

# The Construction and Implementation of Integrating Ideological and Political Elements Into Classroom Teaching

## -- Take STM32 MCU Course as An Example

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### Abstract

Combined with the national intelligent manufacturing "14th five-year plan", taking the STM32 MCU principle and interface technology course teaching as an example, thinking elements into classroom teaching. The whole process makes full use of the guiding and heuristic teaching methods and means, and embodies the student-centered education and teaching concept. Ideological and political elements should be integrated into the teaching process, so as to cultivate high-quality talents with noble moral character and national feelings. The practical results show that through the reform of ideological and political teaching in the curriculum, students' patriotism and determination to serve the country with science and technology have been stimulated.

### Keywords

Ideological and Political Elements; Curriculum Ideology and Politics; Single Chip Microcomputer; The Classroom Teaching.

### 1. Foreword

In the outline of the 14th Five-Year Plan, there are more than 50 expressions of "intelligence" and "wisdom". The new generation of information technology represented by artificial intelligence is becoming the core driving force of promoting high-quality economic development, building an innovative country and a new round of scientific and technological revolution and industrial transformation in the era of digital economy. The rapid development of ARTIFICIAL intelligence has promoted the rapid rise of intelligent industry in multiple industries and regions. The cultivation of high-end artificial intelligence talents and innovative and entrepreneurial talents has become a strong support and guarantee for the development of the industry.

Colleges and universities are important engines of scientific and technological innovation in China, as well as important positions for cultivating and exporting artificial intelligence talents. How can we cultivate high-quality talents with noble moral character, national feelings, determination of science and technology to serve the country and unswervingly ambitious? This paper mainly introduces the implementation of ideological and political elements by taking the basic course "Single chip Microcomputer and Interface Technology" as an example.

The single chip microcomputer and interface technology "course teaching content covers the computer technology, C language programming technology and digital electronic technology, etc., this course is a practical and applied strong comprehensive course, through the course of learning, let the students to master relevant theoretical knowledge of single chip microcomputer, and cultivate the students' practical ability, As well as the ability to understand, analyze and solve practical problems, and gradually improve students' innovation ability.

STM32 single chip microcomputer has entered the principle and application of single chip microcomputer course, teachers in the teaching process also need to pay attention to students'

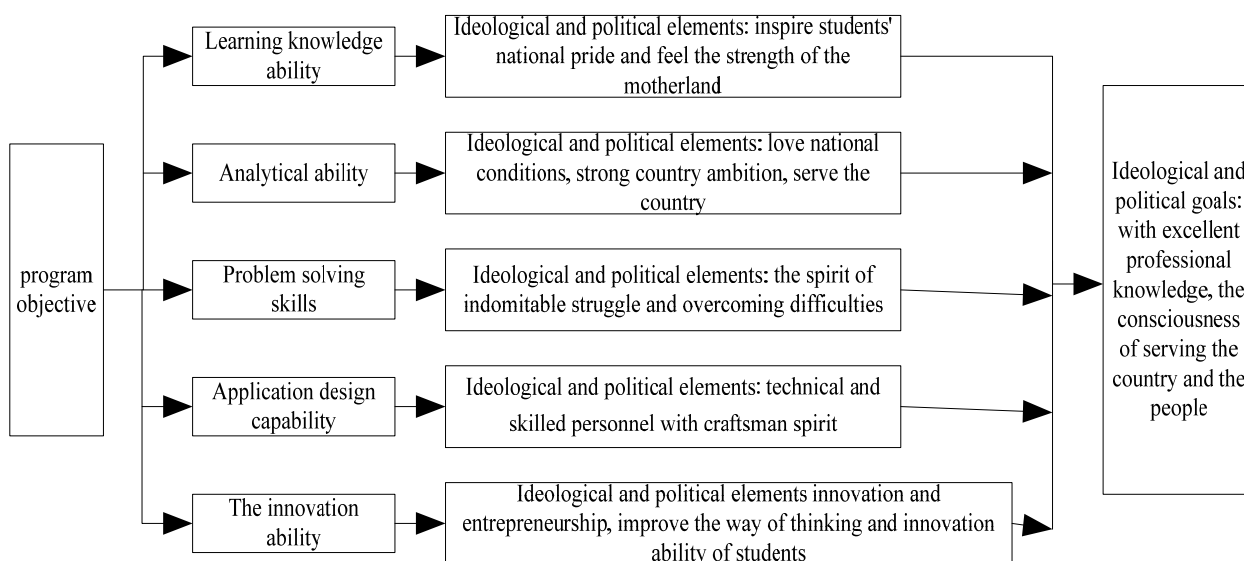
thinking ability, break the inherent course teaching mode, cultivate high quality talents with strong application ability and innovation ability.

## 2. The Combination of Single-Chip Course Goals and Ideological and Political Goals

SCM course adopts the teaching mode of theory and practice integration, combining theory with practice, guiding practical operation through theory, promoting in-depth understanding of theoretical knowledge through practice. In the process of classroom teaching, using the interpretation and practice, through the physical phenomenon of real reaction and arouse the students' interest in learning knowledge, promote students spontaneously by issued by single chip microcomputer project tasks of study course, at the same time for each project requires students to provide their own video programming ideas, and the corresponding project is complete, can exercise the students' ability of self expression.

In the process of practical operation, the teaching principle of applying what is learned and teaching students according to their aptitude is demonstrated. For example, college students engaged in entrepreneurial projects are carried out practical activities according to the needs of the project. Give full play to the guiding role of practice for students, so that even students with weak sense of course participation can actively learn the course content. The teacher takes the group as the unit and asks students to discuss problems in groups, and randomly carries out the experimental results to ask questions, and takes the on-site answers as the basis of course assessment to further enhance the participation of college students in course learning. Enable students to learn the theory and application knowledge in STM32 SCM course.

"Single chip microcomputer and Interface Technology" is a very important professional basic course for electrical majors of science and engineering, which lays a foundation for the study of subsequent professional courses and plays an important role in cultivating students' practical ability. Exploring the integration of ideological and political education in the course of "single chip microcomputer and interface Technology" is an important means to improve students' professional quality and enhance their overall outlook, sense of responsibility and national pride. Figure 1 shows the corresponding relationship between the course goals and ideological and political goals of SCM and interface technology.



**Figure 1.** Combination of curriculum objectives and ideological and political objectives

### 3. SCM Course Ideological and Political Reform Measures

The course of SCM and interface technology focuses on achieving the goal of "establishing virtue and cultivating people" through the whole-view perspective and the method of system theory. Concrete curriculum ideological and political reform measures will be carried out from the following aspects.

(1) give full play to the main role of course teachers in educating students and release the ideological and political connotation of specialized courses

Single chip microcomputer and interface technology curriculum education want to both technical and spreading of faith, single-chip microcomputer and interface technology curriculum goal is to cultivate qualified socialist builders and successors, and therefore, insist on khali dents on the teaching content, through the sensor used in aerospace, high-speed rail, made in China 2025, daily supervision, prevent ahead of application cases, Give full play to the moral education function of the course, make the students feel the strength of the motherland, feel the historical mission they shoulder, and strive to become professional talents.

(2) Integrate socialist core values into the curriculum and cultivate technical and skilled personnel with craftsman spirit

We should firmly establish the concept of "ideological and political education in curriculum" and carry forward core socialist values throughout the whole process of education and teaching. Single chip microcomputer technology development in our country after decades of research, difficult of research and development, to form the intelligent control of the design, development, manufacture, production and application of a series of system, all kinds of all kinds of SCM basically met the needs of 80% of the domestic market, and the r&d and production of some sensors in the world leading level, It has laid the foundation for China's leading position in some scientific and technological products, such as aerospace technology, unmanned aerial vehicles, intelligent terminals and so on. Introduce the remarkable achievements made in the development of SCM technology in China to students, and stimulate the core values of society and craftsman spirit of students.

(3) Increase the proportion of practical teaching and cultivate students' professional dedication

In order to cultivate students' professional dedication and professional dedication, we emphasize the cultivation of application ability as the core. In the course, we strengthen the cultivation of students' practical skills through the teaching method of project teaching + task-driven combination of reason and practice. Combined with the current national strategy document to implement manufacturing power, Made in China 2025 is the program of action for the first decade of China's implementation of manufacturing power strategy, the application of sensors in the field of advanced manufacturing is the inevitable trend of the development of the current manufacturing industry, can realize the intelligent and modernization of manufacturing production.

(4) the introduction of innovative design links, training students to innovate tripod so the value pursuit

In the practice teaching link, in the interpretation of the existing single chip microcomputer principle, inspection application, on the basis of arousing students' innovation consciousness, innovation ability training, and guide students in order to improve the productivity of manufacturing enterprises (or reduce running time and quality, reduce product cost, applying single chip microcomputer as reliably as possible to a variety of on-site production, complete functions, To train students to observe things, think about problems, self - design, research and solve problems quality.

(5) group study competition is carried out to cultivate students' team spirit of sincere cooperation and professional fashion of hard study

Group learning competition is carried out. Students in the class are divided into several cooperative groups in the teaching process of single-chip computer and interface technology. The practical teaching objectives of the key application of single-chip computer in enterprises are designed into several units requiring cooperation, forcing students to cooperate. The students' learning attitude, learning discipline, thinking mode, classroom questioning, experimental operation and report, quizzes, examinations and other links are evaluated and assessed in the course goal completion process, so as to cultivate students' team spirit of sincere cooperation and professional fashion.

(6) Let every youth add strong youthful energy to the Realization of the Chinese Dream

With the development of Internet of things, artificial intelligence and other technologies, SCM system has been everywhere. It is widely used in industrial transportation, national defense, scientific research and other fields. McKinsey report pointed out that by 2025 the development of the Internet of things will produce the economic benefits of \$2.7 to \$6.2 trillion, the economic benefits of such leave the single-chip microcomputer data acquisition and processing in the Internet of things, it also drew a wider space to the development of single chip microcomputer, because the development and application of single-chip computer technology will play an important role in industrial development.

#### 4. Concluding Remarks

Through the classroom teaching of the course of the single chip microcomputer and interface technology to add ideological elements, greatly stimulated the students' learning initiative, in the process of classroom teaching, combining theory with practice, promote raises student's beginning ability, cultivate students' ability to analyze and solve problems, at the same time stimulate students' patriotism and a spirit of service to our country science and technology.

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