

Application of Project Teaching based on OBE Concept in Fundamental Linux Course

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Abstract

In view of the deficiencies in the teaching methods of the course "Fundamental Linux " in the College of Information and Control of engineering of our university for many years, as well as the social demand for excellent Linux application-oriented engineers, Now, in combination with the actual project development environment, driven by specific project engineering and using OBE(outcomes-based education) concept, the project teaching reform and exploration of Fundamental Linux course are carried out. The purpose is to stimulate students' learning enthusiasm and initiative, to improve students' professional quality and the ability to solve practical problems.

Keywords

Fundamental Linux; Project Teaching; OBE Concept.

1. Introduction

As an advanced educational idea, Outcome Based Education [1] (OBE) has become the mainstream idea of educational reform in the United States, Britain, Canada and other countries. It means that the goal of teaching design and implementation is the learning outcomes achieved by students through the education process. Using OBE concept of teaching, results-oriented, according to the results of reverse derivation of students' training programs, students' teaching syllabus, students' curriculum content, so that students' learning content will be more in line with the needs of enterprises. To truly achieve seamless connection between the content of the courses learned in school and the work needs of enterprises after graduation, so that students are gradually influenced in the atmosphere of professional education, cultivate students' independent learning ability and pay attention to the cultivation of students' practical ability. From task to task, it pushes forward layer by layer, changing the traditional teaching mode into a new student-centered mode.

Fundamental Linux is the main course of Internet of Things engineering major in our university, which aims to cultivate highly skilled and excellent talents. In the past, this course has some problems in the actual teaching process, such as laying emphasis on theory and neglecting application. Therefore, how to apply project-based teaching to the basic course of Fundamental Linux, and how to run the OBE concept through classroom teaching, has become an important topic.

2. Project Teaching

Project-based teaching mode [2] integrates projects into the teaching process. The teaching mode changes from the traditional knowledge points taught by teachers to projects completed by students. Students master theoretical knowledge through projects and combine theory with practice. Among them, the learning process of students has changed from the traditional passive to the active in the process of participating in the project, which plays a leading role in the teaching. The teacher loses the dominant position in the traditional teaching mode in the teaching process, and becomes the guider, director and supervisor in the learning process of

students. After the project is completed, the project team members should demonstrate and evaluate themselves. Project-based teaching focuses on both the final result and the execution process. Project-based teaching method can better exercise students' various abilities, including hands-on ability, innovation ability and teamwork ability.

3. Fundamental Linux Project Teaching Practice

3.1. Project Selection

Project is the main line of project teaching method, teachers and students should carry out activities around the project, so the choice of project is particularly critical. The teacher should design the project and task content based on the class content before class. The project and task should be planned according to the following requirements:

- ① The content of the project should try to cover the knowledge points required by the corresponding chapters in the outline. If not, the missing knowledge points in the project should be supplemented and completed for students.
- ② The selected content of the project should pay attention to practicability, that means it should be closely combined with the reality of production. Teachers can consult enterprise personnel or really go into the enterprise to dig projects suitable for students.
- ③ The selected content of the project should pay attention to the interest, interest is the source of motivation for students to learn, only the students are interested in, can consciously complete the task, to master the purpose of knowledge.
- ④ Project content should also combine with the characteristics of the students themselves, the same section of the content, the teacher should prepare a number of projects, and then from the actual situation of the students, combined with each student's cognitive ability, learning ability, early basis and other factors to choose different difficult projects, really teach students in accordance with their aptitude.
- ⑤ The project should focus on openness, because students consider the problem in different ways and starting points, so the answer may not be unique, in order to better show the personality of each student, let students in the learning process not stick to textbooks, draw analogies by analogy.

3.2. OBE Idea Throughout Teaching

Engineering education certification follows three basic concepts: student-centered and continuous improvement. These ideas are very important to guide and promote specialty construction and teaching reform and to guarantee and improve the quality of talents training in engineering education. In the whole teaching process, from the course construction, project construction to the construction of each lesson, OBE is closely designed to deepen the teaching results throughout. Results-oriented education has become the mainstream concept of education reform in the United States, Britain, Canada and other countries, and has been fully adopted by engineering education certification. In the whole teaching process, the teachers should have a deep understanding of OBE teaching concept and carry it throughout.

3.3. Curriculum Chain Integration and Crossing, Expanding Project Design

The teaching content of *Linux fundamental* project[3] should not be limited to the course itself, but should be vertically linked with the leading and follow-up courses and practical training, including the combination of *object-oriented Programming, SCM Interface and Technology* and other courses, so as to truly reflect the continuity and development of project teaching mode and project design.

The final achievements of the Linux fundamental course reform are as follows:

- ① Construct the teaching and training plan of Linux fundamental course project.

- ② Complete the construction of related course resources of " Linux fundamental ".
- ③ Completed the publication of the educational reform paper " Linux fundamental ".
- ④ Finished the compilation of the textbook " Linux fundamental (Project Version)".
- ⑤ Improve the laboratory opening mechanism, provide hardware and software support, provide students with second classroom activities.

4. Summary

This project is results-oriented and starts from Linux basic courses to study the project-based teaching mode based on OBE concept. It focuses on the student-centered teaching design, teaching practice and teaching evaluation. The aim is to carry out the "student-centered" education philosophy of our school, reform the traditional classroom teaching mode, promote the improvement of students' independent learning ability, put what they learn into practice, and cultivate high-quality application-oriented talents to adapt to the social development. Accumulate experience in engineering education certification for our institute. After the successful implementation of the project research, it can be extended to other majors of our college, such as computer science and technology, electronic information engineering, etc. It is conservatively estimated that the number of students benefiting from the project will be about 500 each year.

Through the reform of the project-based teaching mode for the foundation of Fundamental Linux system, we have mastered a new teaching method and cultivated a group of highly skilled applied talents with strong practical ability and practical ability. It realizes the teaching idea that students take learning as the main body and effectively solves the problems encountered in the process of hierarchical teaching. This project-based teaching mode faces application-oriented talents, triggers from problems and takes projects as the basis. It effectively improves students' enthusiasm in class participation, cultivates students' autonomy in learning, and improves students' professional quality, which further confirms the feasibility of project-based teaching mode in computer courses.

References

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