



Research on Ideological and Political Education in Electromagnetic Spectrum Sensing Courses

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Abstract. This paper deeply explores the ideological and political education of electromagnetic spectrum sensing courses, elaborates on the connotation and characteristics of ideological and political education in courses, and explores the ideological and political elements in courses. The goals of ideological and political education have been clarified, including knowledge, ability, and quality objectives, covering patriotism, scientific spirit, and teamwork education. Propose methods such as case analysis, group discussions, and practical teaching, as well as classroom teaching, extracurricular expansion, and online teaching platforms. To provide useful references for promoting the ideological and political construction of electromagnetic spectrum sensing courses.

Keywords: Electromagnetic spectrum sensing; Course; Ideological and political education

1 Introduction

In today's era of rapid technological development, electromagnetic spectrum sensing [1], as an important professional course, plays a crucial role in cultivating high-quality technical talents. At the same time, ideological and political education [2] has become an important mission of education in the new era, aiming to cultivate students' correct values, outlook on life, and worldview [3]. Integrating ideological and political education into electromagnetic spectrum sensing courses, achieving an organic unity of knowledge transmission and value guidance, has significant practical significance.

The ideological and political education of electromagnetic spectrum sensing course can not only enhance students' professional competence, but also cultivate their patriotism, scientific spirit, and teamwork awareness [4]. By exploring the ideological and political elements [5] in the course and adopting appropriate teaching methods and approaches, ideological and political education is integrated throughout the entire teaching process [6], so that students can receive the influence of ideological and political education unconsciously while learning professional knowledge. This study aims to explore in depth the theoretical basis, objectives, content, methods, and approaches of ideological and political education in electromagnetic spectrum sensing courses,

providing useful references and guidance for promoting the development of ideological and political education in this field.

2 Theoretical Basis of Ideological and Political Education in Electromagnetic Spectrum Sensing Course

2.1 The Connotation and Characteristics of Course Ideology and Politics

Course ideological and political education refers to the integration of ideological and political education into the talent cultivation system, comprehensively promoting the construction of ideological and political education in university courses, giving full play to the educational role of each course, and improving the quality of talent cultivation in universities. The ideological and political education curriculum has the following important characteristics: firstly, the integration of value guidance and knowledge transmission. Curriculum based ideological and political education is not about starting from scratch outside of professional courses, but about integrating value guidance into the process of imparting professional knowledge, enabling students to establish correct worldviews, outlooks on life, and values while learning professional knowledge. The second is to combine implicit education with explicit education. Course ideological and political education is not simply preaching, but rather infiltrating the content of ideological and political education into the teaching of professional courses through subtle influence. The third is to unify the education of all personnel with the education of the whole process. Curriculum ideological and political education requires all teachers in universities to take on the responsibility of educating students and integrate ideological and political education throughout the entire teaching process.

2.2 Exploration of Ideological and Political Elements in Electromagnetic Spectrum Sensing Course

Electromagnetic spectrum sensing, as a cutting-edge technology, contains abundant resources for ideological and political education. From a national security perspective, electromagnetic spectrum management is related to national defense and information security. By explaining application scenarios and technological history, it can enhance students' patriotism and sense of responsibility. In scientific research, a pragmatic attitude towards seeking truth is an important ideological quality, and teachers can cultivate students' scientific spirit by introducing scientists and their contributions. In addition, electromagnetic spectrum sensing projects often require collaboration, and teamwork is crucial. Teachers can organize team projects to enable students to learn communication, coordination, division of labor, and cooperation in practice, thereby cultivating their collectivist spirit and teamwork ability.

3 The Objectives and Content of Ideological and Political Education in Electromagnetic Spectrum Sensing Course

Integrating ideological and political education into the electromagnetic spectrum sensing course aims to enhance students' ideological and political qualities, professional competence, and comprehensive abilities through the learning and practice of professional knowledge.

3.1 Objectives of Ideological and Political Education

One is the knowledge objective. In the learning process of electromagnetic spectrum sensing course, students should not only master the basic theory, sensing technology and application methods of electromagnetic spectrum, but also understand the national laws and regulations, policy guidance on electromagnetic spectrum management, as well as the dynamics and development trends in the international electromagnetic spectrum field. At the same time, students should have a deep understanding of the basic theories and core concepts of ideological and political education, and form a correct understanding of ideological and political education.

The second is the ability goal. Through the study of electromagnetic spectrum sensing courses, students should have the ability to apply their learned knowledge to solve practical problems, including the ability to monitor, analyze, and apply electromagnetic spectra. At the same time, students should enhance their practical abilities in ideological and political education, such as critical thinking, social responsibility, and teamwork skills, in order to demonstrate the value of ideological and political education in professional practice.

The third is the quality goal. The ultimate goal of ideological and political education in the electromagnetic spectrum sensing course is to cultivate students' comprehensive qualities, including firm ideals and beliefs, noble moral qualities, good psychological qualities, and strong innovative consciousness. Students should establish lofty aspirations to serve the country and society, possess strong patriotism and national pride, and actively practice socialist core values in their future careers.

3.2 Content of Ideological and Political Education

One is patriotic education. In the electromagnetic spectrum sensing course, by introducing the development history, achievements, and challenges faced by China's electromagnetic spectrum field, students' patriotism and national pride are stimulated. At the same time, in accordance with the national laws, regulations, and policy guidance on electromagnetic spectrum management, guide students to establish a sense of responsibility and mission to contribute to the national electromagnetic spectrum security.

The second is the education of scientific spirit. Electromagnetic spectrum sensing is a highly scientific and technical course, and students should cultivate a rigorous scientific attitude, practical scientific spirit, and innovative scientific thinking during the

learning process. Through experiments, case analysis, and project practice in the course, students should learn to use scientific methods to solve problems and cultivate a scientific spirit of exploring the unknown and pursuing truth.

The third is team cooperation education. The development and application of electromagnetic spectrum sensing technology often require interdisciplinary and cross disciplinary cooperation. The importance of teamwork should be emphasized in the course, and students' teamwork spirit and communication skills should be cultivated through group discussions, project collaborations, and other methods. At the same time, guide students to learn how to leverage their strengths in the team, work together to solve problems, and achieve team goals.

The fourth is the education of fighting spirit. Through the study of course content, in addition to cultivating knowledge and ability goals, ideological and political goals are also a key focus. The main purpose is to cultivate students' fighting spirit of not being afraid of sacrifice, daring to strive, and determined to win. The spirit of combat is fundamental to military academy students and a key focus that needs to be vigorously cultivated. This is very important for military academy students, and teachers also need to pay close attention to this point, otherwise the original intention of cultivation will change. Not meeting the training objectives. This also has an impact on students' future career development. During this process, teachers also need to pay attention to the integration of knowledge and ideological and political education, ensuring a natural and smooth integration.

4 Methods and Approaches for Ideological and Political Education in Electromagnetic Spectrum Sensing Courses

4.1 Teaching Methods

One is the case analysis method. In the teaching of electromagnetic spectrum sensing courses, relevant practical cases are introduced, such as China's major technological breakthroughs in the field of electromagnetic spectrum and the stories of researchers overcoming difficulties. Through the analysis of these cases, guide students to deeply appreciate the spirit of patriotism, scientific spirit, and innovation. For example, describing China's independently developed advanced electromagnetic spectrum monitoring equipment to inspire students' national pride and patriotism; Analyze the persistence and innovation of research teams in solving the problem of electromagnetic spectrum sensing, and cultivate students' spirit of scientific exploration.

The second method is group discussion. Organize group discussions among students to exchange ideas on ideological and political topics related to electromagnetic spectrum sensing. For example, for team collaboration education, students can share the importance and successful experiences of teamwork in electromagnetic spectrum projects. Through group discussions, stimulate students' thinking, improve their communication skills and teamwork awareness.

The third is the practical teaching method. Integrating ideological and political education into practical teaching of electromagnetic spectrum sensing. In practical activities such as experiments and internships, cultivate students' rigorous scientific attitude and teamwork spirit. For example, during the experimental process, students are required to strictly follow the operating procedures, truthfully record data, and cultivate their integrity and sense of responsibility; Completing practical tasks through teamwork enhances students' team cohesion and collaboration abilities.

4.2 Teaching Approaches

One is classroom teaching. Fully leverage the main channel role of classroom teaching and organically integrate ideological and political education into the teaching content of electromagnetic spectrum sensing courses. Teachers should introduce ideological and political elements in a timely manner while explaining professional knowledge, such as incorporating the contributions of Chinese scientists and conducting patriotic education when introducing the development process of electromagnetic spectrum technology; When explaining the principles and methods of electromagnetic spectrum sensing, emphasis is placed on scientific spirit and innovative thinking.

The second is extracurricular expansion. Enrich the forms and contents of ideological and political education through extracurricular expansion activities. For example, organizing students to visit research institutions and enterprises related to electromagnetic spectrum, so that students can understand the current development status and prospects of China's electromagnetic spectrum field, and enhance their professional identity and sense of mission; Organize electromagnetic spectrum knowledge competitions, technological innovation activities, etc., to cultivate students' competitive awareness and innovation ability.

The third is the online teaching platform. Utilize online teaching platforms to expand the space for ideological and political education. Teachers can publish learning materials and case videos related to ideological and political education on the platform for students to learn independently; Set up an online discussion forum to guide students to exchange and discuss ideological and political topics; Carry out online courses for ideological and political education activities, such as online lectures, thematic discussions, etc., to improve the coverage and effectiveness of ideological and political education.

The fourth is independent homework. Through the explanation of concepts, the elucidation of theories, the deduction and calculation of processes, and the induction and summary of laws, we strive to enable students to understand concepts, theories, processes, and laws; Simultaneously adopting methods such as questioning and answering questions, classroom discussions, etc., to deepen students' understanding of the knowledge learned in the classroom. Strengthen the knowledge learned in class through classroom assignments and homework after class; Consolidate and improve the learned content through self-study after class. Through detailed deduction calculations and simulation experiments, deepen students' understanding of the knowledge they have learned and improve their ability to flexibly apply the knowledge they have learned to solve practical problems.

4.3 Assessment Method

The course adopts a combination of formative and summative assessments that integrate ideological and political education. Formative assessment mainly adopts forms such as classroom discussions, homework exercises, and experimental reports, accounting for 40% of the total score; The final assessment adopts a closed book examination method, mainly testing the learning effect and comprehensive application ability of students' theoretical knowledge, accounting for 60% of the total score.

5 Conclusions

Curriculum ideological and political education is an important direction for the reform of education and teaching in the new era. The exploration and practice of ideological and political education in electromagnetic spectrum sensing courses provide an effective way to cultivate high-quality professional talents with both morality and ability. By exploring the ideological and political elements in the curriculum, combining knowledge transmission with value guidance, students can establish correct worldviews, outlooks on life, and values while mastering professional skills. In future teaching, we should constantly innovate teaching methods and approaches, continuously promote the ideological and political construction of electromagnetic spectrum sensing courses, and cultivate more outstanding talents with patriotism, scientific spirit, and teamwork awareness for the country.

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