

# Computer Information Teaching Reform Based on Internet of Things

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**Abstract:** With the rapid development of modern communication technology, the major of computer application has attracted much attention, and now it has become a popular major in secondary vocational schools. Under the background of the new era, the computer application specialty is facing a broader development space, and the demand of society for computer application professionals is getting higher and higher. Secondary vocational schools must strengthen the investigation of the industry and the market, compare the social needs with the current situation of talent cultivation, education and teaching methods, constantly optimize computer teaching, improve teaching objectives and teaching plans, and improve the quality of talent cultivation. This paper analyzes the influence of Internet of Things technology on computer application specialty, analyzes the reform strategy of computer application specialty's practice curriculum from the aspects of practice curriculum system reform, practice teaching environment reform and assessment method reform, and puts forward the specific process of integrated teaching.

## 1. Introduction

The Internet of Things technology is an extension of Internet technology, which has been widely used in various fields of production and living practice. It can realize intelligent perception and radio frequency identification, connect specific machines to the network, strengthen information exchange, realize intelligent control of machines and equipment, and make people enter the intelligent era. The application of Internet of Things technology is an important direction of social development in the future. This technology can effectively improve people's quality of life, speed up the application quality of information and improve the information transmission rate. The development of Internet of Things technology needs the support of high-quality talents. Schools need to strengthen the teaching reform of practical courses for computer application majors, optimize the training methods of talents and improve the quality of talents[1-2].As shown in Figure 1:

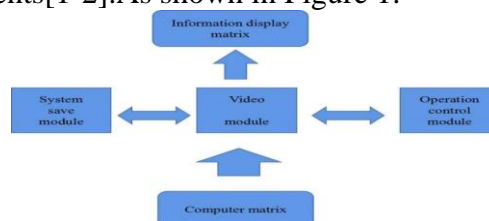


Figure 1: A Manufacturing Method of Teaching Management System Based on Internet of Things

## 2. Literature Review

With the improvement of China's economic strength, China's network facilities have been popularized, and the Internet has developed rapidly, bringing convenience to the general public. The development of the Internet of Things is based on the Internet, but there is still a big difference between it and the Internet. It breaks the limitations of the Internet, realizes the connection between different people and things, and is applied to all walks of life in society. The continuous development of things usually leads to the development of related things in this industry. With the development of the Internet of Things, China's social market will demand a large number of applied talents of computer network technology, which not only requires them to have excellent professional knowledge, but also requires them to have flexible practice and innovation ability. Colleges and universities, which provide talents for the society, need to reflect and reform the teaching system of computer network technology courses, effectively combine the requirements of the times and society, innovate the teaching system of computer network technology courses, and provide more excellent applied talents for the society[3].

## 3. The Influence of the Internet of Things Era on Computer Network Teaching

The Internet of Things is an extension of the computer network. Through the computer network, not only can computer communication or communication between electronic products be realized, but also any objects can communicate with each other. This puts forward a new goal and development direction for computer network teaching. The Internet of Things is bringing reform to daily life and production, bringing new opportunities and challenges to the whole computer and even information field. To overcome these challenges and seize these opportunities, it is necessary to carry out reform in the most basic link, the teaching link. Therefore, in the Internet of Things era, new goals and requirements are put forward for computer network teaching [4]. As shown in Table 1:

(1) First of all, students are required to master the most basic computer network operation skills and basic knowledge of computer network. Using these basic knowledge can serve life, work and study, such as learning how to quickly use search engines to find your own target network resources.

(2) At least half of the courses offered by computer network are related to the Internet of Things. Therefore, the future network world belongs to the Internet of Things, and students need to have a deep understanding of the Internet of Things, which requires setting up a computer major specifically for the Internet of Things, and learning and exploring the field of the Internet of Things, and even academic research.

Table 1: Teaching Content Design

Teaching module	content of courses	Teaching situation setting
Network (Internet of Things) Engineering Foundation plinth	Internet of things foundation	Simulation of enterprise project kick-off meeting
computer network	online education	Simulation of enterprise project kick-off meeting
Computer operation	Basic knowledge of computer	(demonstration of network design scheme)

### 3.1 Computer Network Teaching Reform Direction

In view of the problems in computer network teaching, and under the background of Internet of Things, computer network teaching needs profound reform. The direction of reform can be as follows.

#### (1)Reform of teaching content

In computer network teaching, the teaching content should be based on TCP/IP protocol, and the installation and maintenance of network equipment, network programming, network security, network protocol and other aspects should be involved. Besides the classic basic knowledge, the rest should be at least the latest knowledge within the last year or two. For the study of network knowledge, the teaching content should closely follow the latest academic knowledge. Although the research may not be in-depth, at least students should be guided to have a basic understanding, and the popularization of students' knowledge should reach a certain height, so that if students encounter new knowledge in their future study and work, they will learn and integrate at the fastest speed. In addition, under the background of the Internet of Things, the teaching content offered should popularize this knowledge in a large amount, and at least half of the courses should involve this field of knowledge. At the same time, we should set up related specialties in the field of Internet of Things, and cultivate talents in this field professionally[5].

#### (2)For the reform of teaching methods

Teaching method is a very important part of teaching. If the teaching method is chosen incorrectly or inappropriately, it may lead to the complete failure of teaching.

Teaching is not only to instill some knowledge in books, but also to guide students' ability to learn actively and their creativity in this respect. Therefore, in view of the traditional teaching mode, the following improvements can be made: (1) Through the task-driven method, the knowledge in textbooks can be divided into the form of tasks or the relatively novel knowledge in this aspect that teachers have consulted. Some students are assigned tasks in small groups, and students can freely divide into groups and choose topics according to their own interests, and then explain them in class, which can better stimulate students' potential. (2) Cases can be used to explain, and the school can allocate funds to purchase actual typical cases in enterprises. Teachers put these typical cases in teaching, so that students' practical ability will be greatly improved. (3) You can also use the project method. Students can choose their own interested projects in groups and carry out practical project realization. Driven by the project, on the one hand, the basic knowledge in textbooks has been strengthened and consolidated, and at the same time, how to apply the learned knowledge to practice has been learned[6-7].

## **4. Practice Teaching Process of Computer Application Specialty Based on Internet of Things**

### **4.1 Implementation of Autonomous Learning before Class**

On the basis of the Internet of Things, the practical teaching of computer application major needs to optimize the teaching process, strengthen students' autonomous learning before class, make students know more about learning objectives and tasks, and comprehensively enhance the learning effect. For example, when learning the relevant knowledge of graphics and image application processing, teachers can guide students to carry out autonomous learning before class, prepare relevant video learning materials for students, and show the materials that can be used for reference in movies, TV and advertising films or the processing ideas of graphics and images, so as to stimulate students' curiosity about this part of the course and improve their interest in learning. In the process of providing self-learning materials, teachers should pay attention to the interest of the materials, choose excellent graphics and image processing works, and pay attention to the popular elements and advantages of the works. In this way, students can comprehend the creative ideas of works and absorb the design ideas of excellent works in independent learning. Students' autonomous learning must be guided by a clear goal, and teachers need to propose tasks for students' autonomous learning, such as collecting materials, learning theoretical knowledge, summarizing or evaluating. Only in this way can students' enthusiasm for participating in autonomous learning be improved, and preparations for

practical teaching can be made as shown in Table 2[8].

Table 2: Autonomous Learning

data structure	computer programming basis	Comprehensive training of basic ability of programming
computer programming basis	Internet of things communication technology	Object-oriented programming ability training
Database Principle and Application	Internet of Things Mobile Software Development	Comprehensive Training of Internet of Things Application Software Design Ability
operating system	Internet of things Web development technology	Linu x system service training
Design Technology of Internet of Things Intelligent Terminal	Internet of Things Front-end Development Technology	Graduation design

## 4.2 Carry out Practical Teaching

In the process of practical teaching, teachers can apply the method of group cooperative inquiry. Divide the whole class into four to five groups, set tasks for each group of students, and then select the group leader to realize “one-in-one” teaching. The processing of graphics and images includes many aspects of knowledge. Teachers can create practical situations for each group and help students plan task contents and goals. For example, when applying Photoshop software, teachers can create a teaching situation of a brand auto show. The first group needs to design exhibition posters, the second group needs to complete the publicity page of exhibition advertisements, the third group needs to design activity logos, and the fourth group needs to design gift packages and mascots. Teachers provide pictures and materials for each group, and put forward requirements for each task, so that all students can participate in the learning task, design the best planning plan and complete the training task. Under the background of Internet of Things, the practical courses of computer application major must keep pace with the times. Teachers can design the learning scale of group cooperation, enhance the participation and practicality of learning tasks, guide students to design schemes in communication and discussion, help students to complete independent design and study, and enhance the cooperation and authenticity of practical training activities. Practical teaching is the core stage of practical courses. Teachers need to strengthen the planning and design of students' learning tasks, so that students can deeply understand theoretical knowledge, correctly use the software and hardware in the computer, improve practical operation efficiency and master advanced technology.

## 4.3 Complete the after-Class Evaluation Summary

In the after-class evaluation session, teachers still have to work in groups to help students summarize the works of group members, guide students to complete the design documents, introduce the works of each group, and select outstanding works. In order to comprehensively enhance students' practical skills and improve their ability to apply computer knowledge, teachers need to guide students to carry out self-evaluation and group mutual evaluation, dig deep into the design style and design advantages embodied in works, help students sort out the thinking of the whole learning task, guide students to improve on the basis of the original works, and put forward constructive suggestions for students. After-class evaluation and summary is an important stage of achievement display. Teachers need to affirm and praise students' hard work, sum up the whole practice training process, help students to reflect on their works and improve their practical skills [9-10].

## 5. Conclusion

The development of Internet of Things technology puts forward higher requirements for computer

application majors, and students will face more severe social competition and learn more abundant computer theoretical knowledge and practical skills. Based on this, the school needs to reform the practical courses of computer application major, comprehensively enhance teachers' emphasis on practical courses, optimize the practical course system, improve computer teachers' professional skills, introduce advanced computer software and hardware, and optimize the training environment. In order to further improve the practice course teaching of computer application major, teachers can adopt the practice process of “self-study before class, practice teaching and evaluation and summary after class” to improve the practice teaching effect and help students improve their computer operation ability.

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