

Research on the Practice Teaching System of Electronic Majors in Universities

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Fund project: Reform and Practice of Project-based Teaching Model Based on the Internet——Taking the electronic technology application courses in independent colleges as an example

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Abstract: Electronics majors have strong practicality. With the increasing demand for application-oriented and skilled talents in China, college electronics majors should actively innovate practical teaching systems, and build a multi-dimensional practical teaching system that integrates in-and after-class teaching and cooperation between schools and enterprises in combination with the actual situation to adjust the teaching practice link is effectively, focusing on training students' practical ability and creative thinking ability to achieve comprehensive development. This article focuses on issues related to the practical teaching system of electronic majors in colleges and universities.

Keywords: Higher Education; Electronics Majors; Practical Teaching System; Research

With the rapid development of network information technology, the electronic information industry has achieved rapid development and plays a pivotal role in the development of the national economy. Many colleges and universities set up electronics majors such as communication engineering and electronic information engineering based on society and their own development needs, but there are still many deficiencies in practical teaching. Next, the article will talk about some reflections on the practical teaching system of electronic majors in colleges and universities.

1. Innovative practice teaching system

(1) Establish the teaching concepts of "design", "innovation" and "integration"

Under the new situation, college electronics majors should be actively based on the Electrical and Electronic Practice Teaching Center, emulating electronic technology, reforming circuit principles, sensor principles, digital electronic technology, and many other experimental practice teaching content. Teachers should adopt the experimental teaching mode of "design + synthesis + demonstration", and infiltrate the concepts of "design" and "innovation" in the teaching of basic courses, adhering to the teaching principles from easy to difficult and shallow to deep, and fully respecting the student's learning situation, focusing on stimulating students' practical interest and enthusiasm to effectively enhance students' practical ability.

(2) Actively adopt personalized teaching mode

When creating a practical teaching system for electronic majors, it is essential to refine the practical teaching content of the basic courses of the major, decompose the content in difficulties, and carry out teaching at different levels. As a teacher, we must first find out the learning foundation and learning ability of class students, grasp the differences in abilities among different students, and divide the experimental requirements into three levels: qualified, good and excellent. Adhering to the guiding principle of guiding students towards the highest level of hard work, carry out personalized operations, cultivate high-level and strong students

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with high practical skills, and also enable students with poor ability to find a sense of achievement and honor, to prevent the occurrence of students with strong abilities that feel the content too simple and students with weak abilities to keep up with the pace, thereby reducing the overall effectiveness of practical teaching.

(3) Set practical public elective courses based on professional direction

At present, many colleges have many electronic majors, but the scale of each major is relatively small with few students, the experimental equipment is insufficient, and the faculty needs to be strengthened, although many majors will set up elective courses based on the professional direction and actual situation. However, due to insufficient teachers and laboratories, there are few courses that can be offered, especially few schools will offer courses in electronic frontier technology and practical innovation courses. Under the new situation, colleges and universities can rely on the software and hardware equipment and faculty of the Electrical and Electronic Experiment Teaching Center to open practical public elective courses based on the profession, which is conducive to optimizing the development of the professional direction, improving students' practical innovation ability, and giving full play to various teaching equipment.

(4) Adopt layered training mode

With the increasing demand for complex and applied talents in the development of society, the majority of high-quality students who hope to start their own entrepreneurial career from R & D engineers after graduation. Therefore, in order to create a good practice and innovation teaching atmosphere for students, it is necessary to provide high-level students with a comprehensive and systematic platform and opportunities for practical innovation in and out of class, prepare them with resources such as laboratories, equipment, guidance teachers, and deepen school-enterprise cooperation Model, give full play to the role of the school-enterprise cooperation base, continue to broaden the horizons of students, cultivate students' interest and enthusiasm for innovation and entrepreneurship, hold or organize participation in various skill contests, and allow students to consolidate their knowledge and skills in the process of preparing and participating in the contest to improve their comprehensive abilities and literacy.

2. Speed up laboratory construction

(1) Construction of innovation laboratory on campus

Under the new situation, during the construction of electronics majors, universities and colleges have opened special electronics innovation laboratories in school experiment centers, purchased perfect scientific research equipment and equipment, transferred other branch equipment according to actual needs, and arranged special open to students at any time or any place to effectively meet the needs of students' practical activities in spare time.

(2) Strengthen cooperation with the government and enterprises and build a public technical service platform

As we all know, the activities carried out in the practical teaching process of electronic majors require advanced technology and sufficient funds to support them. It cannot be completed if we only rely on the on-campus experiment center. Therefore, colleges and universities should focus on strengthening cooperation with local governments and leading enterprises, and work together to build a social-oriented and enterprise-oriented electronic public technology service platform to provide professional services to local SMEs. Secondly, the public technical service platform is handed over to the college electrical and electronic experiment center for management, and related equipment is opened to students' practical innovation activities and shared with enterprises. In this way, the sharing of public technical service platforms, experiment center talents and equipment provides high-quality and efficient services for social development and contributes enormously to the long-term development of society. During the construction of the public technical service platform, the following aspects are specifically involved: First, in terms of equipment and funds. Relevant local government departments should provide adequate equipment and financial support to create a good learning environment and sufficient educational resources for students. For example, it's possible to set up a laboratory branch for environmental parameter testing in the platform through advanced equipment and instruments, to carry out temperature shock, drop, vibration and other parameter experiments which can not be introduced in classroom teaching, so it is conducive to strengthening students' employment skills and the effect is remarkable. Second, increase the flexibility of the platform's opening hours. A lot of practice has proved that the platform management work can be managed by the school's experimental center to ensure that it is open 24 hours, so that students can participate in various practical training activities according to their study and working schedules, preventing other professional courses from being restricted due to participation in practical training activities. Third, the public technology service platform should undertake the intelligence of practical innovation activities, focus on expanding the laboratory space of the experimental center, actively accept students of all levels to carry out innovative project design and graduation design, and strengthen practical innovation project training, deepen school-enterprise cooperation, strengthen communication and contact with

leading enterprises and industry elite enterprises, so as to bring more scientific research projects to teachers, make full use of the company's rich resources, and the scientific research strength of colleges and universities. While creating more comprehensive benefits for society, it can also improve the teaching and scientific research level of colleges and universities. Last but not least, teachers should guide students to innovate and start businesses. Universities should give full play to the advantages of public technology service platforms, and invite IT, microelectronics, related experts, scholars, industry elites to give lectures and symposiums to universities, to popularize advanced technology and industry frontier fields to students and focus on explaining marketing and management knowledge. This can infiltrate students with innovative and entrepreneurial ideas, thereby effectively enhancing students' interest and confidence in entrepreneurship and solving the problems of student employment and career selection.

3. Utilizing various resource advantages to build innovative practice bases and platforms

3.1 Focus on electronic design skills and make full use of resources

Focus on building a base for electronic design skills competition for college students, and effectively gathering and making full use of the resources of various professional laboratories and open laboratories of the department. Faculties and departments should play a leading role, rely on laboratory resources and professional teachers, and actively establish a base for electronic design skills competitions, assign professional teachers to be responsible, organize school-wide electronic professional students to conduct competition training, and strengthen the integration of venues, personnel, and funds. Manage and incorporate electronic design competition activities should be taken into the work scope of the innovation laboratory, which is conducive to injecting fresh blood into the innovation laboratory to continuously improving the quality of practical teaching. Various types of electronic competition activities should also be held to ensure the procurement of competition materials, project demonstration, and well design the whole process of production to guide students to establish a correct understanding of electronic design innovation activities and enhancing the effectiveness of practical training.

3.2 Explore project practice based on mobile internet

With the advent of the "Internet +" era, earthshaking changes have taken place in the field of education. Especially this year, due to the impact of the epidemic, schools across the country have adopted the online teaching model on a large scale, and various online experimental and practical teaching platforms are constantly emerging. During the construction of electronic majors, we should give full play to the role of the Internet, actively explore the use of high-quality teaching resources on the online platform, introduce the most cutting-edge technologies and teaching methods into the reform of professional practice teaching, and explore the project practice methods based on mobile Internet, so as to effectively improve the quality and level of practical teaching, and the professional construction.

4. Conclusion

In summary, the construction of electronics majors is a long, complicated and systematic project. The construction of practical teaching system is directly related to the quality and level of talent training in colleges and universities. Under the new situation, during the construction of electronic majors in colleges and universities, practical teaching should be strengthened, school-enterprise cooperation should be deepened, the shortcomings of the traditional teaching model should be changed, and a successful practical teaching system should be successfully constructed to lay a solid foundation for the cultivation of high-quality and high-level talents.

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