

Teaching reform and practice of agricultural engineering specialty under the background of “double first-class” construction

Feiren Wang

(GuangDong Mechanical & Electrical Polytechnic, Guangzhou 510550, China)

Abstract: With the rapid development of economy and society, the teaching contents and methods of agricultural engineering majors need to be reformed in order to meet the needs of agricultural modernization. Therefore, it is particularly important to study the background and significance of teaching reform and practice of agricultural engineering specialty. This paper aims to discuss the current situation, problems and solutions of the teaching reform and practice of agricultural engineering major under the background of “double first-class” construction, aiming at putting forward feasible teaching reform and practical measures to improve the education quality of agricultural engineering major and cultivate the ability of talents.

Key words: “double first-class” construction; Agricultural engineering; Teaching reform

I. Construction of “double first-class” and development of higher education

1. Policy background of “Double First-class” construction

“Double first-class” construction refers to the construction of first-class disciplines and first-class universities in the field of China’s higher education, so as to enhance the overall level of China’s higher education and international competitiveness. The policy background mainly comes from two aspects. Higher education is an important support for national development. With China’s booming economy and intensifying global competition, there is a growing demand for high-quality talents. A high-quality higher education system can train more talents who meet the needs of society, promote innovation and scientific and technological progress, and enhance the country’s competitiveness. Therefore, accelerating the development and promotion of higher education is an important part of the national strategy. Secondly, the intensification of international higher education competition is also one of the reasons to promote the construction of “double first-class”. In today’s world, higher education has become one of the important symbols of a country’s comprehensive strength and international influence. Many countries have increased their investment in higher education and put forward the goal of high-quality education, expanding their international influence by attracting international students and scholars and carrying out high-level scientific research cooperation. In order to compete with international higher education and enhance its international reputation, China needs to build a number of first-class universities and disciplines with international influence.

2. Goals and requirements for the construction of “double first-class” higher education

The goal of the construction of “double first-class” higher education is to establish a group of first-class universities and first-class disciplines with international influence, so as to enhance the overall level and influence of China’s higher education. At the same time, the construction also aims to speed up the construction of the innovation system of higher education, enhance innovation capacity and scientific research strength, and provide strong support for the country’s economic and social development. Specifically, the “double first-class” construction of higher education aims at the following aspects: First, to build a number of world-class universities. By increasing support and investment in first-class universities, we can cultivate internationally competitive high-end talents, attract international students and scholars, and enhance the international reputation and influence of universities. First-class universities should have world-leading school-running concepts and management models, excellent teaching staff and research strength, and be able to achieve research results with international influence in important disciplines and fields. Second, we should build a number of world-class disciplines. By increasing investment in and support for first-class disciplines, we will improve their teaching quality, scientific research level and social service ability, and cultivate high-level talents with innovative and applied abilities. First-class disciplines should have internationally competitive discipline leaders and excellent research teams, and be able to take a leading position in important fields and cutting-edge academic issues. Third, promote the connotative development of higher education. The construction of “double first-class” in higher education is not only the pursuit of superficial ranking and reputation, but more importantly, the promotion of connotative development of higher education. Through measures such as optimizing the layout of disciplines, building high-quality courses and deepening the reform of personnel training, the teaching quality and the comprehensive quality of students will be improved, and high-quality talents with innovative spirit and practical ability will be cultivated.

3. The influence of the construction of “double first-class” on the teaching of agricultural engineering majors

The construction of “double first-class” in higher education has an important impact on the teaching of agricultural engineering majors. Agricultural engineering majors are engineering technology majors related to agricultural production, involving knowledge and skills of agricultural machinery, agricultural water conservancy, farmland water conservancy engineering, agricultural product processing, etc. Under the background of the construction of “double first-class”, the teaching of agricultural engineering also needs to face a series of challenges and changes. The construction of “double first-class” in higher education emphasizes the cultivation of high-quality talents with innovative ability and application ability. For agricultural engineering majors, this means that the teaching content and methods need to pay more attention to practical application and innovation ability cultivation. The traditional theoretical teaching can no longer meet this requirement.

It is necessary to strengthen practical teaching and experiment training to cultivate students' ability to solve practical problems. At the same time, it is also necessary to set up innovation and entrepreneurship courses to guide students to pay attention to the frontier technology and development trends in the field of agricultural engineering, and cultivate innovative thinking and entrepreneurial spirit.

II. The necessity of teaching reform of agricultural engineering majors

1. Responding to the requirements of "double first-class" construction

The teaching reform of agricultural engineering majors has the urgency to respond to the requirements of "double first-class" construction. Under the background of improving the overall level of higher education and international competitiveness, the construction of "double first-class" requires universities to make important breakthroughs and international influence in the field of agricultural engineering. Therefore, agricultural engineering majors need to train high-quality talents with innovative ability and application ability through teaching reform, strengthen interdisciplinary integration, improve teaching quality and research strength, and meet the social demand for talents in the field of agricultural engineering.

2. Adapt to the development needs of the agricultural engineering field

The field of agricultural engineering is facing new development opportunities and challenges, which require new technologies, new ideas and new talents. The teaching reform of agricultural engineering majors can provide students with systematic and practical teaching content and training methods, so that they have the ability to face emerging technologies and new problems such as agricultural machinery automation and precision agriculture. At the same time, the reform can also strengthen the connection with agricultural science and technology innovation and production practice, provide more close to the actual needs of education content and training mode, and cultivate innovative talents and practical talents.

3. The urgent need to improve the quality of personnel training

The quality of agricultural engineering personnel training is directly related to the process of national agricultural modernization and agricultural sustainable development. Under the background of the new era, the talents of agricultural engineering majors are no longer just technical talents, but also need to have rich comprehensive quality and innovation ability. Teaching reform can improve the quality of personnel training from the aspects of curriculum setting, teaching methods, practice links, etc., and cultivate high-quality talents to meet the needs of agricultural engineering development. Teaching reform can not only improve the professional level of students, but also improve their comprehensive quality, so that they have the ability to solve practical problems and innovate, and then make positive contributions to the development of agricultural engineering field.

The necessity of agricultural engineering teaching reform is reflected in responding to the requirements of "double first-class" construction, adapting to the development needs of the agricultural engineering field and improving the quality of personnel training. Through the teaching reform, it can promote agricultural engineering majors to cultivate high-quality talents with innovative ability and application ability, promote interdisciplinary integration and innovative development, and meet the social demand for talents in the field of agricultural engineering. This is of great significance for promoting the process of agricultural modernization and the sustainable development of agriculture.

III. Practical exploration of agricultural engineering professional teaching reform

1. Adjustment and optimization of the curriculum system

The teaching reform of agricultural engineering majors can start from the adjustment and optimization of the curriculum system, so as to better adapt to the development needs of the industry and improve the quality of personnel training. Schools can introduce cutting-edge courses: cutting-edge knowledge in emerging fields can be integrated into the curriculum system, such as agricultural robot technology, intelligent agriculture, precision agriculture, etc. This helps cultivate students' insights and innovative thinking about future trends in the industry. Interdisciplinary elective courses that are closely related to agricultural engineering, such as agroecology, environmental protection engineering, food science, etc., are offered to help students understand the application and impact of agricultural engineering in a wider field. Strengthen practical teaching and experimental training, including practical operations in farms, agricultural enterprises, laboratories and other places, to cultivate students' hands-on ability and problem-solving ability. This will help transform theoretical knowledge into practical skills.

2. Building and training of teachers

The teaching reform of agricultural engineering majors needs to strengthen the construction and training of teachers to improve their teaching level and scientific research strength, which not only requires teachers to have solid subject knowledge, but also needs to have the ability to update teaching methods and keep pace with the development of the profession. The school should strengthen the introduction and selection of outstanding talents, giving priority to talents with industry background and practical experience, so as to improve the practicability and pertinence of teaching. Well-known experts and scholars at home and abroad are introduced to serve as short-term or long-term lecture teachers to lead the development of teaching staff. Provide continuous teacher training and career development opportunities, and strengthen the cultivation of teachers' teaching methods, scientific research ability and management ability. The training content can include educational technology and instructional design, educational psychology, project management, etc., in order to enhance teachers' guiding ability and innovation ability in teaching practice.

IV. Conclusion

The construction of “double first-class” education has put forward important requirements for the teaching reform of agricultural engineering majors. It is necessary to strengthen the cultivation of innovation ability and application ability, strengthen interdisciplinary integration, and improve teaching quality and research strength. This is in order to meet the development needs of the field of agricultural engineering and the urgent need to improve the quality of talent training. Through the exploration and practice of teaching reform, agricultural engineering majors can better adapt to the requirements of “double first-class” construction, cultivate high-quality talents with innovative ability and application ability, and make positive contributions to the development of agricultural engineering field and the process of agricultural modernization. This will further enhance the overall level of China’s higher education and its international competitiveness.

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