the future engineer's comprehensive literacy.

1. Introduction

An important speech by General Secretary Xi Jinping at the National Conference on Ideological and Political Work, it raised the fundamental problem of what kind of people to train, how to train and for whom to train in universities and colleges education. General Secretary Xi Jinping emphasized that we must insist on morality education as the central link to achieve to educate people in whole process and all directions. February 2017, the Opinion Report on Strengthening and Improving the Ideological and Political Work of Chinese Universities and Colleges under the *New Situation* issued by the Central Committee of the Communist Party of China (CPC) and the State Council of China states that colleges and universities should "Cultivate qualified builders and reliable successors of socialism with Chinese characteristics who are both revolutionary and expert, have both moral integrity and ability, and develop comprehensively."^[1] How to implement the above important spirits and education tasks in the training of engineering talents? It is an important issue before us.

The report of the 19th National Congress of the Communist Party of China made a new historical orientation for the development of our country: socialism with Chinese characteristics has entered a new era. We are closer to the goal of the great rejuvenation of the Chinese nation than ever in history. China is moving to the centre of the world stage as never before. Therefore, as the foundational project of education, it has the important task to cultivate constructors and successors of Socialist Work with the overall development of morality, intelligence, physique and aesthetic. Under the new situation, engineering is developing, and engineering education and moral education

should also keep pace with the times. It needs to be developed in succession and strengthened in development.

In the training system of engineering professionals, it is necessary to grasp the characteristics of political, ideological and moral education work and curriculum construction in the new era. We should adhere to the educational idea of political, ideological and moral education first, ability first, and multi-directional development. Strengthen the construction of "Courses for Ideological and Political" and "Ideological and Political Courses". The Socialist core values should be run through all aspects of education and teaching. In the whole process of teaching engineering courses, not only focus on training students' professional skills and engineering practical ability, but also strive to practice the teaching mode that combines knowledge transfer and value guidance^[2]. Under the guide of Efforts will be made to create a group of professionals with strong engineering practice ability, outstanding innovation ability, unity and cooperation spirit and national feelings.

2. The importance of cultivating students' engineering ethics

By the development of the major national development strategies such as "Made in China 2025" and " the Belt and Road Initiatives ", our country has a more urgent need for high-quality engineering and scientific talents. As a part of engineering students' spiritual literacy, engineering ethics awareness is an important driving force for engineering students to adapt to their personal lifelong development and social development. Meanwhile, the complexity, comprehensiveness, sociality and unpredictability of modern engineering activities have made it impossible to adapt to the society development simply by judging and selecting the value of engineering activities from a scientific and technological perspective. The ethical value of engineering activities has become an important indicator to measure the overall value of engineering activities. Therefore, the cultivation of engineering ethics awareness for engineering students has become one of the themes of the times.

Especially since the 1970s, with the occurrence of major engineering accidents such as "Challenger" and "Columbia", person have further realized that due to the lack of engineering ethics, engineering activities have destroyed the long-term humanity interest. Therefore, it is particularly important to train engineers with both professional knowledge and ethical qualities ^[3]. China is currently experiencing the world's largest engineering activities. While modern engineering is rapidly changing people's production and lifestyle, a large number of fake and inferior projects, engineering accidents and engineering phenomena that are not in harmony with social culture also occur frequently, for example "Songhua River Water Pollution Event Caused by the Explosion of the Biphenyl Plant of PetroChina Jilin Petrochemical Company in 2005 " "In 2007,Tuojiang Bridge Extraordinary Collapse in Fenghuang County in Hunan" and other accidents. These accidents lead to a large number of social and ecological problems such as casualties, economic losses, severe environmental pollution and land desertification. On the surface, they are sudden or accidental incidents, but their essences are the ethical and moral issues behind the appearance of the project. The more rapidly the social economy develops, the more prominent the engineering ethics problem becomes, and the more urgent the engineering ethics education. Therefore, engineering ethics education is extremely urgent in our country's engineering field.

3. Strengthen engineering ethics education and enhance the comprehensive quality of future engineers

Engineering Ethics instruction plays an important role to develop students' sense of social responsibility, engineering ethics consciousness and value shaping. It puts forward the teaching mode based on case teaching and group cooperative learning, which fully osmosis the ideological and political elements, has a positive role in promoting the effect of Engineering Ethics teaching. It strengthens the cultivation of students' engineering ethics consciousness, strengthens engineering ethics education, and improves the comprehensive quality of future engineers. With the development of engineering, engineering education and ideological and political education should also keep pace with the times, which needs to be developed in succession and strengthened in

development. With the implementation of "Made in China 2025" plan, "the Belt and Road Initiative" and other national development strategies, the state has a more urgent demand for high-quality engineer and technical personnel. Engineering education must focus on practice and cultivate engineering students with subject quality, survival quality and spiritual quality with a global open vision.

The rapid development of the city has put forward higher requirements for the supporting engineering construction. The Engineering Ethics provides an important guarantee for the cultivation of engineers' engineering ethics. Through the education of engineering ethics, we can cultivate the sense of social responsibility of engineering talents, improve their ethical awareness, enhance their consciousness of following the ethical norms, and improve their ability and level to deal with engineering ethical problems. Therefore, we should integrate the ideological and political elements into the instruction by salutary influence of education, and adhere to the unity of value and knowledge. It strives to implement the teaching model that combines knowledge transfer and value leading. It will develop a group of complex talents with strong engineering practice ability, outstanding innovation ability, ecological civilization ideas, unity and cooperation spirit and national identity.

4. Exploration of Ideological and Political Education in the *Engineering Ethics* Course

4.1. Making the synergetic effect of ideological and political education in curriculum

Most of engineering courses only pay attention to teach basic knowledge and train the students' engineering practice ability. The responsibilities of ideological and political education, value guidance, national identity, etc. should be completed by special ideological and political courses in traditional concept. It has not yet formed an education mode in all-round and comprehensive instruction. Therefore, through the curriculum reform, we should focus on the fundamental task of moral education, combine the characteristics of different disciplines to bring ideological and political education into the conventional teaching, encourage the integration and innovation of traditional teaching, and integrate core socialist values. The *Engineering Ethics* is integrated into the ideological and political education, and it draws references by salutary influence of education. The ideological and political elements are imperceptibly infiltrated into the teaching of *Engineering Ethics*, including ecological and environmental protection concept, sustainable development, the Scientific Outlook on Development, national identity. It could realize the coordinated education of professional engineering and ideological and political education in all-round and comprehensive instruction.

4.2. The infiltration of ideological and political elements in *Engineering Ethics*

Be geared to the major national development strategies such as "Made in China 2025" and "the Belt and Road Initiatives", under the guidance of "Ecological Civilization" "Scientific Outlook on Development", it needs to help the students to set up the concept of ecological environmental protection and sustainable development. Combining with the *Engineering Ethics* content, it integrates the elements of ideological and political education into the instruction of Engineering Ethics omnidirectionally. Combined with the major national development strategies, by the penetration and interpretation of policies, it helps students establish the concept of ecological civilization and sustainable development, then it leads students to be responsible engineering talents in the new era. These elements of ideological and political education are naturally integrated into pre-class preparation, case teaching in class, break-between classes, and after-class discussions. It also explores new teaching models and infiltrating ideological and political elements into the instruction of *Engineering Ethics*.

4.3. The infiltration of ideological and political elements in *Engineering Ethics*

We constantly explore and innovate the teaching model of the *Engineering Ethics*. By full study and comparison, the various teaching methods, we apply multiple teaching methods, such as case

teaching, group cooperative learning, flipped classroom, on online & offline interaction and discussion. And we have applied these methods in practical instruction, and aim to arouse the initiative and enthusiasm of students to ensure the teaching effect. By analysing actual engineering cases, combining with the interpretation about ecological civilization, the National Medium and Long-Term Development Program and the national major development strategies, it implicitly inspires and guides students to establish a correct world view, philosophy and values. Though learning the *Engineering Ethics*, it will cultivate the sense of responsibility of engineers, improve the moral awareness of engineering talents, and cultivate their ability to speculate on ethical and moral issues in engineering.

5. Conclusion

New era of higher education is in an important transition period, and the classroom in universities is the main channel for educating. College teachers should pay great attention to cultivate students' Core Socialist Values and national identity. Student-Centered in course of teaching, it increases the effective interaction and makes the engineering case throughout the teaching. It innovates *Engineering Ethics* teaching mode from multi-angles and multi-dimensions. And it cultivates students' moral and ethical thinking in speculative engineering. To enable students to draw rich spiritual food from classroom teaching, it continuously enhances the sense of social responsibility and historical mission, train a group of complex talent with strong engineering practice ability, outstanding innovation ability, unity and cooperation spirit and national identity.

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