

Construction and Optimization of Practical Teaching System of Electronic and Information Engineering

Zuliang Wang, Lintao Lv, Jie Jiang and Minfang Hu

College of Information Engineering, Xijing University, Xi'an, Shanxi province 710123

Keywords: Electronic information engineering specialty; Practice Teaching System; Construction and optimization; Autonomous practice models

Abstract. Based on analysis of problems existing in current practical teaching system of applied undergraduate electronic and information engineering specialty, the paper aims at its training objective and orientation of application-oriented undergraduate, and makes a design plan of practice teaching system focusing on five aspects: comprehensive integrated curriculum design and construction, experimental project development stressing diversity, comprehensiveness and practice, exploration of students' independent practice mode, collaborative construction and development of electronic information experimental environment, and construction and optimization of experiment teaching management platform of web information. Integrate the cultivation of practical ability of applied undergraduate into every aspect of each practical teaching and every experimental project, follow the principle of gradual improvement, and improve practice ability and innovative consciousness of students majored in electronic information gradually.

Introduction

“Outline of the national medium and long term education reform and development plan (2010 - 2020)” puts forward the establishment of university classification system and the implementation of classification management. The national guides part of the transformation of target location. Many colleges and universities transform into application-oriented undergraduate, and its training objectives are to broaden the professional and knowledge and to develop a solid foundation of theory, with a high degree of comprehensive ability, with solid engineering practice and environmental adaptability of the field engineer. Promoting the practical engineering ability training meets the needs of the knowledge economy for personnel training specifications. This is not only conducive to the cultivation of Applied Undergraduate Students' competitiveness, but also conducive to the development of Applied Undergraduate Colleges and universities. In order to promote the cultivation of entrepreneurship of university technology innovation, guiding ideology needs to be adjusted, the reform of personnel training mode, strengthen the construction of teaching staff, pay attention to practical teaching, with particular attention to the innovation of practical activities, and form the corresponding teaching management system. In order to promote the cultivation of entrepreneurship of university technology innovation, guiding ideology needs to be adjusted, personnel training mode should be reformed, and the need to strengthen the construction of teachers, and teaching practice should be paid more attention. This paper aims at constructing the teaching system of Applied Undergraduate Course in electronic information specialty practice, strategies on training students' practice ability, especially innovative practice ability training strategy research, aiming to promote the application of universities to keep pace with the times, efforts to explore the training mode to cultivate students' practice ability and innovation ability as the main target of talent.

Analysis on the Practical Teaching System of Applied Undergraduate Electronic Information Engineering Specialty

The development of the integration of the International Forum on the development of Education promulgated “the Zhumadian consensus” aims to implement the State Council on the part of the

general undergraduate colleges and universities to the application of strategic transformation of technical colleges and universities. In order to meet the needs of the development of the society and to serve the society better, colleges and universities have reexamined the orientation of running a school. Governments at all levels, education authorities, industry associations, the application of undergraduate colleges and universities have reached a broad consensus on the transformation and development of colleges and universities, and a large number of ordinary undergraduate colleges and universities will be converted to the application of technical undergraduate.

The research on the teaching reform of applied undergraduate has received wide attention and has made gratifying achievements. Up to now, the research of application oriented undergraduate transformation is mainly focused on the reform of teaching methods, the reform of teaching methods, the construction of curriculum system and the reform of examination methods. However, the traditional undergraduate education is too much emphasis on the theory of teaching, while ignoring the cultivation of practical ability. In this paper, based on the existing research results, we study the Applied Undergraduate Practice Teaching System Construction and optimization aiming to improve the cultivation of Application-oriented Undergraduate Practice Ability and innovation ability.

The Goal and Orientation of Practical Teaching System of Electronic Information Engineering Specialty

In "the Belt and Road Initiatives" and "Internet +" era background, based on the Shaanxi economic development, changes in the demand for talents in the development of electronic information industry, through the practice of teaching system research and optimization, to achieve the teaching practice in the course of combining, training the basic ability and quality of students' autonomous learning and knowledge the use of engineering practice, team cooperation, exploration and innovation for the purpose of. The cultivation of innovative ability of Undergraduate Practice and time into every aspect of teaching, and the design of each experiment project, follow the principle of gradual, gradually enhance practical ability and innovation to create awareness, and ultimately improving the students' practical ability and innovation ability, truly has characterized by knowledge economy, entrepreneurial ability.

Electronic information engineering has a strong practical and engineering, and therefore cannot be confined to the traditional, experimental verification of the project. In the design practice, it should fully consider the use of new methods, resources and electronic information industry chain seamless docking, through a comprehensive and design, innovative practice, strengthen students' problem analysis and problem solving ability. The electronic information products of Shaanxi Province, relates to the communication computer, military, navigation, integrated circuit, electronic components and other special equipment such as electronic radar all categories of more than 1 thousand and 500 series, covering almost all electronic information industry, the province's existing electronic information enterprises more than 1500, to provide a broad employment prospects for graduates in this field, requirements graduate students have the approximation ability and accomplishment engineer.

This study is of great practical significance to promote the innovation and entrepreneurship ability of our university, and to improve the employment competitiveness of graduates majoring in electronic information in our country. At the same time, it has played an exemplary role in the application of other colleges and universities in Shaanxi Province, and even in the whole country.

Improvement of Practical Teaching System of Applied Electronic Information Engineering Specialty

In the teaching content, from the application of knowledge method, integrated design to research and exploration, the level of scientific research and engineering background. In the teaching process, gradually improve the breadth, depth, comprehensiveness, research, exploration, and gradually improve the practical skills and innovation requirements. In the teaching demand, ask students to

experience the demand analysis, in the project practice theory, algorithm design and calculation, scheme selection, product selection, circuit simulation and experiment steps of planning, electrical parameter testing, experimental results summary and analysis process. In practice, to meet the expansion of knowledge, exploration methods, research and innovation, engineering, teamwork, speech communication, comprehensive, open, efficient. In the teaching demand, ask students to experience the demand analysis, in the project practice theory, algorithm design and calculation, scheme selection, product selection, circuit simulation and experiment steps of planning, electrical parameter testing, experimental results summary and analysis process.

Curriculum Design and Curriculum Construction of Comprehensive Integration.

Application oriented colleges and universities require students to have a more comprehensive theoretical knowledge to support the development of practice. The existing curriculum system needs to be modified to build electronic information, computer science and technology, networking engineering and other related disciplines, across several related courses, knowledge integration, knowledge integration, and expand the existing knowledge in class experiments and extracurricular curriculum integration.

Highlight the Diversity, Comprehensive, Practical Experimental Project Development. The content of the experiment project is the most direct means to improve the ability of electronic information engineering. First of all, the development of the experimental project must highlight the project content of the project, only with the actual project closely combined with the experimental projects to enable students to practice the ability to truly exercise and improve. Secondly, the project development must emphasize the application of general knowledge, comprehensive project to improve the practical ability of the students can play a multiplier effect; again, to achieve the same goal of students' experiment using a variety of methods to achieve mastery of purpose. Finally, a special emphasis on exploring the practice process, the development of the experimental project is not limited to the verification of the known results, but has some exploration; improve the students' interest and ability to explore the unknown. Secondly, the project development must emphasize the application of general knowledge, comprehensive project to improve the practical ability of the students can play a multiplier effect; again, to achieve the same goal of students' experiment using a variety of methods to achieve mastery of purpose.

Construction and Optimization of Network Information Experiment Teaching Management Platform. According to the aim and goal of the construction of practical teaching system of electronic information engineering specialty, the construction of network information experiment teaching management platform is established, which can be used in the teaching management of experiment practice course. The practice teaching affairs management module includes the project maintenance, the curriculum arrangement, the class assignment, the result statistics, the equipment maintenance, the security management and so on. The whole process monitoring module includes the functions of experiment sending, electronic access control, power control, device declaration, data acquisition, self acceptance, electronic report, report correction, video surveillance and other functions. The whole process monitoring module includes the functions of experiment sending, electronic access control, power control, device declaration, data acquisition, self acceptance, electronic report, report correction, video surveillance and other functions. The process management module includes the functions of information release, project application, online review, document submission, summary report, acceptance check and so on.

Conclusions

In the "the Belt and Road Initiatives" and "Internet +" era background, based on the economic development of Shaanxi, according to the students' specialty of electronic information engineering training target, planning and design of the structure of practice teaching system of electronic information engineering. According to the change of demand for talents in the development of electronic information industry, through the practice of teaching system research and optimization, to achieve the teaching practice in the course of combining inside and outside, the cultivation of

students' autonomous learning, knowledge, practice, teamwork, innovation ability and the basic purpose of literacy.

Acknowledgements

Project supported by teaching reform project of Xijing University, Project number: JGYB1641.

References

- [1] Cui Gang, Ma Fengyang. Research on Present Situation, Contents and Principles of College English Teaching-the National Outline Plan for Medium and Long-Term Education Reform and Development as an example [J].China University Teaching,2012,(02):33-38.
- [2] Wang Jide. Education from Informationization to Informationization Education-Experience of the Learning National Outline Plan for Medium and Long-Term Education Reform and Development (2010-2020) [J].E-education Research,2011,(09):5-10+15.
- [3] Gu Mingyuan. Study and Interpretation of the Learning National Outline Plan for Medium and Long-Term Education Reform and Development (2010-2020) [J].Journal of Higher Education,2010,(07):1-6.
- [4] Liu Zhentang, Yang Yongliang, Li Xiaowei, Li Zenghua, Zhong Xiaoxing. Study on Practice Teaching System in Safety Engineering Specialty cultivated by Enhanced Innovative Ability [J].Journal of Higher Education,2017,(02):15-17+22.
- [5] Ge Aidong, Liu Xuezheng. Construction and Exploration of Automatic Teaching System Based on cultivation of Applied Innovative Talents [J].Journal of Higher Education,2017,(02):12-14.
- [6] Ching Xiang, Sun Dezhi, Wang Yili, Qu Dan. Construction of Curriculum Teaching System for Environmental Engineering Major Based on Engineering Education Accreditation Standards-a Case Study of Beijing Forestry University [J].Forestry Education in China,2017,(01):35-38.
- [7] Li Juhu, Zhang Haiyan. Research on Personnel Training of Networking Professional in Class Enrollment Mode-a Case Study of Beijing Forestry University [J].Forestry Education in China,2017,(01):22-26.
- [8] Feng Yukun, Xiang Cheng. Research on Construction Mode of Entrepreneurship Personnel Training System of E-commerce innovation in Higher Vocational Colleges in the Mode of "The Internet +" [J].E-Commerce,2017,(01):64-66.
- [9] Qu Qiang, Yang Yonghui, Chi Tao. Research on Teaching System of Major Practice in Electronic Information Engineering Based on Cultivation of Innovation Ability [J].Education Teaching Forum,2017,(02):137-138.
- [10] Xiao Yang, Lin Qiang. Discussion on System Construction of Practical Teaching for Information Major [J].Technology Outlook,2017,(01):324.
- [11] Jiang Ping, Tian Hua, Zhang Xin. Automation of Local University Reform and Practice of Professional Excellence in ENGINEER TRAINING Program [J].Education Teaching Forum,2017,(01):83-84.
- [12] Liu Zhigang, Liu Zhikuan. Exploration of Talents Training Model of Electronic Information Class under the Background of Class Enrollment [J].Education Teaching Forum,2017,(01):168-169.