

# Construction of Practical Teaching System in Private Colleges and Universities

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**Keywords:** Private colleges and universities, Practical Teaching System Construction, Applied and composite talent cultivation.

**Abstract.** The purpose of running a private university should be to train applied and complex talents. We should abandon the traditional public colleges and universities to attach importance to theoretical teaching, despise the teaching system of practical teaching, and establish an applied and innovative practical teaching system. We will increase the proportion of practical teaching, appropriately reduce the proportion of demonstration and verification experimental projects, and increase the number of design, comprehensive and innovative experimental projects. We will focus on developing students' comprehensive and hands-on skills so that they can quickly become the backbone of production technology after entering the workplace.

## Introduction

As an important part of higher education, private colleges and universities have made positive contributions to the development of private higher education and the popularization of higher education. Zhuhai College of Jilin University, founded in May 2004, is a private university aiming at cultivating innovative applied talents. The College has always adhered to the idea of running a school based on social needs, quality education and ability training. It has focused on the construction of curriculum system and the optimization of practical links, the cultivation of students' practical and innovative abilities, and constantly explored the construction of practical teaching system oriented to the cultivation of applied talents.

## Target Orientation of Talent Training

According to the fact that the students' college entrance examination results are lower than the school-based ones, the training mode of the school-based ones cannot be copied or copied from the very beginning of the construction of the school. In the cultivation of talents, we should pay attention to the cultivation of students' practical ability, so as to make the knowledge structure reasonable and the practical ability outstanding [2]. Therefore, the college implements the training objectives of "comprehensive, applied, open, distinctive and leading" in personnel training. To cultivate applied talents with both systematic theoretical basis and engineering practice ability, sustainable development potential and innovative spirit, as well as technical leaders in the industry [3].

## Multi-level Practical Teaching System, Focusing on the Cultivation of Students' Abilities

Practice teaching is an important part of the teaching system. It not only plays a very important role in integrating theory with practice and deepening students' perceptual knowledge of theory, but also is the main way to achieve the goal of training applied talents [4].

### Bringing into Play the Experimental Teaching Function of Combining Theory with Practice

In the teaching process, we should not only pay attention to the relative independence of theoretical and experimental courses, but also pay attention to the correspondence and cohesion between theoretical and experimental courses. In the learning process of experimental courses,

different types of experiments are required to formulate different requirements and assessment criteria. For basic, demonstrative and verifiable experiments, the purpose of maintaining close contact with relevant theory courses is to verify basic theoretical knowledge, requiring that the error between the experimental results and theoretical results is small, that is, the experiment and theoretical analysis are consistent. For comprehensive and design experiments, the purpose is to examine the students' comprehensive design and implementation ability, according to the technical indicators achieved by the experimental results to evaluate the results, focusing on the program design, focusing on the results. We should properly carry out some innovative and research experiments, advocate exploration and research in the course of experiments, encourage students to try various schemes as much as possible, get inspiration, exercise and improvement in exploration and research, and pay attention to guiding students to carry out research and development of application projects, with less emphasis on results and more emphasis on process, and not judge heroes by success or failure.

For example, computer-based electronic design automation, namely EDA technology. From basic courses to professional courses, the emphasis is placed on strengthening students' electronic design automation ability in the curriculum system, which runs through various courses, and consolidates and deepens in experiments and curriculum design. In the basic courses of "Electronic Circuit Design and Simulation" and "Circuit PCB Design", we should strengthen the use of OrCAD/Pspice and Proel DXP software platform so that students can use advanced EDA tools to design, simulate, optimize and plate-making electronic circuits, and strengthen Proteus, ARM9 and Quartus in the courses of MCU technology, embedded system foundation, EDA technology and VHDL. Second, the practical skills of advanced software platform, systematically and scientifically cultivate students' ability to combine software and hardware, design and manufacture simultaneously; In fully customized integrated circuit design, students are trained to use EDA tools to systematically design, simulate, layout design, validate and extract parameters of integrated circuit (IC), so that students can master and use modern electronic design automation. At the same time, we should improve students' application and practical skills.

### **Bringing into Play the Quality Training Function of Simulation Scenario Simulation**

Moving part of the teaching from classroom to simulated scene simulation laboratory, teachers become a "director-type" instructor, which is conducive to cultivating students' perceptual awareness, role awareness, standardized operation behavior, as well as the comprehensive qualities required by social practice.

For example, in the management specialty, ERP (Enterprise Resource Planning) sand table simulation course is introduced into practice teaching. The trainees are divided into several teams and the students play different leadership roles in the management of enterprises. Each team runs a virtual company, which is engaged in four to six consecutive fiscal years. Through the intuitive enterprise sand table, simulate the actual operation of the enterprise, involving the enterprise's overall strategy, product research and development, production, market, sales, financial management, teamwork and other aspects, so that students can experience the complete business process in the "game", experience the typical course of enterprise development, and understand the correct business ideas and management concepts. In the short-term training, students will encounter various typical problems that often occur in the operation of enterprises. They must find opportunities in time, analyze problems, make decisions, and try to ensure the continuous growth of the company in the fierce market competition.

By simulating the changeable environment of competition among enterprises, students are given the roles of management and decision-making, students' initiative and creativity are emphasized, and students' comprehensive abilities are trained. In 2008, we participated in the ERP enterprise sand table simulation competition of Guangdong University Science and Technology Festival, and our team won the excellent prize.

## **Playing the Interactive Practical Teaching Function of Exchange Display and Innovation Space**

The construction of the new practical teaching system has broken the tradition that there are no laboratories in the art field for many years, only "teaching serial number" or "personal reputation" of famous experts and professors to set up specialized "studios". In view of the characteristics of art students, the college pays attention to the cultivation of students' creative personality in practical teaching, and focuses on the cultivation of students' ability of innovation, pragmatism, communication, display and interaction in the process of practical teaching. All courses that combine theory with practical ability require teachers to adopt on-site open and interactive teaching methods. On the basis of stimulating students' innovative consciousness, they should screen and observe works with visual individuality, expressive technique individuality and creative thinking individuality for on-site observation, and make full communication under the guidance of teachers, so as to guide students to carry out personality targeting. Creation and hands-on ability training to speed up the integration with market demand.

Practice has proved that the demonstration and verification experiments have been reduced and the proportion of comprehensive, designed and innovative experimental teaching has been increased, which has changed the traditional experimental teaching mode, which is single and mainly demonstrative and verifiable. By setting up comprehensive and designed experimental projects, we can realize the teaching mode with students' self-training as the main part, improve students' innovative thinking and practical ability, cultivate students' realistic scientific attitude and innovative consciousness, and fully mobilize students' initiative, enthusiasm and creativity in learning [5]. As a private university aiming at cultivating applied talents, it is an important link in the construction of practical teaching system in the new era to add comprehensive, design and innovative experimental projects in practical teaching links, and also the key to improve the quality of running schools.

### **Concluding Remarks**

Practical teaching is an important part of Applied Undergraduate Education and teaching system in private colleges, and it is also an important link that must be paid close attention to in the teaching of independent colleges [6]. Strengthening practical teaching is not only the need to achieve the goal of talent cultivation in independent colleges, but also the need to improve teaching quality, enhance students' comprehensive quality and cultivate applied talents. It is also the need for the survival and development of private colleges and universities.

### **Acknowledgment**

This work was supported in part by 2017 Guangdong Undergraduate University Teaching Quality and Teaching Reform Project Construction Project (Advanced Mathematics).

### **References**

- [1] Ying Zhiguo. Strategic Construction of Practical Training Base of Commercial Higher Vocational Colleges [J]. *China Higher Education Research*, 2008 (8): 80-81.
- [2] Su Yan, Mai Qiming. Teaching Reform and Practice of Automotive Electronics Course in Independent College [J]. *China Educational Technology Equipment*, 2012, 18 (6): 57-58. Gui-er Qiao, Si-ping Zhang, Construction of Practical Teaching Heights in Private Colleges [J]. *Experimental Technology and Management* vol 4, pp.223- 225, 2012.
- [3] Kong Fanying. Thoughts on the Construction of Practical Teaching System in Commercial Vocational Colleges [J]. *Journal of Guizhou Commercial College*, 2007, 20 (3): 66-68. Jie Zhu, Problem and strategy existing in laboratory construction in mutiple colleges [J]. *Science of laboratory*. vol 2, pp. 152–153, 2011.

- [4] Liu Wei. Research on the Training Model of Applied Talents in Practical Teaching [J]. *Experimental Technology and Management*, 2009, 26 (9): 123-127. Han-ying Chen, Chao Hou, Strengthening the laboratory construction is the only way to develop independent colleges [J]. *Laboratory research and exploration*. vol 29(9), pp. 171–172, 2010.
- [5] Zhang Dongping, Huang Jianjun, Fan Ping, et al. Research on the operating mechanism of teaching and research laboratory [J]. *Experimental technology and management*, 2009, 26 (1): 143-145.
- [6] Chen Jiajun, Li Jie, Liu Rui. Discussions on Practical Teaching in Independent College [J]. *Experimental Technology and Management*, 2011, 28 (3): 266-269.