

## Exploration on the Practice System Construction of OBE Education Concept in Engineering Management Workshop

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### Abstract

**Under the background of accelerating the pace of modernization, the most important value of local colleges and universities has been transformed into service and local economic and social development. In order to meet the market demand for applied talents, colleges and universities must strengthen the construction of practical courses and constantly improve students' practical ability. In this paper, the practical curriculum system of engineering management (engineering cost direction) of Guizhou Institute of Technology is refined and summarized to provide experience for the cooperation of production and learning in relevant local colleges and universities in China.**

### Keywords

**OBE; Workshop; Engineering Cost; Practical Course.**

### 1. Introduction

Guizhou Institute of Technology is the only science and engineering college under the jurisdiction of Guizhou Province. Since its establishment, undergraduate engineering management major has been a first-level major under the key support discipline in Guizhou Province. After the construction of teachers and students in recent years, it has achieved certain results in practical teaching. Many times in the university student discipline skill competition obtains the honor, forms the school specialized development characteristic. The engineering management major is an interdisciplinary subject. In terms of talent training, it highly implements the college's orientation of "strong responsibility, precise technology, good management, emphasizing practice, and innovation" in the training of high-quality applied talents in engineering management.

With the development of the construction industry in the economic society, the industry has higher and higher requirements and expectations for the comprehensive quality, theoretical basis and practical ability of graduates. For technical positions, the requirements for students' practical skills are particularly important. OBE is defined in "the output-based education model: controversy and answers", written by the American scholar Spady, as "Clearly focus and organize the education system to ensure that students gain the experience of substantive success in future life". Guizhou Institute of Technology Engineering Management major is based on the provincial conditions and local construction industry talent needs to develop training goals: training to meet the needs of modernization, master construction engineering technology and required knowledge of management, economics, law and computer applications, and have a higher professional Senior professionals with comprehensive qualities and abilities, excellent professional ethics, innovative spirit and international vision, who can engage in the whole process management of construction projects in related fields.

### 2. Analysis of the fit between OBE concept and workshop practice

OBE teaching mode pays attention to the comprehensive and coordinated development of students' knowledge, ability and quality, emphasizes the result-oriented, student-centered and continuous improvement of teaching ideas, and pays special attention to the output of students as the starting point of teaching goal and teaching design.<sup>[1]</sup> Workshop teaching emphasizes practice-oriented,

student learning needs as the center, and simulation as the implementation method. It is a comprehensive and practical teaching method that focuses on the output of systematic results such as student knowledge, ability and quality. The OBE teaching mode and the workshop teaching are consistent in the output of student learning results, and the implementation of the workshop teaching has changed the traditional one-way knowledge transfer mode of "teacher teaches, student learns" and transformed into a two-way interactive teaching between teachers and students. Mode, simulation and situational teaching methods have a clear definition of student achievements, which coincides with the student-centered and result-oriented thinking emphasized by the OBE concept. Embedding the OBE concept into the workshop teaching can better connect each learning link, perfect the design of teaching system, and effectively monitor and guarantee the teaching quality.

### **3. Practical exploration of BIM technology application and cost management workshop**

The discipline of engineering management in Guizhou Institute of Technology carries out modular teaching, and "engineering management (engineering cost direction)" is one of them. It is committed to cultivating applied engineering cost professionals with strong foundation, wide specialty, strong ability and high quality. For this reason, the school took the lead in combining the workshop teaching mode on the basis of implementing the OBE concept, and opened a unique course of "BIM Technology Application and Cost Management Workshop" for the engineering management (engineering cost direction) major, which is the project management for our school. An important step has been taken in the construction of the professional practice curriculum system, providing a reference for the subsequent improvement of the relevant curriculum system, and further improving the teaching level of applied undergraduates.

#### **3.1 Teaching design of BIM technology application and cost management workshop**

"BIM Technology Application and Cost Management Workshop" is an important part of Guizhou Institute of Technology's engineering management (engineering cost direction) teaching. It is a major comprehensive practical course for students of this major, and undertakes practical work for subsequent professional courses and after graduation. Lay a good foundation. According to the investigation of talent demand in Guizhou Province, the practical teaching system of building construction project measurement and valuation management based on real estate development and construction demand is designed, and the workshop teaching based on professional training goal is set up. Pay attention to the design of students' output results. Through the industry talent demand to define the ability level that the student should reach, push back to design the student output result, let the student reach the different level ability request through the curriculum study.

In order to better connect with the market, the workshop teaching introduces the Cost Enterprise Tutor, the enterprise teacher brings the actual cost project into the workshop as the guide role, designs the workshop task flow with the actual production mode of the enterprise, and reproduces the situational teaching. In the practical teaching of situational embedding, students play and divide labor according to the requirements of the task, imitate the enterprise to set up a project group, independently simulate the engineering quantity calculation, quantity difference analysis, budget audit, group price, submit the final results and many other cost practice links. In the whole process, teachers guide students to think independently and communicate the key points and dispute points in the whole process of practice, share knowledge and experience collectively, and make students achieve the purpose of integrating knowledge points and improving comprehensive quality in the whole workshop course.

#### **3.2 Teaching Evaluation of BIM Technology Application and Cost Management Workshop**

Workshop teaching embedded with OBE philosophy pays more attention to the evaluation of student-centered learning outcomes<sup>[2]</sup>. Teaching evaluation judges the students' understanding, mastery and application level of knowledge by assessing the learning outcomes of students, and then judges whether the teaching content design is perfect and reasonable. Based on this, the BIM Technology Application and Cost Management Workshop has established a diversified and multi-dimensional

teaching evaluation system of "equal emphasis on process and result" and "parallel between teachers and students" to achieve objective and accurate evaluation of workshop teaching.

Paying equal attention to the process and the result means to change the original evaluation method based on the final assessment result, pay more attention to the evaluation of the student's learning process, and realize the unification of the process evaluation and the added evaluation. On the one hand, the teacher evaluates the students through the process of the students weekly records, logs, discussion performance and attendance; on the other hand, they carry out appraisal evaluations based on the results submitted by the students, and evaluate the knowledge structure and ability of the students through the evaluation method of both process and results. Comprehensive consideration of levels, etc. The parallel between teachers and students refers to the multi-subject evaluation of the workshop teaching through a combination of teacher evaluation, student team mutual evaluation, and student self-evaluation. The comprehensive scores of students are obtained according to their respective weights to avoid the bias and limitations of single subject evaluation.

### **3.3 Student achievement measurement consistent with enterprise production behavior**

For practical courses, the measurement of students learning outcomes is the top priority<sup>[3]</sup>. Through the measurement of student outcomes, the ability level of students is judged, and students learning suggestions are given to help students improve quickly. One's own ability level. The cost management workshop establishes a student achievement measurement standard through the joint school-enterprise cooperation, evaluates whether the output of the student achievement reaches the corresponding level based on the enterprise production standard, establishes the student achievement measurement standard for each practice link, and the student submits the practice result within the specified time, the teacher In accordance with the "Student Achievement Quality Evaluation Standards", the student achievement is measured and evaluated.

### **3.4 Continuous improvement of BIM technology application and cost management workshop**

In the process of implementing the cost management workshop, the paper analyzes the results of the calculation model, the quantity difference analysis report and the valuation document submitted by the students. To judge whether the workshop teaching design is reasonable or not through the feedback of students' results and to optimize and continuously improve the teaching design. At the same time, teachers should also pay attention to the evaluation of the results of the student workshop series, examine the standardization and rationality of the students' achievements, and constantly adjust and improve the students' achievement setting according to the social and industry standards and the needs of talents, In order to ensure that the workshop teaching results meet the engineering cost industry for students "solid foundation, wide professional, strong ability, high quality" requirements.

## **4. Conclusion**

The workshop teaching based on the OBE concept has a great promotion effect on the cultivation of engineering cost application talents. The OBE teaching concept and the workshop teaching model are introduced into the classroom, While enhancing students' practical ability and practical ability, it also makes students connect with the demand of talents in engineering cost industry, and strengthens students' employment ability and level. Practice has shown Compared with the traditional training mode, the workshop teaching mode based on the OBE concept enables students to acquire the all-round development of knowledge, ability and quality, and can train more high-quality and high-skilled applied engineering cost talents for the society and the industry.

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## References

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