Original Article

THE DUAL PILLARS OF ENGINEERING EDUCATION: EMPHASIZING IDEOLOGICAL AND POLITICAL LEARNING IN VOCATIONAL SETTINGS

Wang Xiao Li and Liu Hua Feng

Hohhot Vocational College, Hohhot, 010051, China

Abstract: In vocational engineering courses, ideological and political education plays a pivotal role in fostering students' moral values and awareness of legal norms. This is achieved by encouraging students to analyze moral issues, emphasizing the significance of moral standards, and enhancing their moral sensitivity and responsibility. Additionally, the study of real-life cases helps students comprehend the interconnectedness of morality and legality, subsequently elevating their legal awareness and competence. This approach facilitates the effective cultivation and reinforcement of students' moral virtues, contributing to their holistic development.

Keywords: Ideological and political education, vocational engineering courses, moral qualities, legal awareness, case analysis

1. The importance of ideological and political education in vocational engineering courses

1.1 Improving students' moral quality

The ideological and political education in vocational engineering courses can help students establish a correct worldview, outlook on life, and values, and improve their moral qualities. In course teaching, by guiding students to identify and analyze various moral issues, students are made aware of the importance of moral norms, and their sensitivity and sense of responsibility towards morality are stimulated. At the same time, through the explanation and analysis of specific cases, help students understand the relationship between morality and law, and improve their legal awareness and literacy. Through this approach, ideological and political education can effectively guide and enhance students' moral qualities [1].

1.2 Promoting students' professional literacy

The ideological and political education in vocational engineering courses can promote students' professional literacy and equip them with better professional ethics and skills. In course teaching, by guiding students to recognize the importance of professional ethics and emphasizing the cultivation and practice of professional ethics, students can form correct professional attitudes and behavioral habits. At the same time, through teaching practice and case analysis, students can master professional knowledge and skills, improve their professional abilities and competitiveness. Through this approach, ideological and political education can effectively promote and enhance students' professional literacy [2].

Original Article

1.3 Cultivate students' innovation ability

At present, ideological and political education regards innovation ability as an important educational goal, guiding students to understand and master the development trends of cutting-edge and new generation technologies, and making them realize the importance of innovation for technological progress and social development[3].At the same time, teachers conduct innovative practices and project research to equip students with practical operation and problem-solving abilities, and encourage students to constantly try innovation in practice, improving their innovative thinking and practical abilities. This innovative education not only meets the actual needs of students, but also cultivates their innovative spirit and ability, laying a solid foundation for their future career development[4].

1.4 Promote students' self-awareness and growth

The ideological and political education in vocational engineering courses can promote students' self-awareness and growth, enabling them to better understand themselves and unleash their strengths and potential. In course teaching, by guiding students to understand their own values and interests, students can understand their strengths and weaknesses, and better plan their future development. At the same time, through teaching practice and case analysis, students are encouraged to continuously explore and discover their potential and advantages in practice, further improving their self-awareness and growth. Through this approach, ideological and political education can effectively promote and enhance students' self-awareness and growth [5].

1.5 Enhance students' sense of social responsibility and civic awareness

The ideological and political education in vocational engineering courses can enable students to become responsible and conscious members of society. In course teaching, by guiding students to pay attention to social issues and public interests, students are made aware of their responsibilities and obligations as citizens. At the same time, through teaching practice and social practice activities, students can experience the diversity and complexity of society firsthand, and cultivate their awareness and ability to actively participate in social affairs and public welfare activities. Through this approach, ideological and political education can enhance students' sense of social responsibility and civic awareness, and cultivate them to become talents with social values and public awareness [6].

2. Course content and objectives of "maintenance of vehicle wireless communication equipment" 2.1 Content

2.1.1 Basic knowledge of onboard wireless communication equipment

Students first need to master the basic knowledge of on-board wireless communication devices. This includes basic principles, structure, functions, and other related knowledge of onboard wireless communication equipment. Students need to understand the working principle and basic composition of on-board wireless communication equipment, including antennas, transceivers, signal processors, etc., as well as the functions and interrelationships of various components. At the same time, students also need to understand the functional characteristics and usage methods of on-board wireless communication devices, so that they can use and maintain the devices correctly in practical operation. In the process of learning these basic knowledge, teachers also need to guide students to understand the application of on-board wireless communication devices in modern transportation and future development trends.

2.1.2 Maintenance technology for onboard wireless communication equipment

This includes understanding common faults of on-board wireless communication equipment and their troubleshooting, maintenance, and repair methods. Students need to learn how to diagnose and maintain faults in on-board wireless communication equipment, including checking the working status of various components, measuring signal strength and quality, and troubleshooting and repairing various faults. At the same time, students also need to master the maintenance methods and repair techniques of onboard wireless communication

equipment, including disassembly, debugging, and component replacement. In the process of learning these maintenance techniques, teachers also need to guide students to understand the safe use and maintenance standards of on-board wireless communication equipment, as well as knowledge of maintenance records and daily maintenance[7].

2.1.3 Installation and debugging of onboard wireless communication equipment

While learning the maintenance techniques of on-board wireless communication equipment, students also need to learn the installation and debugging of on-board wireless communication equipment. This includes understanding the installation and debugging process of onboard wireless communication equipment, as well as precautions. Students need to learn how to install and debug onboard wireless communication equipment, including selecting appropriate installation locations and methods, adjusting antenna direction and height, etc., to ensure the normal operation of the equipment. At the same time, students also need to understand the precautions for installation and debugging of on-board wireless communication equipment, including knowledge on avoiding electromagnetic interference and equipment damage.

2.1.4 Performance testing and optimization of onboard wireless communication equipment

In addition to installation and debugging, students also need to learn the performance testing and optimization of on-board wireless communication devices. This includes understanding the performance testing methods and optimization techniques of onboard wireless communication devices. Students need to learn how to conduct performance testing on on-board wireless communication devices, including testing signal strength and quality, testing communication distance and speed, etc., to evaluate the performance of the devices. At the same time, students also need to understand the optimization technology of on-board wireless communication equipment, including knowledge in signal processing, antenna selection, and optimization.

2.1.5 Application and development trends of vehicle wireless communication equipment

Finally, students need to understand the application of in vehicle wireless communication devices in modern transportation and future development trends. Teachers need to introduce the applications of on-board wireless communication equipment in on-board navigation, on-board entertainment, Vehicle-to-everything and other aspects, as well as the requirements of these applications on on-board wireless communication equipment. At the same time, teachers also need to guide students to understand the future development trend of on-board wireless communication equipment, including the knowledge of new generation Vehicle-to-everything technology, intelligent transportation system, etc. Students need to understand the requirements and challenges of these new technologies and applications for in vehicle wireless communication devices, as well as the development direction and trends of future in vehicle wireless communication devices.

2.2 Goal

2.2.1 Master the basic principles and structure of onboard wireless communication equipment

Mastering the basic principles and structure of onboard wireless communication equipment is an important goal of this course. Students need to understand the working principle and basic composition of on-board wireless communication equipment, including antennas, transceivers, signal processors, etc., as well as the functions and interrelationships of various components. By studying these basic principles and structures, students can have a comprehensive understanding of the working methods of on-board wireless communication devices, laying a foundation for subsequent learning and practice.

2.2.2 Master the maintenance technology of onboard wireless communication equipment

Students need to learn common faults of on-board wireless communication equipment and their troubleshooting, maintenance, and repair methods. Students need to learn how to diagnose and maintain faults in on-board wireless communication equipment, including checking the working status of various components, measuring signal strength and quality, and troubleshooting and repairing various faults. By learning these maintenance

techniques, students can proficiently master the maintenance skills of on-board wireless communication equipment, improve their professional literacy and practical operation ability.

2.2.3 Master the installation and debugging techniques of onboard wireless communication equipment

Students need to learn the installation and debugging process of on-board wireless communication equipment, as well as precautions. Students need to learn how to install and debug onboard wireless communication equipment, including selecting appropriate installation locations and methods, adjusting antenna direction and height, etc., to ensure the normal operation of the equipment. By learning these installation and debugging techniques, students can proficiently master the installation skills of on-board wireless communication equipment, improve their professional literacy and practical operation abilities.

2.2.4 Master the performance testing and optimization technology of onboard wireless communication equipment

Students need to learn how to conduct performance testing on on-board wireless communication devices, including testing signal strength and quality, testing communication distance and speed, etc., to evaluate the performance of the devices. At the same time, students also need to understand the optimization technology of on-board wireless communication equipment, including knowledge in signal processing, antenna selection, and optimization. By learning these performance testing and optimization techniques, students can proficiently master the performance testing and optimization skills of on-board wireless communication devices, and improve their professional literacy and practical operation abilities.

2.2.5 Understand the applications and future development trends of on-board wireless communication devices

Students need to understand the application of in car wireless communication devices in modern transportation and future development trends. Teachers need to introduce the applications of vehicle mounted wireless communication equipment in vehicle mounted navigation, vehicle mounted entertainment, Vehicle-to-everything and other aspects, as well as the challenges these applications bring to the demand and development of vehicle mounted wireless communication equipment. At the same time, teachers should also introduce the future development trends of in car wireless communication devices, including 5G technology, Internet of Things technology, etc., as well as the impact and opportunities brought by these technologies on in car wireless communication devices.

3. The relationship between ideological and political education in vocational engineering courses and the course "Maintenance of Vehicle Wireless Communication Equipment"

3.1 The role of ideological and political education in the course of "Maintenance of Vehicle Wireless Communication Equipment"

Ideological and political education plays an important role in the course of "Maintenance of Vehicle Wireless Communication Equipment". Firstly, ideological and political education focuses on cultivating students' ideal beliefs and outlook on life, guiding them to establish correct values and professional ethics. In the field of wireless communication in vehicles, students need to possess good professional ethics and a sense of responsibility to ensure the normal operation of communication equipment and the safety of users. Secondly, ideological and political education emphasizes the cultivation of students' innovative spirit and practical ability. In the course, students need to master maintenance techniques through practical operations and problem-solving. Ideological and political education can stimulate students' innovative thinking and cultivate their ability to solve practical problems. In addition, ideological and political education also focuses on cultivating students' sense of social responsibility and teamwork ability. In the process of vehicle communication maintenance, students need to have good communication and collaboration skills to contribute to the smooth operation of the team.

Original Article

3.2 The integration of ideological and political education with the course of "Maintenance of Vehicle Wireless Communication Equipment"

The core concept of ideological and political education runs through all aspects of the course 'Maintenance of Wireless Communication Equipment in Vehicles'. During the teaching process of the course, the teacher will guide students to think about the importance of communication equipment maintenance for social development, and encourage them to understand and take on professional responsibilities. Secondly, the core content of ideological and political education is closely integrated with curriculum knowledge. Teachers will use teaching methods such as case analysis and discussion to guide students to think about the ethical and social issues that may be involved in the maintenance process of communication equipment, and cultivate their sense of social responsibility and professional ethics. At the same time, the practical operation and team cooperation in the course also provide a specific implementation platform for ideological and political education. Through practical operation and Cooperative learning, students can better understand the importance and spirit of team cooperation.

3.3 The interactive influence of ideological and political education on the course of "Maintenance of Vehicle Wireless Communication Equipment"

The ideological and political education and the course "Maintenance of Vehicle Wireless Communication Equipment" interact and promote each other. On the one hand, ideological and political education can provide students with correct values and outlook on life, guiding them to pay attention to academic ethics and professional ethics in their curriculum learning. Under the guidance of ideological and political education, students attach greater importance to integrity and standardization in the learning process. On the other hand, the learning and practice of courses can also deepen students' understanding and practice of ideological and political education content. Through practical operations and teamwork in the course, students can better experience the spirit of cooperation and social responsibility, thereby further consolidating and expanding the content of ideological and political education. Through the organic combination and interactive influence of ideological and political education with the course "Maintenance of Car mounted Wireless Communication Equipment", students can not only master the maintenance technology and knowledge of car mounted communication equipment, but also establish correct values and professional ethics.

4. Practical suggestions for ideological and political education in the course of "Maintenance of Vehicle Wireless Communication Equipment"

4.1 Strengthen professional ethics education

In the course 'Maintenance of Wireless Communication Equipment in Vehicles', students need to possess a high level of professional ethics, which is the foundation for ensuring work quality and reputation. Therefore, in the teaching process, teachers should guide students to establish correct professional ethics and conduct through course content and practical operations. For example, by introducing the connotation and significance of professional ethics and professional ethics, students can realize the importance of professional ethics in practice. At the same time, case analysis and discussion can also be used to help students understand the specific manifestations and solutions of professional ethics problems in different professional fields, guiding them to adhere to their awareness and ability of professional ethics.

4.2 Strengthen patriotic education

As a professional course, 'Maintenance of Vehicle Wireless Communication Equipment' not only requires students to possess professional knowledge and skills, but also requires students to possess patriotism. In the teaching process, students' patriotism education can be strengthened by teaching relevant knowledge and practical operations. For example, it is possible to introduce the development history and current situation of wireless communication equipment in China, allowing students to understand the current development status and future trends of the wireless communication equipment industry in China, and guiding students to recognize

the importance of wireless communication equipment in national economic and social development. At the same time, through practical operations, students can also experience the technical characteristics and application scenarios of wireless communication devices firsthand, further deepening their understanding and understanding of wireless communication devices.

4.3 Guide students to establish a correct outlook on life and values

In the course of "Maintenance of Wireless Communication Equipment in Vehicles", teachers should start from practical problems and cases, guide students to recognize their responsibilities and missions in work and life, establish a correct outlook on life and values, and make positive plans and arrangements for the future. At the same time, in practical operations, it is necessary to strengthen students' practical abilities and innovative awareness, so that they can better understand and master the knowledge and skills learned, and feel the joy and sense of achievement of work in practice. Teachers can also understand students' situations and needs through interaction and communication, provide them with correct help and guidance, help them solve confusion and confusion, and improve their comprehensive quality and work ability.

4.4 Cultivate students' innovative spirit and practical ability

In the course of "Maintenance of Vehicle Wireless Communication Equipment", we should also focus on cultivating students' innovative spirit and practical ability. Teachers can engage students in practical engineering projects through practical operations and research projects, allowing them to gain innovative thinking and practical skills through practice. For example, students can be organized to participate in relevant engineering projects and laboratory practices, allowing them to personally participate in the design, implementation, and optimization process of the project, cultivating their problem-solving ability and innovative awareness.

4.5 Promote social responsibility education

As a maintenance personnel for on-board wireless communication equipment, in addition to possessing professional skills and professional literacy, it is also necessary to have the awareness and ability to assume social responsibility. In the course of "Maintenance of Vehicle Wireless Communication Equipment", students should be guided to recognize the impact and responsibility of their work on society through case studies and practical operations, so that they can understand that only by making more contributions to the people can their value and meaning as technical personnel be reflected.

5. Conclusion

In summary, the course 'Maintenance of Vehicle Wireless Communication Equipment' is not only a professional course, but also an important branch of students' life path. In the teaching process, we should not only focus on imparting professional knowledge and skills, but also on cultivating students' moral cultivation, professional ethics, patriotism, innovative thinking, and practical abilities. At the same time, social responsibility education should also be promoted, guiding students to recognize their social responsibility as technical personnel, and cultivating students' awareness and ability to actively participate in social welfare undertakings.

Acknowledgment

Exploring the Path and Method of Constructing the "Golden Course" of Ideological and Political Education in Vocational Engineering Majors - Taking the Course "Maintenance of Vehicle Wireless Communication Equipment" as an Example XJ2022000602.

References

Qin D. (2023) The ideological and political construction path of the course "Fundamentals of Electrical Engineering and High Voltage Safety" under the background of engineering majors. Automotive Repair and Maintenance, 6, 84-86.

Original Article

Ding Y. (2023) On explicit and implicit education in curriculum ideological and political education: From the perspective of engineering professional courses. Times Automotive, 5, 85-87.

Zhu X, Chen Z, Zhang J, et al. (2023) Analysis and exploration of the integration of ideological and political elements in engineering ethics courses for engineering majors in universities. Journal of Higher Education, 9 (5), 53-55+60.

Zhu H, Zhao M, Liu J, et al. (2023) Research on the problems and strategies of ideological and political education in vocational mechanical courses. Times Automotive, 4, 56-58.

Deng H. (2022) Research and practice on ideological and political education in science and engineering professional courses - Taking the "Electrical Engineering" Course as an example. Teaching and Education (Higher Education Forum), 33, 94-99.

Zhao Y, Zhou L, Mo L, et al. Exploration and practice of ideological and political construction in non electrical professional courses - Taking the course of "electrical engineering" as an example. Science enthusiasts, 4, 1-3+8.

Dai J, Xia J. (2022) Exploring the path of ideological and political education in engineering courses taking vehicle and transportation major as an example: A review of "theoretical and practical research on practical teaching of ideological and political courses in universities of science and technology". Science and Technology Management Research, 42 (1), 230.