Introduction to Water Supply and Drainage Science and Engineering Courses Teaching Reform Exploration and Practice

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Keywords: Introduction to Water Supply and Drainage Science and Engineering, The Teaching Reform, The Teaching Method.

Abstract. Combined with the water supply and drainage science and engineering of our school, for introduction to water supply and drainage science and engineering courses teaching practice. Analyzed the problem of teaching process. Combined with course positioning and professional features is proposed for the course of some have available workable teaching reforms.

Introduction

In the university, Introduction to Water Supply and Drainage Science and Engineering Courses is an introductory course for students majoring in water supply and drainage science and engineering. It’s to cultivate the students’ interest in professional, open up professional vision and formation of innovative thinking with active significance. Relative to the "water analytical chemistry" or "water treatment microbiology," and other professional basis of course, the course set up history shorter, there is no form mature, universally recognized and respected teaching method. Therefore, for the curriculum-depth of teaching teachings research, for effectively improve the classroom efficiency, improve teaching effect undoubtedly are useful. Article combination of the school plumbing science and engineering introduction to teaching content, teaching means and teaching methods for the benefit of improvement and research.

Curriculum Reform Background

Teaching reform background at this stage "introduction to water supply and drainage science and engineering" course in high school as plumbing science and engineering discipline courses, open class time usually established in the main professional courses before. "Plumbing science and engineering introduction" cover this specialized whole picture, including water engineering, to the water, water plant, building to drain engineering and plumbing pipeline system each professional direction, which requires that student must stand subject global the height of discipline picture of fully understanding and grasp to do to theoretical basis solid, expertise a wide range, practice ability, comprehensive high-quality, and have a strong use and promotion ability. In addition, the course also involved in the water use of resources and protection, water construction and economic and other related discipline between related issues. "introduction to water supply and drainage science and engineering" course of the task is students know plumbing project professional category, preliminary establish solve the problem of engineering, master each direction of the relevant basic concept, basic theory and basic approach to learning related to follow-up course lay the necessary basis, can application plumbing theoretical and method for some simple engineering practical issues qualitative analysis.
The Main Problems in the Practice Teaching

The Teaching Material Content Broad Shallow, Lack of Practicality

From the current opinion, the course as an introduction to the nature of course, a textbook covered by the field of extremely wide range, and its contents involves water resources conservation and use, plumbing pipeline system, water quality engineering, building to water drainage engineering, water process equipment, water construction and economic and other[1], content complex shallow, and the book an overview of sex text high side, the lack of practical content as support, lessons tight, a lot of only point to date.

Teacher's Inexperience in Engineering

In view of the particularity and importance of the curriculum, requires school equipped with full-time teachers have a deep understanding of water supply and drainage project and have rich practical experience to teach this course. Most of the actual situation of our school is a substitute teacher is from school to school, no engineering experience, very few have rich practical experience of the teachers are also bear the more onerous professional course teaching task, but the course of "introduction" usually borne by the less experienced young teacher, when they are about the engineering examples, it will be difficult to do in informative and vivid.

Positioning is not Accurate

The way of traditional examination is too simple, for example my experience, the "introduction" is often classified as non-test-based course, the knowledge of the course is dispersed and the quantity is much, abstract and difficult to understand, so the teaching effect is not good. While the assessment methods mostly take the form of open-book, some even appear in the form of small papers.

Students' Attitude is not Correct

Because the course positioning as a non-test-based course, students’ attention degree is not enough, they believed that will not fail the exam, so the class efficiency is not high, and neglected the accumulation of knowledge.

Teaching Innovation Measures

Repouse the Course and Expand the Teaching Time

For the course most of institutions treat it as a professional basic course and the class time arrangement is about 24 hours or so. In the purpose of training applied talents, our school decided to set this course as a compulsory course of cognition practice for sophomore students and increase the teaching time to 32 or so. Through a more detailed teaching, it will make students understand the system of professional structure more clearly and pave the way for the recognizing internship more usefully.

Enrich the Textbook Content and Adjust the Teaching Important Points

At present our school use a textbook named "Introduction to water supply and drainage science and engineering" (Li Guibai, Jiang Zhanpeng, etc, March 2010 second edition) which is published by China Architecture & Building Press for undergraduates majored in Water Supply and Drainage. Although the main contents of the textbook covers entire professional scope, there have great differences among the contents and our purpose of training practical talents, professional training objectives as well as curriculum objectives. Therefore it is necessary to enrich the teaching content and adjust the teaching focus. According to the syllabus and the principle of student-centered, the teaching content and order have been adjusted. In the teaching practice, the main teaching content is divided into three modules: ① the water cycle process, water resources utilization and water environmental protection, etc[2]; ② water intake engineering, pipeline engineering, water quality
engineering, water supply and drainage engineering of buildings; ③ Social water project construction technology, equipment installation, construction process, specification standards and so on.

Combined with Teaching Content, Cognition Practice in Stages

According to my own teaching experience, we can integrate the cognition practice with the course. We can arrange students to the corresponding enterprises to visit the practice after the completion of each section of knowledge. On the one hand, it can display the real objects which are described in the textbook in front of students. On the other hand, it can better assist students to complete the task of understanding internship[3]. For example, we can immediately arrange students to visit the relevant water plant after teaching the water supply plant module. By explaining the relevant structures on the spot concretely to help students understand the classroom knowledge well. Meanwhile we can arrange students to complete the internship report. Besides some left problems will be discussed and solved respectively and specifically in class.

The Reform and Innovation of Teaching Methods

In allusion of the characteristic of this introduction class and the ever-reduced hours, the traditional teaching method called "a textbook + a chalk" has no longer meet the teaching requirements. The advantages of multimedia teaching are that it can be represented by using text and graphics. By containing many project examples, photos of construction sites and videos to help the students deepen the understanding and master the abstract content effectively. In a word, it can get twice the result with half the role[4]. Such as the treatment process of sewage plant and feed water plant, you can use Flash animation to display clearly and intuitively. It is easy to understand. At the same time, teachers should be good at taking some inspiring and participatory teaching methods. For example, we can organize a special discussion class after the cognition practice so that students can combine classroom knowledge with what they saw in their internship as well as raise questions and solve problems.

Design Career Planning， Arouse the Enthusiasm of Students' Learning

Before the lecture, by clearly understanding and planning the future career, and in each module, these content matching to future possible career accordingly. so that each section have become crucial course, natural learning enthusiasm and passion will also be high, with a cautious attitude to complete courses.

Enriching the Content of Assessment

For the inspection way, no longer limited to a single test paper evaluation, but a variety of means and ways for comprehensive evaluation of learning effect and result. Such as grades assessment: work + seminar + attendance, the seminar is a very good display platform, during this time for good students, can consider to reward points. At the same time, for an open-book exam mode, I proposed to the inspection focus on university students' use of basic knowledge and basic skills to solve practical problem ability tests.

Conclusion

Introduction to water supply and drainage science and engineering is the most important parts of an introduction to professional, and it shoulder the professional education and guide the student to enter professional learning phase of the mission. To reach the goal of applied talents training target, for the course of teaching contents and teaching methods, etc. Makes the following improvements: gaining localization curriculum nature, expansion class hour; adjusting the teaching focus, enriching the content of teaching material, and strengthen practical teaching; combining teaching and practice; using multimedia teaching, as well as heuristic, interactive teaching mode; making the career planning, strengthen the sense of urgency, students learn to mobilize enthusiasm; adopting diversified assessment model. Through the introduction to water supply and drainage science and
engineering courses teaching practice, deepened the understanding of the professional degree of students, improve the students' learning enthusiasm, but also stimulate the enthusiasm of the students' knowledge, exploration and innovation, to fully develop the students' comprehensive quality has played a positive role.

This research was financially supported by the Scientific Research Foundation for Yulin institute master and doctor in 2013, item number:13GK27.

Reference


