Chapter 13
Research and Practices on Teaching Mode of Engineering Courses Driven by Software Platform

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ABSTRACT
This chapter introduces a model of “Problem refining + Paper presented + Project application + Software development + Patent declaration” on the basis of teaching practice and scientific research for many years. This is a mode of researching and practicing on engineering courses based on cloud computing. The main goal is to help students to understand and grasp the core technology of engineering courses. The employment situation of engineering graduates is very serious, while enterprise is lack of engineering employees that can be used. The reason lies in talent training problems. And this model can help us improve the teaching quality. In order to get the market recognition, meet the demands of the development of future work, and obtain competitive ability of quality control, the mode should be modeled and systematic.

INTRODUCTION
Our department has been approved for Beijing municipal key construction disciplines in 2008 and the Department of information management and information system has been approved for Beijing’s characteristic professional in 2009, and the Management science and engineering laboratory had been approved the experimental demonstration center of Beijing in 2009. Our achievements focused on serving the local, combined with ‘product to study, research to use’, and constructed the environment which suitable for students’ science development. This model is of important value on
guiding the students, cultivating scientific research and promoting students’ employment.

PROPOSE THE TEACHING MODE

On the basis of teaching practice and scientific research for many years, we had formed a model of “Problem refining + Paper presented + Project application + Software development + Patent declaration.” And this model can help us improve the teaching quality. The teachers and students participation in the construction of the software platform that for venture and booster teaching and scientific research is the core of this teaching mode. What’s more this mode help students declare scientific research project and students of different grades and different masters can share the platform at the same time and accumulate the research results, improve the software platform, so that the software platform can get sustainable development (Hui, 2009; Zhang et al., 2012a; Zhang et al., 2012b; Zhang et al., 2013).

This teaching mode is different from other engineering students training mode in the following three aspects:

1. Teaching Software Development and Declare the Patent to Promote the Understanding of the Teaching and Keep the Sustained Competitiveness of Teachers and Student’s Scientific Research

In teaching practice, pay attention to improvement of the students’ ability of operation, teach students use Minitab, Cacti and crystal-ball and so on, and development information resources measurement software, participate in national patent declaration work. And each student can study and participate in the improvement of the software platform. It makes the student understand the content of the classroom teaching, so that students can get continuous application and understanding on the classroom knowledge.

2. The Layered Combination is Conducive to Venture and has Reference Significance for other Engineering Course

The results based on” data conversion + engineering evaluation and stability judgment + create experimental platform + patent declaration “, put forward clear” road map “, solve the problem in study and research successfully. In scientific research, adhere to the theoretical innovation systemic research chain in the form of “paper presented + project application + software development + patent declaration” In the teaching adhere to the application of theory, method and tools and combining all kinds of quality control system certification exams, and promote the application of teaching achievements, promote the students’ comprehensive ability, promotes the student competitiveness in the job market, promote employment business competitiveness and sustainable development.

3. Building Bridges for Teaching, Scientific Research and Entrepreneurial

Make the international quality certification exams, SAP certification exam into classroom teaching