

## The teaching practice of project cost management course based on the concept of whole life cycle

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### Abstract

The course of engineering cost management is a compulsory course for cultivating the application-oriented undergraduate in engineering cost, which is designed to make the students master the theory and method of determining and controlling the project cost. Taking the guiding ideology of "establishing the concept of cost management in the whole life cycle, paying attention to the practical application of engineering, strengthening the ability of whole process management and familiarizing with the operation of cost software", according to the characteristics of the course, such as many methods, wide content, high comprehensiveness, strong regularity and practicality, the teaching method of engineering cost management course based on the whole life cycle management concept is explored and practiced.

### Keywords

Project cost management, curriculum content, case teaching, whole life cycle, instructional design.

### 1. Introduction

Engineering cost management is an important professional direction course of engineering management specialty after completing the basic courses of engineering evaluation, engineering economics and management. Its content covers all stages of the whole life cycle of the project and the contents and methods of cost management of all parties involved in the project. It has the characteristics of many methods, wide content, high comprehensiveness, strong regularity and practicality. Based on the experience and experience of engineering cost management and teaching for many years, the teaching process of the "On the basis of the whole life cycle cost management idea of the project, the construction cost management content and method of each stage of the project construction are the base point, the modern management method and the construction cost work practice are combined, and the project cost information management is emphasized." has been established.

### 2. Through the setting of Teaching content, the idea of cost Management in students' whole Life cycle is cultivated

When setting up teaching contents, we should start with the contents of cost management in the stages of project decision, design, construction preparation, construction, completion acceptance and use, and introduce the methods and measures of project cost management in stages and main body. Taking the teaching material as the clue, the content of each chapter starts from the engineering practice, adopts the teaching, the inspiration, the discussion and so on various teaching methods, pays attention to teach the thought and the method which solves the engineering actual problem, trains the student entire life cycle cost management ability. The teaching content is set as shown in figure 1.

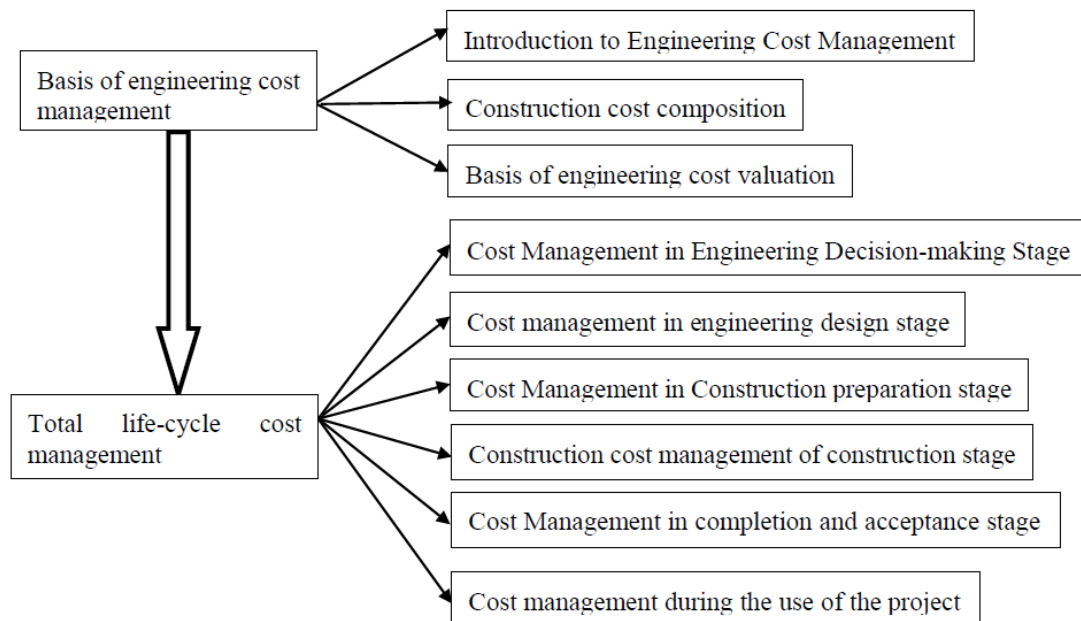


Fig. 1 content setup diagram of engineering cost management course in the whole life cycle

### 3. Through the gradual teaching design, the students have an interest in learning.

In the case of college students, after having a certain self-learning ability, how to make the teaching of the professional class attractive by the teaching design, make the class knowledge vivid and concrete, make the students sit in the classroom to play the subjective initiative, the interest is undoubtedly the best power assisting agent to improve the classroom effect, Therefore, after the content of the teaching content of the project cost management is determined, the design of the teaching process is very important, and according to the nature and content of the course, the step-by-step teaching method is adopted, namely, the engineering problem with high public attention is first put forward, and the students have a strong interest, gradually introducing the subject matter, then analyzing the problem, refining the focus and the difficulty, and finally solving the problem, and obtaining the method and the measure, so that the content and the method of the whole life-cycle cost management of the student are learned from the knowledge to the master, the problems are raised in the teaching process, and the problem is analyzed, Finally, the purpose of the problem-solving is to do more with less.

### 4. Applying Engineering cases to combine Theory with practice organically and cultivate students' practical ability

The characteristics of engineering cost management course determine that case teaching method plays an irreplaceable role in improving students' ability to solve practical problems. In order to ensure the teaching effect, first of all, in the selection of cases, we should pay attention to the reality, and combine with the emphasis and difficulty of the course. Secondly, the case teaching process also has two requirements for teachers: on the one hand, it should have multidisciplinary theoretical knowledge and rich practical experience, so as to make a comprehensive and comprehensive analysis of the case; on the other hand, it should have a good ability to organize and adapt, so that the case discussion can be carried out in an orderly manner, and the various novel ideas put forward by the students in the classroom can be analyzed and judged. Finally, in the case teaching process, we should pay attention to the way of interaction between teachers and students, students are the main body of the whole learning process, so we should ensure that students can freely play according to the theory of learning to formulate a plan, and teachers mainly conduct guided comments on this, so that students can find the defects of the plan and self-improvement.

Because of the strong practicality and wide range of engineering cost management courses, case law teaching can effectively improve the teaching quality, improve students' learning initiative and creative thinking ability, and is also a good experience for teachers to better understand the needs of students and improve their own teaching level. At the same time, due to the diversification and complex management trend of engineering projects, it also provides a reliable space for the sustainable development of teaching in this course.

#### **5. By means of modern educational technology, students can master the methods of cost management in each stage of project construction.**

With the development of modern science and technology and the increase of classroom information demand, teaching methods are constantly updated. The application of ppt is one of the most extensive multimedia teaching methods at present. According to the characteristics of the project cost course, making full use of the rich functions of the multimedia courseware, combining the text expounding part with the chart, and using the animation hierarchical display, the abstract concept or difficult steps can be better understood and mastered by the students through the orderly projection process, coupled with the explanation by the teacher.

In the course of engineering cost management, there will be a large number of calculation parts according to different construction stages, often involving many formulas and algorithms. When making courseware, combining the formula with case calculation, through ppt animation demonstration, can arouse the enthusiasm of students to participate in calculation and improve the effectiveness of classroom teaching.

#### **6. Through the Experimental Teaching Link, the Application ability of students' cost Software is cultivated**

According to the follow-up relationship of the course, when the project cost management course is taught, the students have completed the basic courses such as "Engineering Evaluation", "Engineering Project Management" and so on, and the software already learned in these courses can be applied to the construction cost management process in each stage of the construction project, for example, the construction organization software will be used to analyze the construction deployment when the cost control is in the construction stage. The engineering calculation software compiles the engineering quantity list and the engineering valuation software carries on the cost accounting and so on. Therefore, in the class hour arrangement of engineering cost management, we should consider the experimental time of comprehensive application of software in order to integrate the matching use methods of related software in the process of engineering cost management and cultivate students' comprehensive management ability.

#### **7. In accordance with the teaching purpose, determine the examination mode in accordance with the training of applied talents.**

In view of the characteristics of engineering cost management course, which involve a wide range of contents, many methods and strong practicality, the final results should be obtained from the usual classroom performance and the final examination. Among them, the classroom results usually include the attendance of students, the effect of classroom practice and the participation of case analysis, accounting for 30% of the total scores, and the type of questions in the final test paper should also be in line with the current qualification examination, according to the requirements of standardization and scoring. For example, the types of test questions can be divided into three types: single multiple choice questions, multiple choice questions and case analysis and calculation, which can not only test the students' mastery of basic concepts through multiple choice questions, but also assess the students' ability to solve practical problems by case analysis and calculation.

## 8. Conclusion

The teaching method of engineering cost management course based on the whole life cycle concept is in line with the development trend of engineering cost management, and lays a good theoretical and practical foundation for students to engage in related majors in the future, and the teaching practice effect is remarkable. It is mainly reflected in the following three aspects:

(1) Taking the whole life cycle of the engineering project as the case material, through the teaching and communication of the actual case, the students' learning goal of theoretical knowledge is clearer, and the effective combination of theory and practice is beneficial to the training of senior cost management talents with engineer quality.

(2) The whole life cycle of the project is the management scope, so that the students can systematically apply the relevant software to carry out the information management of the project cost, improve the management efficiency and guarantee the management quality, and meet the requirements of the computerized accounting of the engineering cost management personnel.

(3) Taking the whole life cycle of the engineering project as the research object, the students can master the contents and methods of each stage of the project construction and the cost management of all parties involved in the construction, better adapt to the social demand for the applied cost management talents, broaden the scope of employment units and specialties, and better serve the society.

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