ISSN 2522-6398 Vol. 3, Issue 8: 65-68, DOI: 10.25236/FER.2020.030817

# Application of "Cloud Class" App in the Integrated Course of Single-Chip Microcomputer in Technical Colleges

**LixiaMou**[1]

*1 Department of Electronic Engineering, Huizhou Technician Insititute, Huizhou Guangdong 516003, China*

***ABSTRACT.*** *Single-chip microcomputer technology is an important part of electronic technology and occupies an important position in the development of science and technology. However, the current single-chip microcomputer course teaching mode in technical schools is greatly affected by the traditional mode, and the teaching effect needs to be improved. Adopting the integrated teaching mode of rationality and reality, and fully combining the current application of information technology, can greatly improve the quality of teaching. This article mainly introduces the application of the "Cloud Class" APP platform in the integrated course of single-chip microcomputers in technical colleges. First, it introduces the concept and characteristics of integrated teaching, and then analyzes the characteristics and current problems of single-chip microcomputer course in technical colleges. The information platform of "Cloud Class" APP is summarized. Finally, the specific application of the "Cloud Class" APP platform in the integrated course of single-chip computer of technical colleges is discussed. It is hoped that the research in this article can provide some valuable ideas for the teaching reform of technical schools.*

***KEYWORDS:*** *Cloud class, Technical college, Single-chip computer, Integration*

## 1. Introduction

With the development of science and technology and educational theory, China's vocational education has also entered a new stage of development. As an important part of the Chinese education system, technical colleges and universities play an important role in cultivating high-quality skilled personnel. But looking at the current training mode of Chinese technical schools, it is still greatly affected by the traditional teaching mode[1]. Although integrated courses have begun to enter the classrooms of technical colleges and universities in recent years, they still fail to achieve the expected results in practice. One of the most important reasons is the failure to fully apply information technology. In today's highly-developed information technology, the education field is also inextricably linked with technical information. Many teaching links and education management have achieved informatization. However, some technical colleges and universities have applied information technology due to factors such as cost, technology, and personnel. Relative lag in terms of this has a certain impact on the quality of training of skilled personnel.

## 2. Integrated Teaching

The integrated teaching system is to sort out the various teaching links, combine the theory and practice of cultivating students' professional ability, formulate teaching plans and outlines separately, build a system of overall professional ability training objectives, and ensure the overall through the implementation of each teaching link Achievement of goals. Integrated teaching is a method of vocational education, which aims to improve the comprehensive quality of the educated, and uses a combination of theoretical teaching and practice. Teaching is often carried out by a teacher or a group of teachers in the context of jointly formulating teaching content, teaching methods, and progress content, so that students can digest and absorb the theoretical knowledge learned in a timely manner. Is an immediate teaching method. According to the characteristics of the integrated teaching theory, it is not difficult to find that the single-chip computer course of the technical school is very suitable for integrated teaching.

ISSN 2522-6398 Vol. 3, Issue 8: 65-68, DOI: 10.25236/FER.2020.030817

## 3. Overview of MCU Courses in Technical Colleges

### *3.1 Course Features*

The single-chip microcomputer application technology is an important professional basic course for electrical majors in technical colleges and universities. The theory and practice are very strong. Most of them use integrated teaching methods to focus on training students to master the practical skills of single-chip computer software and hardware joint tuning. In traditional single-chip computer teaching, theoretical teaching is generally conducted in the classroom, with the aid of multimedia, supplemented by a certain animation teaching, and then the laboratory uses the experiment box to perform verification experiments with only a few connections[2]. The study of single-chip microcomputer application technology is a highly personal and complicated learning process. It requires learners to have basic knowledge of electronic circuits and professional basic knowledge such as C language programming. After the integration of teaching reforms, using Proteus + Keil or Wave to conduct simulation teaching and experiments in the classroom, students can achieve learning by doing and learning by doing, and the teaching effect has been significantly improved.

### *3.2 Problems*

However, some problems have not been solved, for example: insufficient preparation before class, resources cannot be distributed, and the preparation cannot be recorded; the participation of students in the lesson is recorded by the teacher manually, and the students are not enthusiastic; there are only a small number of homework assignments after class By the teacher to correct records manually. When teachers follow the regular mode of class teaching in the classroom, simply using a unified and full of teaching presets often cannot meet the different needs of different basic students[3]. Some students need teachers to help them correctly analyze the schematic diagram of the peripheral circuits of the microcontroller, and some need to practice the overall meaning of the logic of C programming statements. The standpoint of classroom teaching is only to reach the general level of learning needs of most students. For those knowledge points that cannot be solved by teachers alone or require repeated practice, students can use online autonomy based on “Internet +” technology Learn to solve. In order to solve this problem, this article attempts a new set of single-chip teaching methods, that is, using the “Cloud Class” APP teaching platform to achieve the integration of the teaching process.

## 4. “Cloud Class” App Platform Introduction

“Cloud Class” APP is a free classroom interactive teaching app that incorporates artificial intelligence technology and is an intelligent teaching tool. It is based on the mobile internet environment, realizing real-time interaction, resource pushing and homework tasks between teachers and students, a complete incentive and evaluation system to stimulate students' autonomous learning on mobile devices, and real-time student learning behavior records to realize the process of student learning The assessment can provide teachers with high-quality big data for teaching and research, and realize personalized intelligent teaching aids and intelligent teaching assistant functions based on artificial intelligence technology. The platform is free forever and completely designed for mobile teaching scenarios. The mobile application experience is good and it can also be used on the web version. Teachers can easily manage their class on any mobile device, and students can get experience points every time they learn resources and participate in activities. Use students' own equipment to carry out a wealth of classroom activities such as brainstorming, voting questionnaires, discussion and answering questions, quizzes and group tasks. The system will record the student's learning behavior in detail, and output a detailed study analysis report, which will generate the process evaluation results in one click. Judging from the functions and characteristics of the platform, it is very suitable for teaching integrated course of single chip microcomputer in technical colleges.

## 5. Application of “Cloud Class” App in the Integrated Course of Single Chip Microcomputer

### *5.1 Teaching Plan Design*

This article fully combines the actual needs of the single-chip microcomputer integrated curriculum for the

ISSN 2522-6398 Vol. 3, Issue 8: 65-68, DOI: 10.25236/FER.2020.030817

pre-, middle-, and after-class links, and conducts a complete teaching design. For pre-class sessions, teachers can upload resources used to review old knowledge and preview new knowledge, such as PPT, pictures, animations, micro-videos, etc., to the “Cloud Class” APP platform. You can also set related pre-class activities, such as questionnaires, brainstorming, and so on. For the links in the lesson, teachers can make full use of the rich functions of the cloud platform, adopt diversified teaching strategies, teach the principle of single-chip microcomputers through video animation, and simulate teaching through professional software such as Proteus + Keil or Wave. Class activities, such as classroom tests, Q & A, discussions, quick answers, questions, etc. For after-school sessions, assignments are mainly based on the content of this class. Students can submit answers in the form of text, pictures, voice, and video on the platform. Use cloud class to integrate teaching resources and teaching process, and realize the automatic recording of students' learning process.

### *5.2 Instructional Process Design*

In the pre-class session, teachers can arrange review of corresponding knowledge points, preview and discussion of core knowledge points through the cloud platform, upload corresponding resources to the cloud platform, and start corresponding activities.

During the course, the teacher can explain the principle through flash animation, use software to debug hardware and software, and design discussion and test sessions. Teachers can publish learning resources that can be used on a variety of mobile terminals through the cloud platform, allowing students to use their own devices to read and use these resources during classroom teaching. The cloud platform integrates well-designed and selected multimedia resources and project-based micro-learning videos for students who have the ability to study before class, or for students to review and discuss after class. The mobile terminal APP application corresponding to the cloud platform can Realize the functions of sign-in, hand-in-class discussion, answer questions, hold brainstorming and praise, to maximize the enthusiasm of all students; build a teacher-student learning group and use the “question bank assignment mode” to achieve teachers' online, Effective management of layout and reminders for offline operations.

In the after-school session, teachers can assign homework to students as needed. After students complete the homework, they can include text, photos, pictures, audio, video, etc. when submitting the homework answer. You can review the courseware and videos at any time for review.

### *5.3 Learning Records and Assessments*

The “Cloud Class” APP platform has powerful big data statistics functions, which can record the student's entire learning process, the learning of resources, participation in pre-, during-, and after-class activities, and classroom performance to further optimize teaching for teachers The model provides real and effective reference data. Any traces left by students on the platform can be quantified as corresponding experience values, and can be easily viewed at any time on the personal mobile device side. The visual chart can visually display the data, let the data speak for themselves, let the students see the results, and affirm the learner's contribution from the psychological level, thereby promoting it to be more active in the autonomous learning process. This evaluation method not only motivates students to improve their individual performance, but also sets up a bridge for teachers and students. Based on the actual performance of the students, teachers can adjust the allocation of resources in time, refine the question bank levels that better reflect the true level of individual students, obtain gradient grades that better meet the psychological expectations of students, and play an immediate motivational effect. Everyone's situation can be exported to an Excel file, and taking this as a student's usual grades is more objective and comprehensive.

## 6. Conclusion

This article takes the course of “Single-chip Microcomputer Application Technology” in technical colleges and universities as an example. With the help of the information-based teaching platform “Cloud Class” APP, it realizes the integration of the entire classroom process and the integration of classroom teaching resources. Internet technology online teaching complements each other's advantages and has achieved good teaching results, which is of great practical value. With the development of China's economy and society, vocational education and training must promptly train technical and technical talents who are adapted to the adjustment of industrial structure and the rapid development of society and economy. Only by giving full play to the role of information technology and combining the latest technological achievements of the cloud platform, the teaching thinking,

ISSN 2522-6398 Vol. 3, Issue 8: 65-68, DOI: 10.25236/FER.2020.030817

teaching concepts and teaching methods of vocational education are continuously updated, and the teaching methods are continuously promoted from “oral instruction, blackboard” to “multimedia, networked, modern educational technology” The transformation, with “integrated” teaching mode, reflects the practicality, openness, and practicality of vocational education, so that students can grow into socially required technical professionals in a certain teaching period

**References**

[1] Xu Tongmeng (2017). Discussion on the Reform of Single-Chip Microcomputer Courses for Technician Colleges under the Mode of “Integration of Rationality and Reality” [J] .Electronic Production, no.10, pp.82-83.
[2] Zeng Dingbing (2017). Analysis on the Teaching Reform of Single-chip Microcomputer Application in Technical Colleges [J]. Vocational, no.6, pp.90-91.
[3] Yan Qihong (2016). Reform and Exploration of “Single Chip Microcomputer” Course Teaching [J]. China Training, no.16, pp.159-160.