

# Research on the Practice of Ideological and Political Education in the Teaching of Engineering Courses

## ---Taking the Course of Water Supply and Drainage Pipe Network System for Example

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**Abstract** - Universities are important positions of ideological and political education, which plays a very important role in cultivating students' good learning motivation, political consciousness and social responsibility. "Water Supply and Drainage Pipe Network System" is a major degree course in water supply and drainage science and engineering. In the teaching process, the course of ideological and political education should be creatively carried out by taking advantage of course characteristics. Based on this, the curriculum of ideological and political education can be constructed through excavating intrinsic curriculum elements, improving the system, strengthening teachers' ideological and political construction, and integrating the practical teaching link into the curriculum. Practice shows that ideological and political education plays a very important role in professional curriculum education, which can not only improve students' learning motivation, promote students' ideological and moral accomplishment and professional moral accomplishment, but also can provide reference for ideological and political education in colleges and universities.

**Keywords**-professional courses, ideological and political education, practical research, water supply and drainage pipe network system

### I. INTRODUCTION

The opinions of the CPC Central Committee and the State Council on further strengthening and improving the ideological and political education of college students emphasized that classroom teaching should play a leading role in the ideological and political education of college students, and efforts should be made to expand the effective ways of ideological and political education of college students under the new situation. General Secretary Xi stressed, "ideological and political education in colleges and universities is related to the fundamental issue of what kind of people colleges and universities cultivate, how and for whom." At the same time, the conference on new engineering construction of Tianjin university pointed out

that the talents trained in the construction of new engineering must have good feelings of nation and country; The American academy of engineering points out that the talents cultivated in the construction of new engineering must have high moral standards and professional qualities, which indicates that ideological and political education plays a very important role in talent cultivation in colleges and universities. Moral cultivation must be carried out in the whole process, in all directions, and through the whole process of teaching. Therefore, college specialized courses have become an important part of ideological and political education. While cultivating students' professional skills, teachers should also make use of the characteristics of professional courses to carry out ideological and political education creatively, so as to improve students' ideological and political level and professional ethics, and make them become college students in the new era according with social needs and development of times<sup>[1]</sup>. In recent years, problems such as high-tech crimes, lack of professional ethics and weak feelings of family and country have attracted social attention. Improving ideological and political education of college students is essential for cultivating excellent high-level professional and technical personnel and prospering ideological and political construction of colleges and universities.

"Water supply and drainage pipe network system" is one of the core courses of water supply and drainage science and engineering. Water supply and drainage engineering has become an important infrastructure for urban construction and industrial production, and a basic guarantee for human life, health, safety, industrial and agricultural science and technology, and production development<sup>[2]</sup>. Traditional teaching only pay attention to "impart knowledge and apply what you have learned", that is, in the teaching process, only focus on whether students have mastered the key and difficult knowledge of the course, such as the engineering design and management of pipe network, the basic theory and engineering technology

of maintenance and operation scheduling. However, it neglects the moral education of professional ethics, cultural connotation and social responsibility that an engineer should have. Therefore, in the teaching activities of professional courses, it is particularly important to cultivate virtue and fully explore the ideological and political elements contained in professional knowledge, realize the organic integration of professional courses and ideological and political education, infiltrate ideological and political education throughout the whole process of university education and teaching, and facilitate the overall development of students. Thus, colleges and universities should seize the core link of curriculum reform, dig and sort out the ideological and political elements of professional courses, and integrate traditional ideological and political course education with professional courses, classroom teaching and teachers team construction.

## II. NECESSITY OF IDEOLOGICAL AND POLITICAL EDUCATION FOR WATER SUPPLY AND DRAINAGE SYSTEM COURSES

The traditional ideological and political education is realized through the cultivation of ethics and fundamentals of law, situation and policy. Although this kind of course has a complete theoretical framework of ideological and political education and a systematic teaching method, which can greatly improve students' ideological and moral cultivation and ideological and political understanding, teachers often ignore the professional background of the students in the teaching process, and tend to give students the impression of "high and far". If ideological and political education is fused to the teaching of professional courses, close to students' learning and daily life through a more down-to-earth way, it will easier to be accepted by students. Therefore, ideological and political education in specialized courses and traditional ideological and political education are two powerful ways to strengthen students' ideological and political education, one can not do without the other.

Technical economic and reasonable pipeline engineering designing scheme, normative construction management level have played a crucial role in the follow-up project operation and management , especially for water supply and drainage pipeline engineering, it belongs to large complex and hidden municipal engineering project, this kind of project is about people's livelihood directly, should not be careless, need to keep "masters" consciousness constantly, higher requirements are put forward for professional ethics of engineers engaged in pipeline engineering design and construction. Such as municipal sewage pipes need to be strictly anti-corrosion and leakage-proof, different types of sewage and local topography and geology require different materials of sewage pipes and different joints. It must be strictly constructed and guaranteed complete with quality and quantity. Otherwise, it tends to cause sewage leakage and lead to surface water and groundwater pollution. Therefore, while teaching, we should give full play to the function of ideological education and integrate ideological and political

elements into the curriculum, so that ideological and political education can be fully integrated into teaching and rooted in students' hearts.

## III. PRACTICAL APPROACH TO IDEOLOGICAL AND POLITICAL EDUCATION OF WATER SUPPLY AND DRAINAGE PIPE NETWORK SYSTEM COURSES

### A. *Internal Mining of Course Ideological and Political Elements*

Water supply and drainage pipeline engineering design not only demands students to master the basic principle of pipeline routing and the pipeline hydraulic parameters design and calculation process, at the same time also requires master engineering drawing basic theory knowledge and professional software operation, ultimately, students are required to design a technical and economic and reasonable pipeline engineering project, hence, practitioners should have a solid professional theoretical knowledge and good professional ethics, this is the course education goals. In the ideological and political education, the ideological and political elements of core socialist values and moral education can be explored, integrated into the course ideological and political education, and carry out the teaching design<sup>[3]</sup>. Such as in the professional ethics education of engineers, it is often mentioned that the design scheme is required to be "rigorous and realistic, quality first", "customer service, integrity oriented", "love and dedication to work" and other provisions, which are matched with the ideological and political elements of core socialist values "patriotism, dedication, integrity, the rule of law".

By digging into the ideological and political elements of the course "water supply and drainage pipe network system", changing the traditional educational concept, and full integrating the ideological and political requirements in the course teaching, so as to promote the combination of ideological and political education with professional courses, and realize the education of courses and the ideological and political goals.

### B. *Improve the Curriculum Ideological and Political System*

Based on the important position of water supply and drainage pipe network system, in the process of making teaching objectives, teachers should pay attention to exploring the course "ideological and political resources". Combine with the teaching contents of each chapter, each chapter and lesson should have corresponding teaching and moral education objectives when making the teaching syllabus and teaching plan. As in the teaching of water supply pipeline engineering design section, require students to maintain a rigorous and steadfast attitude, abide by the relevant requirements of the design specifications and atlas strictly, never opportunistic, also not allow any link to appear the slightest mistake, The accurateness, precision and elaboration of design scheme and calculation are equivalent to the happy life of common people, willing to

spend time and effort to modify pipeline design drawings, feeling the spirit of craftsmanship.

### *C. Strengthen Ideological and Political Construction of Course Teachers*

With the rapid development of the Internet era, students are increasingly involved in the society through the network new media and other channels. They are exposed to more and more unhealthy and negative judgments, and some negative values are gradually amplified. Under the environment of network interaction influence, students' ideological cognition and core values are greatly unstable. Therefore, colleges and universities should strengthen campus network management and network monitoring, filter bad information, create a good network atmosphere, and lay a good foundation for network ideological and political education<sup>[4]</sup>. In order to ensure the effect of ideological and political education, we should strengthen the construction of teachers' education, to encourage and guide the professional teachers to strengthen the ideological and political theory courses learning, especially study the content of education about the socialism with Chinese characteristics "four confidence" (confidence in its path, guiding theories, political system and culture), through learning regularly, go out training, seminars and other forms to improve teachers' ideological and political education levels, make teachers ideological and moral cultivation keep pace with The Times, so as to carry out moral education better in teaching<sup>[5]</sup>.

### *D. Strengthen Ideological and Political Construction in Practical Teaching*

"Water supply and drainage pipe network system" is a course with strong engineering practicality, which is closely combined with practical engineering, practical teaching is an indispensable part of this course. Through taking students to the project site to visit the water supply and drainage pipeline project, let students experience the whole process of pipeline construction, understand the important role of pipeline engineering in the urban operation system, once the water supply and drainage pipeline problems, will have a great impact on people's daily life. Improve students' understanding of pipeline engineering ideologically. Therefore, by "arming students" in terms of ideological awareness and professional ethics, students can learn theoretical knowledge of the course as a practitioner during the course of teaching, with stronger learning interest and better effect.

Curriculum design is an important practical link of the course "water supply and drainage pipe network system", and it is the first comprehensive engineering design ability training for students in school, which accounts for an important role in achieving the overall training objectives of students. Through curriculum design practice training, make students systematically grasp layout and planning of water supply and drainage pipeline, design and calculation of water supply and drainage pipeline engineering, affiliated facilities of water supply and drainage pipeline system and so on, clear learning "water supply and

drainage pipe network system" course teaching purpose is to solve the water supply, distribution and waste collection and transportation problem, for the cultivation of water supply and drainage science and engineering professionals to lay the foundation<sup>[6]</sup>. Therefore, the course design link occupies a very important position in the "water supply and drainage network system" course teaching. Instructor is necessary on the course design of the mobilization of lesson emphasizes the importance of pipeline design in water supply and drainage pipeline engineering, you can teach students some classic case of failure of pipeline engineering design, analysis the causes of failure of pipeline design, the subsequent loss of the failed project to the country, the safe hidden trouble that bring to people daily life and so on, students are required to maintain the sense of ownership during the curriculum design. Through the practical training of course design, clearly require students to set up correct design ideas and cultivate good professional ethics, cultivate students' practical ability, independent thinking ability, and the ability to analyze and solve engineering design problems.

## IV. CONCLUSION

Ideological and political education in specialized courses is an important link for college students to carry out ideological and political education. Deep excavate the resources of ideological and political education in specialized courses, and the ideological and political education should be integrated into the whole course teaching process. In practice, ideological and political education plays a very important role in promoting the education of professional courses. Compared with traditional teaching methods, students can learn professional knowledge more consciously, and consciously strengthen the establishment of the cultivation of ideological morality and professional attitude.

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