

# Exploration and Research on Ideological and Political Education in the Course of Integrated Circuit Technology Introduction

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## Abstract

**The course that integrated circuit technology introduction serves the integrated circuit manufacturing industry, cultivating practical talents in integrated circuit manufacturing and testing for enterprises. Relying on the "Integrated Circuit Design and Process Training Room" and based on the "teacher engineer student" trinity, the professional classroom integrates ideological and political education, helping students establish correct professional, value, and life views in the process of learning integrated circuit professional knowledge. Cultivate excellent talents with good professional ethics and the ability to hold important positions in the enterprise.**

## Keywords

**Ideological and political education; Professional competence; Quality management.**

## 1. Introduction

China's higher education shoulders the major task of cultivating builders and successors of the socialist cause with comprehensive moral, intellectual, physical, and aesthetic development, and must adhere to the correct political direction. Universities should play the main role of ideological and political theory courses, tap into the educational functions of comprehensive literacy courses and professional courses, and promote the construction of the ideological and political education teaching system of courses. Professional course teachers in universities also feel the urgency and necessity of carrying out ideological and political education in courses. Integrated circuit, commonly known as "chip", is widely used in computers, mobile phones, water conservancy, power and other public facilities and military equipment. It is the core of the information technology industry, but also a leading industry to support economic and social development and ensure national security. As a major manufacturer and consumer of integrated circuits, China has always occupied a place in the global integrated circuit industry. The support of relevant national policies has also greatly promoted the development of the integrated circuit industry[1-5].

Taking the "National Outline for Promoting the Development of the Integrated Circuit Industry" (hereinafter referred to as the "Outline") issued by the State Council in June 2014 as a symbol, China's integrated circuit industry has entered a new era of rapid development. According to the development trend of the global integrated circuit industry and the industrial foundation of China, the Outline requires a series of supporting measures such as institutional and institutional innovation, continuous increase of investment, etc., to comprehensively break away from the situation of industry being constrained by people, and achieve the strategic goal of industrial leapfrog development. In April 2016, the Ministry of Education, the National Development and Reform Commission, and the Ministry of Industry and Information Technology jointly issued the "Opinions of the Ministry of Education and other seven departments on Strengthening the Cultivation of Integrated Circuit Talents", requiring education administrative departments and relevant departments in various regions to attach great importance to the cultivation of integrated circuit talents, and guide various universities

and enterprises to strengthen cooperation, innovate talent cultivation mechanisms, and improve talent cultivation levels based on local reality, Provide talent and intellectual support for the development of the integrated circuit industry[5-9].

Faced with the above background, how can vocational college students join the development of semiconductor strategy and help China's integrated circuit industry achieve autonomy and controllability? In order to quickly connect the cultivation of talents with the industry, the Introduction to Integrated Circuits course is set up as a precursor or platform course. The knowledge system is interconnected and without a solid foundation, the knowledge system will be full of loopholes, only understanding the surface and not the principles. For applied talents, it is a hard wound. Therefore, the main purpose of this course is to help students lay a solid foundation for the study of integrated circuits, learn the foundation well, and understand its principles, Only then can towering buildings rise from the ground. In line with the rapid rise of China's integrated circuit industry and the high demand for related talents in the field of integrated circuit, the course aims to cultivate technical skills in microelectronic process management, integrated circuit design, and application, targeting computer science, in accordance with the educational positioning, talent training objectives, job requirements, and student sources of this major, and in combination with the rapid development of the integrated circuit industry Highly skilled, versatile, and innovative technical talents with research, design, and manufacturing skills in the fields of communication and other electronic equipment intelligent manufacturing, software and information technology services, capable of engaging in microelectronic manufacturing and packaging testing process maintenance management, integrated circuit auxiliary logic design, layout design, and system applications.

## 2. Course objective

After two rounds of teaching practice, the course has become more mature in controlling the content and job requirements, realizing that action originates from thought, and that correct professional behavior is cultivated under the correct professional concept. Integrated circuit manufacturing and testing enterprises also need responsible, rigorous, and highly professional employees. The course team deeply understands the urgency and necessity of integrating ideological and political education into the curriculum, proposes construction ideas for the reform of ideological and political education in the curriculum, constructs a new system of ideological and political education in the curriculum, enhances the cultivation of professional ethics and literacy on the basis of improving students' professional abilities, helps students establish correct professional, value, and life views, and makes the trained students indispensable talents in important positions in enterprises.

The course system design relies on the "Integrated Circuit Design and Technology Training Room" and is based on the "teacher engineer student" trinity, carrying out the "school enterprise training" three-stage teaching mode. From the overall design, it can be seen that the course introduces the basic knowledge of integrated circuit related technologies, introduces the current situation and future development of domestic and foreign enterprises in related fields through senior product managers, and combines virtual simulation experiments to enable students to master the cutting-edge technologies and applications in the field of integrated circuits, and understand the tremendous changes that this technology has brought to our lives. The course system selects typical product manufacturing processes, combines virtual simulation with actual factory operations, and perfectly integrates knowledge and fun through VR real person games, animations, and scenarios; Enable students to become familiar with integrated circuit manufacturing technology and various process operations during game challenges, enabling them to acquire a relatively complete basic ability in various integrated circuit manufacturing processes and develop good professional habits.

### 3. Exploring the Ways to Carry out Ideological and Political Education

In order to ensure that ideological and political education runs through the entire process of the curriculum and enable students to achieve basic professional literacy, it is necessary to explore effective ways and methods of carrying out ideological and political education in curriculum teaching. Integrate ideological and political education in professional classrooms, strengthen understanding of the integrated circuit manufacturing process system, establish students' craftsmanship spirit of technological exploration and continuous improvement, and cultivate students' correct professional concepts and literacy.

At present, employers demand the quality of graduates, among which excellent ideological and moral qualities are the primary requirements for graduates. Specifically, graduates are required to be honest, trustworthy, dedicated, and have a strong sense of social responsibility and career dedication. It can be seen that many of the requirements of employers for graduates are no longer technical ability requirements, but involve personal literacy and spiritual level. These non-technical qualities and abilities need to be nurtured through the teaching of various professional courses, silently and gradually by students. Therefore, it is necessary for professional course teachers to establish the concept of ideological and political education, and cultivate students' literacy and abilities while imparting professional knowledge.

Teachers should first set an example for students through their own words and actions, work diligently, continuously improve moral cultivation, enhance personal qualities, and impart correct moral values to students. In the classroom, teachers spread positive energy with a positive attitude, infect students with their personal charm, win their respect, and subtly influence students' outlook on life. During the college stage, students are still in the stage of behavioral development. Teachers should promptly manage and eliminate violations such as being late for class and playing with mobile phones in the classroom. Instil correct behavioral norms into students at all times, allowing them to develop good character and habits under control.

In the reform of ideological and political education of the curriculum, it is required to integrate the value orientation and knowledge orientation, clarify the objectives of ideological and political education of the curriculum, carry forward the Core Socialist Values in the teaching process, spread the positive energy of patriotism, love for the party, and positive energy, and cultivate the spirit of science and craftsmanship. Transform the original curriculum teaching content, improve students' ideological and moral level, humanistic literacy, and cognitive ability, cultivate students' scientific and craftsman spirit, strengthen political direction and ideological guidance, and highlight the value guidance function of professional courses. To guide the ideological value throughout the entire process and every link of education and teaching, to design professional courses for educating students, innovate educational teaching methods, integrate the goals of ideological and political education in professional courses into teaching design, integrate students' learning tasks, and reflect them in students' course learning evaluation plans. Based on textbooks, teachers, and teaching methods, explore the reform of teaching methods for ideological and political courses, and focus on problem-oriented thematic teaching. Create a course ideological and political demonstration course from the aspects of teaching team, teaching organization, course content, teaching methods, practical teaching, and teaching presentation.

### 4. Conclusion

Professional courses, like ideological and political courses, are equally important for educating students, so every professional course teacher also shoulders the responsibility of ideological and political education. It is very necessary to integrate ideological and political education into

the curriculum, which serves the talent cultivation of integrated circuit manufacturing enterprises. Through the course, students will gain solid knowledge in the field of integrated circuits, become familiar with the manufacturing process of integrated circuits, stimulate their interest in integrated circuit knowledge and aspirations for future careers, establish confidence and hope for future development, acquire scientific problem-solving skills, and develop a high sense of responsibility and rigorous and meticulous work style.

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