

Practical Strategies of Engineering Ethics Education in Graduate Students Majoring in Green Building Materials

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Abstract: This paper discusses the practical strategies of engineering ethics education in graduate students majoring in green building materials. As an important part of sustainable development, the selection and use of green building materials involve issues of ethics, environmental impact and social responsibility. However, there are some deficiencies in the engineering ethics education of graduate students majoring in green building materials. This paper analyzes the ethical challenges and professional ethics requirements in the field of green building materials, and puts forward the following practical strategies: First, set up engineering ethics courses to cultivate students' ethical awareness and professional ethics; The second is to organize engineering ethics case discussion and debate to promote students' thinking and decision-making ability; The third is to introduce practical projects and field trips to strengthen students' understanding of the practical application and environmental impact of green building materials. Through these practical strategies, graduate students can more comprehensively understand and cope with engineering ethical issues, provide a more scientific and reliable basis for the selection and use of green building materials, and promote the practice of sustainable development.

Keywords: Green building materials; Practice; Tactics

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1. Introduction

The application of green building materials has attracted more and more attention in the field of sustainable building, because of its advantages of environmental friendliness, resource conservation and energy efficiency. Green building materials graduate students face important issues of ethics, environmental impact and social responsibility in their professional development. Therefore, engineering ethics education is of great significance in the practice of graduate students majoring in green building materials. This paper discusses the practical strategies of engineering ethics education for graduate students majoring in green building materials to promote the sustainable development of green building materials.

2. Engineering ethics and green building materials

2.1 Concept and importance of engineering ethics

Engineering ethics refers to the principles and norms for dealing with ethical and moral issues in engineering practice, involving engineer's responsibility, integrity, justice and so on. The importance of engineering ethics lies in ensuring the rationality, safety and social acceptability of engineering practices. It is the guiding principle for engineers in their decisions and operations, safeguarding the public interest and protecting the environment.

2.2 Definition and characteristics of green building materials

Green building materials refer to building materials that are beneficial to the environment and human health throughout their life cycle, including considerations such as renewable resource utilization, energy and water efficiency. The characteristics of green build-

ing materials include environmental friendliness, resource conservation, energy efficiency, and low carbon emissions.

3. Theoretical basis of engineering ethics education

3.1 Concepts and objectives of engineering ethics education

The idea of engineering ethics education is to train engineers' ethical awareness and professional ethics, so that they can make ethical and ethical decisions and behaviors in practice. The objectives of engineering ethics education include enhancing students' awareness and understanding of ethical and moral issues, cultivating their sense of responsibility and decision-making ability, and promoting their career development and social responsibility.

3.2 Methods and strategies of engineering ethics education

First, value-oriented education. By guiding students to explore and think about values, ethics and professional codes of conduct, they build up correct ethical concepts and moral judgment. Second, case education. Through real case materials, students can understand and think about engineering ethical issues, discuss and analyze them, and improve their ethical decision-making ability. Third, storytelling education. Through the presentation of the success and failure of the engineering industry, students are stimulated to think about ethical issues and help them form the correct professional ethics and codes of conduct. Fourth, practical education. Through practical projects, field trips and social service activities, students can directly face ethical and moral issues and cultivate their ethical awareness and professional quality in practice.

4. Current situation and demand of graduate students majoring in green building materials

4.1 Training objectives of graduate students majoring in green building materials

Master the professional knowledge and skills of green building materials, and have the ability to research and develop green building materials. Have the ability of green building design and evaluation, can use green building materials to achieve energy saving, environmental protection and sustainable development of buildings. The ability to collaborate and innovate across disciplines, working with architects, engineers and environmental experts to promote the application and development of green building materials.

4.2 Current situation of ethical consciousness of graduate students majoring in green building materials

At present, there are some problems in the ethical consciousness of graduate students majoring in green building materials, including: insufficient understanding of ethical issues, lack of sensitivity and attention to ethical issues. There is a lack of awareness of the environmental and social impact of green building materials and a lack of consideration of their ethical responsibilities. Lack of guidance and normative awareness of ethical decision-making and professional behavior.

5. Practical strategies for engineering ethics education in green building materials majors

Offer engineering ethics courses. First, curriculum objectives and content design. Clarify the training objectives of the curriculum, such as improving students' awareness and understanding of ethical and moral issues, cultivating their sense of responsibility and decision-making ability. The content of the design course includes ethical theories, ethical guidelines and case studies. Second, the selection of teaching methods and teaching materials. A variety of teaching methods, such as classroom lectures, group discussions, case studies, etc., are used in combination with textbooks and case materials to enhance student engagement and understanding. Third, evaluation and feedback mechanisms. Establish assessment and feedback mechanisms to assess student learning outcomes, such as exams, assignments, group discussions and individual reports, while providing timely feedback and guidance.

6. Effect evaluation and optimization of practical strategies

6.1 Student feedback and evaluation

First, collect feedback and evaluation from students. Set up feedback channels, such as course evaluation questionnaires, group discussion feedback, etc., to understand students' reactions and evaluations to practical strategies. Second, analyze students' feedback. Carefully analyze student feedback and evaluation to understand which aspects of the practice strategy are accepted by students and which areas need to be improved and optimized.

6.2 Teachers' reflection and adjustment

First, teachers' reflection and self-assessment. Teachers should reflect and self-evaluate their practical strategies, and consider whether their teaching methods and effects are consistent with the expected goals, whether they meet the needs of students, and

whether they can effectively cultivate students' ethical awareness and professional quality. Second, adjust the teaching methods and contents. According to the feedback and evaluation of students, teachers can timely adjust the teaching methods and contents, such as improving the selection of cases, increasing the relevance and practicability of practical projects, so as to improve the effect of practical strategies.

7. Limitations and prospects of the study

Limitations and reasons of the study: First, sample limitation. The study may be based on a limited sample size and could not cover a comprehensive group of graduate students majoring in green building materials. Second, subjective bias. There may be subjective biases in the research process, such as the influence of the researcher's personal opinion and experience. Third, time and resource constraints. The study may have time and resource constraints to investigate and analyze all relevant factors in a comprehensive and in-depth manner.

Directions and suggestions for further research: First, expand the sample scope. To further expand the sample scope of the study to include more graduate students majoring in green building materials, so as to increase the reliability and representativeness of the study. Second, multi-angle research. Research from multiple perspectives, including students, faculty, and industry experts, to gain more comprehensive data and perspectives. Third, interdisciplinary research. Expand the scope of study to other subject areas related to the green building materials profession, such as architecture, environmental science, etc., to gain a broader perspective and expertise. Fourth, long-term follow-up research. Through long-term follow-up research, understand the professional ethics development and practice of graduate students majoring in green building materials in practical work, in order to evaluate the results and effects of research.

Through the understanding of the limitations of the research and the discussion of the direction and suggestions of further research, it can provide guidance and inspiration for future research, further understand the current situation and demand of green building materials graduate students, and provide better support for cultivating professionals with ethical awareness and professional quality.

8. Conclusions

The purpose of this study is to explore the practical strategies of engineering ethics education for graduate students majoring in green building materials. Through the analysis of relevant literature and expert opinions, combined with practical experience and teaching theory, a series of practical strategies are put forward. The main achievements include setting up engineering ethics courses, organizing case discussions and debates, introducing practical projects and field visits, and putting forward the methods of effect evaluation and optimization.

In the future, the practical strategies of engineering ethics education for graduate students majoring in green building materials can be further deepened and optimized. It can strengthen interdisciplinary cooperation with other subject areas, innovate teaching methods and forms, and provide more practical opportunities and resources to cultivate professionals with ethical awareness and professional literacy.

This study has important contribution and significance for promoting engineering ethics education of graduate students majoring in green building materials. By proposing practical strategies, students can enhance their ethical awareness and professional ethics, and guide them to work more responsibly and sustainably in the field of green building materials. In addition, the study also provides practical guidance for teachers and decision makers in related fields to enhance the effectiveness and practicability of engineering ethics education.

To sum up, this study provides guidance and suggestions for cultivating professionals with ethical awareness and professional quality by exploring the practical strategies of engineering ethics education in graduate students majoring in green building materials. Future research can make greater contributions to the implementation and development of engineering ethics education in the green building materials profession by further deepening practical strategies and interdisciplinary cooperation.

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