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## Research on the Construction of Computer Professional Course System

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**Abstract** We will standardize the construction of computer science with professional certification standards, and conduct in-depth research and work on the training objectives, curriculum system construction and continuous improvement mechanism under the background of “new engineering”.

**Keywords** Certification standards, curriculum system, new engineering, computer science

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### 1. Introduction

The certification of engineering education is a kind of recognition of the country's talent training for colleges and universities, and it is also the entry permit for engineering talents in China to enter the international market. The significance of this work is to learn from the mature experience of international engineering education professional certification, combined with the specific practice of professional construction in China, to promote the reform of engineering education and teaching, to build and improve the practical characteristics of running schools, reflecting the needs of the profession, reflecting the needs of the industry, and promoting professional reform. With the construction of engineering education professional certification system.

China's engineering education professional certification began in 2006. In the past few years, many colleges and universities have passed the certification. Their successful experience shows that professional certification from the process to the results, has played a very important role in promoting the quality of professional teaching. The certification process is a process of continuous improvement, continuous improvement, and continuous innovation in professional construction. Professional certification can make colleges and universities further clarify the training objectives, and pay more attention to the integration of professional training and social needs, to achieve the goal of improving students' employment level and improving students' comprehensive ability. In order to actively respond to a new round of scientific and technological revolution and industrial transformation, support a series of national strategies such as service innovation and development, "Made in China 2025", since February 2017, the Ministry of Education has actively promoted the construction of new engineering, and strived to cultivate a large number of diverse Innovative and excellent engineering and scientific talents provide intellectual and talent support for China's industrial development and international competition.

### 2. Curriculum system construction

The professional certification system emphasizes that the training objectives should be in one-to-one correspondence with the training links. The training goal is the core of professional construction. Around this core, it is necessary to formulate a scientific and effective implementation plan to ensure the realization of the training objectives. The research of the training program includes the teaching system, that is, the construction of the curriculum teaching system and the construction of the practical teaching system. In addition, the construction of the teaching staff, the construction of teaching materials, the monitoring system of teaching



quality, and the reform of teaching methods are all guarantees for achieving the professional training objectives. We conduct research on the teaching system in the training program, and we hope to further strengthen the curriculum system under the background of engineering certification and "new engineering", so that the professional curriculum system can keep pace with the times and keep updating.

The curriculum design of computer science and technology majors considers the result-oriented reverse design idea. The general idea is as follows:

(1) Through investigation and research, understand the demand for professional talents in social and economic development, the requirements of industry enterprises for talents' knowledge and ability, and determine the training objectives that meet the needs of social and economic development and industrial enterprises; the training objectives can reflect the students' graduation for five years. After that, it should achieve achievements and levels in the professional field, and in line with the school's characteristics of training applied talents.

(2) According to the training objectives, the professional training standards will be revised, the graduation requirements will be refined and decomposed, and the graduation requirements index points will be formed so that they can be implemented and measurable. Graduation requirements can support the achievement of training goals.

(3) According to the graduation requirements index points, the curriculum system is configured, the theoretical link and the practice link are integrated with each other, which conforms to the cognitive law of cognition-practice-re-recognition; strengthens the practice teaching link, highlights the characteristics of the professional training of applied talents; Improve the logical relationship and arrange the course semester.

(4) According to the support relationship of the teaching objectives of the curriculum, the curriculum syllabus is revised, the teaching content, teaching methods, and internal and external learning requirements and assessment methods are planned to ensure the achievement of graduation requirements.

(5) Regularly evaluate and revise the curriculum system through intra-school circulation and off-campus circulation, so that the professional curriculum system can meet the graduation requirements, cultivate professional talents that meet the expectations of the society and the industry, and support the achievement of training goals.

The design methodology and process of the relevance matrix of the professional curriculum and graduation requirements are:

(1) Professional organization organizes all teachers to jointly study and understand the graduation requirements of engineering education professional certification, and combines the training objectives and school-running characteristics of the professional, and divides each graduation requirement into several index points;

(2) Course configuration for each graduation requirement indicator point;

(3) The professional introduces the professional graduation requirements and the supporting points of the curriculum points and the curriculum to all course teachers and course group leaders, and obtains a common understanding of the corresponding supporting relationship between the course and the graduation requirements;

(4) The course group teachers discuss together to determine the course content, teaching methods, and assessment methods to effectively support the graduation requirements;

(5) Implement the teacher's curriculum syllabus and review it by the course group leader, and the professional responsibility professor will approve it.

In the professional construction based on engineering education certification, the most important point is that the professional should have the ability to continuously improve itself to adapt to the development and needs of technology, business, society and self-cultivation. To this end, in addition to the need to have complete and effective rules and regulations in teaching management, the profession must also establish a complete evaluation mechanism and effective information feedback channels to form an effective closed loop. How to achieve this closed-loop through the training of the goal, the curriculum system and the continuous improvement mechanism is a difficult point of the topic.

### 3. Expected result

Based on the background of engineering education certification, this topic will conduct in-depth research on the construction of computer science, and deep integration of engineering education certification and computer professional construction under the background of "new engineering".



The actual value is as follows:

(1) Further improve the professional training objectives based on engineering education certification,

Solve the problem of talent training and social needs disconnection, so that the computer professional setting can adapt to the needs of national, regional and industrial economic construction, adapt to the needs of scientific and technological progress and social development, meet the school's own conditions and development plans, and have clear service orientation and talents. The characteristics of "new engineering" talent training to meet the needs of the school's internationalization and application.

(2) Construction of course teaching system based on engineering education certification

The construction of the course teaching system based on the improved training objectives makes the computer professional course system always keep up with the forefront of engineering technology development, and can continuously adjust the course system according to the development of the industry and disciplines, so that teachers can keep up with the industry. At the pace of the development of the discipline, students can also learn the latest knowledge and technology that best meets the needs of the times, so as to better cultivate high-quality applied computer engineers who meet the needs of the socialist market economy and social development.

(3) Continuous improvement mechanism

According to the requirements of engineering education certification, we will study and develop a series of continuous improvement mechanisms to ensure that all professional constructions can be timely feedback, timely correction, and timely improvement, forming an effective closed loop, thus connecting with the development of the times, enabling professional construction to Continue to improve.

#### 4. Conclusion

Through the research of this topic, we will formulate professional training programs, curriculum systems and continuous improvement mechanisms with the characteristics of "new engineering", and constantly explore ways to improve training methods and methods to promote the continuous improvement of the quality of personnel training. Through the research of this subject, we will explore how local colleges and universities can grasp their own training direction in the fierce competition of talent market, reflect their own training characteristics, clarify their own training objectives, and cultivate qualified talents with high quality, strong ability and satisfying social needs.

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