# Training of applied technical talents in electrical engineering under double first-class background

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**Abstract:** At present, double first-class construction has brought new opportunities for our university education, colleges and universities have combined their actual learning situation, transformed the educational concept, optimized the course system, and innovated the teaching mode, in order to meet the social market talent demand in the new era. The major of electrical engineering is one of the key majors of double-first-class construction. Therefore, electrical engineering majors in colleges and universities should actively explore innovative application technology talent training programs and constantly improve the quality of talent training. Based on the importance of training applied technology talents for electrical engineering major under the background of double first-class, this paper analyzes the current situation of training applied technology talents for electrical engineering major in colleges and universities, and puts forward optimization strategies.

**Key words:** Electrical engineering major; Applied technology type; Personnel training

Double first-class construction refers to the construction of first-class universities and first-class disciplines in China's higher education. It is another national education development strategy after the "211 Project" and "985 Project", and plays a positive role in improving the quality of education and the level of running colleges and universities. Electrical engineering is a major with strong practice and fast technology development. Therefore, the education and teaching of electrical engineering should not only train students to master solid professional theoretical knowledge and skills, but also have good practical application ability, that is, train electrical engineering professionals with applied technology. Therefore, colleges and professional teachers should take advantage of the opportunity of double-first-class construction to carry out innovative reforms in the education and teaching of electrical engineering, so as to transport more excellent applied technical talents for the relevant industries and industries.

## I. The importance of training applied technical talents for electrical engineering under the background of double first-class

1. To meet the needs of talents in electrical engineering related industries

With the rapid development of social economy and the rapid development of high-tech industries, the electrical engineering industry has an increasing demand for high-quality applied technical talents with good professional knowledge reserve, comprehensive practical ability and innovative thinking. The strategic policy of double first-class construction has significant advantages in improving the discipline construction, faculty strength and academic research of electrical engineering majors in colleges and universities. Colleges and professional teachers should actively implement the double-first-class construction and continuously optimize the education and teaching quality of electrical engineering majors, so as to cultivate more applied technology professionals. In addition, electrical engineering majors in colleges and universities usually cooperate with relevant enterprises or scientific research institutions in the process of training applied technology talents. This will also help electrical engineering majors in colleges and universities to further improve the talent training program to meet the needs of talents in electrical engineering related industries.

2. Improve the employment competitiveness of electrical engineering students

Applied technical talents refer to excellent talents who have strong professional knowledge and accomplishment and can apply it to practical practice. The construction of double first-class requires universities and teachers to continuously optimize the course system of electrical engineering major, innovate practical teaching and improve the training mode of talents, which coincides with the training of application-oriented talents. Therefore, based on the double-first-class construction, teachers strengthen the training of applied technology talents, which is helpful to improve the professional quality and professional ability of electrical engineering students, so as to effectively enhance the employment competitiveness of students. At the same time, applied technology talents often have good innovative thinking and ability, which is of great help for students to quickly adapt to the work content after entering the job, thus providing more opportunities and development space for students' employment and career development.

## II. The current situation of the training of applied technical talents for electrical engineering in colleges and universities

1. The curriculum system still needs to be optimized

The traditional course system of electrical engineering is basically similar to that of most science and engineering majors. It consists of basic public courses such as mathematics and physics, and professional courses such as computer science and power system analysis. Although it can reflect the characteristics of electrical engineering, the curriculum system is relatively simple and lacks the latest technical teaching content. At the same time, the current practical teaching of electrical engineering major is also relatively weak, mostly reductive experiment and practical teaching, lack of practical teaching content combined with practical projects. In the long run, students' ability to

combine science and practice has not been developed, let alone their ability to apply technology can not be improved. In this regard, colleges and universities should actively respond to the double first-class construction, reform and innovate the curriculum system, optimize the theoretical course content in light of the development trend of the electrical engineering industry, and strengthen the cooperation between schools and enterprises to promote the innovative development of the integration of production and education teaching mode in the electrical engineering major.

2. The construction of teaching staff needs to be improved

At present, although electrical engineering teachers have good professional background and teaching experience, many teachers have little understanding of the actual work content of electrical engineering because they are rooted in the teaching line, and lack of practical experience in electrical engineering. As a result, teachers pay more attention to the teaching of theoretical knowledge in teaching activities. In this teaching mode, students only passively memorize knowledge, and do not find and solve problems through independent exploration, which is not conducive to the cultivation of students' comprehensive application ability. At the same time, with the improvement of the demand for applied technical talents in the electrical engineering industry, the requirement for students' professional practice ability also increases. However, college teachers mainly lead students to carry out simulated basic practical operations, and can not provide students with actual teaching resources of electrical engineering projects. In this regard, colleges and universities should, under the support of the double first-class construction policy, invite enterprise backbone or academic research experts to serve as visiting professors in order to improve the teaching power of electrical engineering.

## III. The training strategy of applied technical talents for electrical engineering in colleges and universities under the double first-class background

1. Clarify the training objectives of electrical engineering talents

Under the double first-class background, the primary task for colleges and universities to train more applied technology professionals is to clarify the talent training objectives of electrical engineering. First of all, electrical engineering teachers should strengthen exchanges and cooperation with relevant enterprises, in-depth investigation of enterprises, and understand the specific requirements of current enterprises for electrical engineering professionals. For example, the electrical engineering major can organize and carry out the theme seminar on the talent training and industrial development of the electrical engineering industry, and invite relevant local enterprises to participate in the meeting, and jointly discuss the training goals of electrical engineering professionals that meet the needs of the development of the industry. Thus, when students graduate, they can quickly adapt to the job and show good technical application ability. Secondly, teachers should pay more attention to practical teaching and specify specific practical teaching requirements in personnel training objectives. For example, in the training objectives of electrical engineering majors, students should be encouraged to actively participate in relevant competitions and obtain relevant certificates, and the design of experimental and practical training courses should be optimized and the proportion of class hours should be increased. Through scientific and systematic practical teaching, students' professional skills and comprehensive application ability are improved. At the same time, in the process of participating in competitions and textual research, teachers should provide targeted guidance and guidance, so as to better improve students' innovative thinking and ability to solve practical problems. In addition, applied technical talents usually have good team spirit, communication skills and good professional ethics. Therefore, when making clear the training objectives of electrical engineering professionals, teachers should also include these in order to cultivate high-quality applied technical talents for electrical engineering to meet the needs of the development of the industry.

2. Optimize the course system of electrical engineering

The double first-class construction of electrical engineering in colleges and universities emphasizes the optimization of curriculum system setting without increasing students' academic burden. Basic course is the premise and foundation of students' follow-up study and professional development. Teachers should optimize some old basic course contents according to the development of electrical engineering industry and technology, and make weakening actions during class hours. At the same time, the proportion of class hours of engineering mechanics, digital electronic technology, engineering practice and technology application courses should be strengthened to ensure that students master solid professional knowledge and skills. In addition to the reform of theoretical courses, the electrical engineering major should also increase experimental and practical training links to provide more opportunities and platforms for students to apply the theoretical knowledge they have learned to practical operations. In this regard, teachers can introduce electrical engineering example projects, so that students can improve their professional and technical level and comprehensive application ability in practical operation. In addition, with the rapid development of the field of electrical engineering, new technologies and new processes continue to emerge. In this regard, teachers keep paying attention to and learning about the development of the industry, and integrate the cutting-edge trends and technological developments of the electrical engineering profession into the teaching curriculum. For example, in the teaching process, students are introduced to the application and development of artificial intelligence and new energy technology in the field of electrical engineering. These relatively advanced technical topics play a positive role in stimulating students' curiosity and desire to explore, and can effectively enhance students' professional vision and awareness of inquiry. At the same time, colleges and universities also need to establish a course quality evaluation mechanism, and constantly adjust the course teaching content and teaching methods according to the feedback and suggestions of teachers and students on the course of electrical engineering, so as to realize the construction of the course system of electrical engineering under the background of double first-class.

3. Innovate the practical teaching mode of electrical engineering specialty

Double first-class construction requires that electrical engineering majors in colleges and universities should start from the construction of professional disciplines, take the training of professional application technical ability as the leading role, and cultivate both solid professional knowledge and skills as well as professional core qualities of applied technical talents according to the needs of the industry. In this regard, colleges and universities should constantly innovate the practical teaching mode of electrical engineering, pay attention to the integration of production and education, and organically link the practical teaching content with the enterprise's job content through strengthening the cooperation and communication with enterprises. In the specific teaching activities, teachers can promote the reform and innovation of practical teaching mode of electrical engineering through the following aspects. First, project teaching method should be introduced. Teachers can transform the traditional classroom teaching model into project-oriented practical teaching activities. By assigning specific electrical engineering projects to students, students can exercise their ability of project planning, implementation and operation and maintenance, so that students can improve their understanding and application of professional knowledge and skills in the process of solving practical problems. Second, strengthen the construction of practical training bases. College electrical engineering majors should actively cooperate with related enterprises to build off-campus training bases. And under the support of the double first-class construction policy, the latest experimental equipment, virtual experiment platform and other advanced practical teaching hardware facilities are introduced to provide more high-quality practical learning opportunities and platforms for students. Third, encourage students to participate in all kinds of electrical engineering competitions and certificate examinations. Such as "Challenge Cup" National College students extracurricular academic Science and technology works competition, National College Students Electronic Design Competition, National College students Mathematical Contest in Modeling and so on. In the process of participating in the competition, students can exercise their own technical application ability and team cooperation ability.

4. Building a team of "double-qualified" professional teachers

Teachers are the backbone to promote the double-first-class construction of electrical engineering majors in colleges and universities, and also an important guarantee for training applied technical talents in electrical engineering majors. "Double-qualified" teachers mean that in electrical engineering, teachers should not only have good professional background and teaching ability, but also have rich professional practical experience. In this regard, colleges and universities should first strengthen teacher training and education, such as organizing teachers to research and study in electrical engineering related enterprises, and improving their professional quality and practical ability through communication with front-line staff and practical work practice. Secondly, teachers should also be encouraged to actively participate in actual electrical engineering projects or academic research to accumulate professional practical experience. For example, colleges and universities can sign cooperation agreements with electrical engineering enterprises, provide opportunities for teachers to participate in the research and development of enterprise projects, and encourage teachers to provide technical consulting services for enterprises, so as to comprehensively improve the comprehensive professional quality of teachers. In addition, colleges and universities can also introduce a group of outstanding talents with practical experience and excellent academic achievements in the field of electrical engineering under the support of the double-first-class policy, so as to realize the formation of "double-qualified" teachers. At the same time, colleges and universities should also organize teachers to actively participate in electrical engineering related teaching and research and academic exchange activities, and promote the sharing and exchange of teaching experience between teachers and teachers in other colleges and universities, so as to better improve the teaching level of electrical engineering teachers.

## IV. Conclusion

To sum up, there is a long way to go to train applied technical talents for electrical engineering majors in colleges and universities under the double first-class background. Teachers should constantly optimize the curriculum system of electrical engineering, innovate practice teaching mode, and improve their teaching ability, based on the clear talent training goals, in order to promote the progress and development of electrical engineering education and teaching under the background of double class, and cultivate more application technology talents to contribute to the field of electrical engineering in our country.

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