

## Exploration on the Teaching Reform of Engineering Cost

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### Abstract

Teaching reform is the main direction of change in engineering education. According to the training plan of talents, the single and boring teaching mode and decentralized teaching mode will be changed, and the actual case project will be combined to systematically improve the students' level. This paper analyzes the problems existing in the current engineering cost specialty, and proposes the direction of teaching reform so that students can adapt to the requirements of employers better.

### Keywords

Cost engineering, teaching reform, practice, assessment.

### 1. Introduction

Cost engineering is a theoretical and practical professional course, which is a comprehensive and cross-disciplinary subject. With the development of the industry, the teaching content of engineering cost is also constantly enriched; but the traditional teaching mode makes the students in colleges and universities have insufficient comprehensive ability, the ability to read drawings and the ability to calculate is weak, and the research problem cannot be analyzed as a whole. In order to solve these problems better, it is necessary to start from the teaching, practice, assessment and other aspects to cultivate the application-oriented undergraduate talents that meet the requirements.

### 2. Teaching status of cost engineering course

The theory is out of touch with practice. The teaching focuses on the theoretical explanation, and the assessment of the students is also judged by the scores. After the students practice certain questions, they will simply and mechanically repeat. It seems that the scores of the students are high, this does not mean that the students understand the principle. Secondly, the practice class is generally set after the exam class. For the students, it is necessary to re-review the previous theoretical knowledge, and the practice focuses on hands-on operation. Sometimes it is difficult for students to combine theory with practice.

Poor relevance between courses. The cost engineering is an interdisciplinary subject, involving a wide range of knowledge and a large coverage. If the course cannot carefully arranged, it will cause a lack of relevance between the courses, and cannot be close to the realistic job skills requirements. Due to the large span of the subject, the content of the course is sometimes not systematic.

### 3. Create a professional course group

The relatively independent and closely related professional basic courses and professional courses and elective courses as well as practical courses form a course group, allowing students to systematically complete a series of course design based on actual engineering projects, rather than learning the project in a fragmentary and fragmentary way. At a certain stage, there is no overall concept. For each course, combine the time allocation of knowledge points and ability training to guide students to learn independently, discover problems, solve problems proactively, and improve their practical ability.

According to the support system diagram of the core course of cost engineering of the college, try to establish a system of course grouping, including structure, construction, engineering quantity pricing

and measurement, and cost software. These courses are closely related to engineering drawings. This is very important for the cultivation of students' abilities.

At the same time, according to the current core engineering curriculum support system map of the college's current cost engineering, try to establish a problem-oriented, practice-based PBL (Problem-Based Learning) teaching method, the whole process of simulating the project management process, the engineering economics, construction project contract management, cost management, real estate development and management, project auditing constitute a course group.

A certain stage of project implementation may involve all aspects of knowledge. Therefore, the interface between courses is especially important. Before the start of the stage teaching, summarize all the knowledge points of the stage according to the project requirements, so that the students have a general understanding of the whole; then sort out according to the order of the items, so that the students can clearly define the application relationship between the knowledge points; finally, the knowledge points are explained in detail.

#### **4. Highlight the practice teaching outside the school**

First, establish an off-campus practice teaching base. Firstly, establish an off-campus practice teaching base jointly managed by schools and enterprises. For colleges and universities, it makes up for the lack of practical teaching equipment and the lack of professional teachers. For enterprises, we can use the research advantages of school instructors in professional theory, improve the business management pipeline process, product development technology, and get the advantages for enterprises in the competition. Secondly, Combine the talent training mode to establish a reasonable teaching system for the cost-based professional practice teaching outside the school. Thirdly, combine the talent training mode to establish a complete management mechanism for the off-campus practice teaching base.

Furthermore, establish a virtual practice teaching base. Cooperate with domestic engineering cost software professional companies (Glodon, Luban, Swell, etc.) to improve the teaching effect by using the software company platform. For example, the BIM-VR virtual security experience hall system launched by Glodon is based on the BIM model of the construction site. Through the combination of on-site BIM model and virtual hazard source, the experiencer can enter the real virtual reality scene, and let the experiencer get a deeper safety awareness education through immersive and interactive experience to enhance the production safety awareness level of all employees.

Finally, pay attention to professional vocational skills training. In the social practice teaching stage, that is, through professional vocational skills training, such as Quantity Surveyor, constructor, PMP certification and other skills training, students have the ability to obtain relevant professional skills certificates.

#### **5. Improve the performance assessment method**

Introduce the flipping classroom teaching mode, adopt the Blue-Cloud-Class or the Rain-Class, and establish a more flexible and diverse performance appraisal method to mobilize the students' enthusiasm for learning.

Due to the implementation of the overall teaching reform of the curriculum group, the assessment method should reflect the overall quality of the students. The assessment focus should be on the professional core competence of professional competence, independent learning ability, innovative practice ability and communication management ability.

The scores of practical skills can be given a comprehensive score by the off-campus enterprise personnel, so that the combination of internal and external points can also mobilize the students' subjective initiative and cultivate their interest and creative thinking.

## 6. Guarantee Measure

To develop the overall abilities of students, it is necessary to cooperate with the teachers' team to design this practical example and dig out the core information of their own courses. This requires a high level of teachers, and teachers need to have an understanding of the industry and the industry. Teachers must have a high level of teaching and a hands-on ability.

To have a reasonable curriculum arrangement, the curriculum should be organized around the current capacity requirements and comprehensive arrangements. For example, reasonable arrangement of project cost management, bidding and contract management, project management, etc., it is best to properly arrange practical activities, so that students can understand the same problem from different angles.

## 7. Conclusion

This paper proposes some solutions to the problems existing in the practice teaching of students outside the school. In order to improve the teaching effect, and cultivate high-level applied engineering and technical personnel of engineering cost.

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