

## Research on the Implementation Scheme of Core Course Teaching for Computer Science and Technology

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**Abstract:** In the process of the rapid development of Internet technology with information technology, China is gradually moving towards informatization, which has brought tremendous changes to the development of all walks of life and people's lives. The demand for professionals of computer science has increased significantly, and the training methods of different types of talents in computer-related professions are different. In order to meet the current demand for different computer talents, we should formulate a specific implementation plan for core courses for Computer Science and Technology. This paper analyzes the current situation of the development of Computer Science and Technology, teaching situation, and talent demand, and explores the corresponding content of the implementation plan of the core curriculum teaching for Computer Science and Technology.

**Keywords:** Computer Science and Technology; Core course; Implementation scheme

In the society of rapid development of information technology, the demand for computer professionals is increasing continuously. In this context, how to formulate appropriate teaching programs and personnel training programs according to different needs of computer talents is the current focus of attention. Different computer talents are faced with different types and directions of computer specialty, but they have corresponding core courses. In view of the related needs of Computer Science and Technology, the Education Committee of the Computer Society of China has carried out relevant research on the implementation plan of the core curriculum of Computer Science and Technology. And this paper further analyses and explores the relevant contents of the implementation plan of the core curriculum of Computer Science and Technology to provide reference for the training of talents with different needs of Computer Science and Technology.

### 1. Course structure and characteristics of Computer Science and Technology

#### 1.1 Main Course of Computer Science and Technology

In the current teaching design of Computer Science and Technology, the courses are divided into four categories, that is, public course, professional basic course, professional direction course, and practical course teaching. In the latter three courses, the emphasis is on computer technology training. It contains a wide variety of content, including theoretical content and practical content. It is generally believed that there are eight core courses in Computer Science and Technology, including discrete mathematics, data structures and algorithms, database systems, programming foundations, operating systems, software engineering, principles of computer composition, and computer networks.

#### 1.2 Characteristics of courses for Computer Science and Technology

The courses in Computer Science and Technology are mainly related to the number of detailed courses, the professional content of the course, and the professional level related to the curriculum development and learning. Computer Science and Technology cover a wide range of professional learning types, and most of the courses are detailed courses. The requirements for students'

learning and learning are greater, which increases the students' learning tasks. The computer technology mastered by students and the direction of their future development is related to the development of teaching design and learning effects, and it is necessary to pay attention to the curriculum design of Computer Science and Technology. At the same time, for the study of courses, professional requirements are high and learning is difficult. Therefore, in the design of teaching for Computer Science and Technology, it is necessary to pay attention to the needs of students' development direction, cultivate their computer professional thinking and improve their computer practical ability.

## **2. Teaching status and talents training needs of Computer Science and Technology**

### **2.1 Teaching status of Computer Science and Technology**

The development of computer specialty is relatively early and occupies an important position in the development trend of the times. The knowledge and technology of computer specialty are paid more attention to. But for the students majoring in Computer Science and Technology in different colleges and universities, their level of accepting basic professional knowledge is different. The external factors affecting the students' mastery of computer professional knowledge are the geographical distribution of the schools. There are great differences in the contact content of computer specialty between urban and rural colleges and universities. Furthermore, there are differences in subjective consciousness, technology sensitivity, opportunities for understanding new computer technology and application scope of computer technology. At the same time, the degree of students' contact and understanding of computer related technology in life also has a close impact on students' mastery of related knowledge and technology about computer science and technology, and affects students' learning ways and efficiency of computer related technology, resulting in differences in the quality of curriculum teaching materials. On the other hand, the teaching mode of Computer Science and Technology is single, lack of innovation, and the development of computer practice teaching is relatively small, which limits the students' practical ability and the expansion of computer technology, and it is difficult to meet the diverse and multi-directional training needs of computer professionals. And students lack practical training, which is not conducive for students to finding their own development direction and adapting to the process of social development quickly.

### **2.2 Talents training needs of Computer Science and Technology**

With the development of computer technology, computer technology is becoming more and more mature, playing an important role in various fields, occupying an important position in life and work, and the demand for computer talents is still high. Different fields require different types of computer professionals, and gradually divide the development direction of computers into scientific, applied, and engineering talents. There are some differences in the training plan, purpose and mode of computer professionals, but the requirements of talents generally are generally high in theory and good in quality. Practical ability, application ability of computer technology, exploratory spirit of computer application, and research and development ability of advanced computer technology. Therefore, in the study of the implementation plan of the core course teaching for Computer Science and Technology, we can formulate reasonable contents around the requirements of computer science and technology professionals and the direction of training, pay attention to the cultivation of students' computer divergent thinking, improve their computer technology practical ability, and create computer science and technology professionals who meet the needs of social development.

### **3. Implementation plan of core course teaching for computer science and technology**

#### **3.1 Background for establishing for implementation plan**

From the beginning of the 21st century, China has gradually increased the construction of institutions of higher learning, and divided the types of institutions, into higher vocational schools, higher colleges, teaching undergraduate colleges, teaching and research institutions, and research schools. In the process of development, a complex education system has been formed, which has a large professional group. However, the talent needs of a professional field are complex and diverse, and require different training objectives, training methods, and educational strategies. Therefore, the implementation plan is proposed to meet the needs of different types and directions of special talents. In 2006, China proposed the development of “Specification Classification” for Computer Science and Technology, and encouraged various institutions to formulate reasonable and individualized teaching plans in light of the actual situation of colleges and universities and the needs of computer science and technology professionals. The professional talents with large scale and wide talent coverage will meet the common problems in the current computer science and technology courses, and promote the development of Computer Science and Technology.

#### **3.2 Teaching basis of core courses for Computer Science and Technology**

The purpose of teaching implementation plan of core curriculum for Computer Science and Technology is to cultivate high-level, high-quality computer science and technology professionals to meet the needs of the current computer professionals. In the design of the core courses for Computer Science and Technology, we can carry out the training objectives of the curriculum, and design a complete system for the core curriculum through the related points and support points of each core curriculum to ensure that the core curriculum can bring its own value into play in teaching, and plan and step by step. According to the scientific, engineering and practicality of computer science and technology, students are guided to give full play to the advantages of computer science and technology. In addition, knowledge is the basis for the cultivation of professional competence. In this context, the targeted theoretical content in the core curriculum of computer science and technology is enhanced, and knowledge in computational thinking, algorithm design, and program development is strengthened.

#### **3.3 Main contents of the implementation plan of the core course for Computer Science and Technology**

In order to ensure the high quality, high efficiency and high level of teaching, a complete implementation plan of the core curriculum for computer science and technology requires the basic description, curriculum practice, content outline, curriculum design, examination content of the core curriculum for Computer Science and Technology, and attaches importance to the ability training module. Through the basic description, students can have a basic understanding of computer science and technology and its core courses, and master basic theoretical knowledge. In the content outline, the key points, difficulties and efficient learning methods of the core courses of computer science and technology are highlighted. The content of curriculum design plays an important role in cultivating students' design thinking and improving students' basic composition and content of design. Then, through the targeted assessment method, the author inspects the teaching development and the students' learning situation, examines the implementation effect of the core curriculum teaching for Computer Science and Technology, understands the students' situation dynamically, adjusts the teaching program timely, and then improves the teaching quality and teaching effect to train computer science and technology talents step by step.

#### 4. Conclusion

Information technology is still in the stage of rapid development, and still has good prospects for development in the future. The demand for computer science and technology professionals is unsaturated, which promotes the development of computer professionals training in the context of high demand. The core curriculum for Computer Science and Technology occupies an important position in the study of its curriculum, and has a direct impact on computer professionals. Therefore, we should understand the current situation of Computer Science and Technology, adapt to the training goal and development direction of Computer Science and Technology directly, and be in line with the development background of the times. In addition, we should improve the implementation of the core curriculum for Computer Science and Technology continuously, improve the training effect and quality of computer talents, and enhance the high-quality computer professional reserve force for social development.

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