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Analysis on Teaching Reform of Basic Hydrogeology in Higher Vocational Colleges

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Abstract: Fundamentals of Hydrogeology is a basic course of hydrology and engineering geology. The teaching quality is of great significance to the cultivation of hydrogeology talents. Based on this, this paper puts forward the teaching reform ideas of the course "Fundamentals of Hydrogeology", so as to better improve the teaching quality and cultivate talents.
Keywords: Higher vocational colleges; Fundamentals of hydrogeology; Reform in education

1. Introduction

Fundamentals of Hydrogeology is a science that studies groundwater. It specifically studies the temporal and spatial variation laws of groundwater quantity and water quality under the interaction with lithosphere, hydrosphere, atmosphere, biosphere and human activities, and studies how to use these laws to benefit and eliminate pests and serve human beings. It can be seen that hydrogeology plays an important role in studying the formation and evolution of the earth, water pollution, environmental damage and human existence. How to develop this course of hydrogeology well in higher vocational colleges and how to make students understand and master this course not only have important theoretical significance, but also play a key role in the real life of human beings. For this reason, many disciplines, such as geology, hydrology, water resources, geological engineering, environmental science and so on, have set up hydrogeology as a basic course, and its importance is self-evident. Whether the teaching content, teaching form and teaching method of Basic Hydrogeology in higher vocational colleges are scientific and reasonable, whether they meet the needs of modern economic and social development, whether the teaching quality can be effectively guaranteed and whether the teaching effect can be recognized by the society will directly affect the training quality of hydrogeology talents.

2. Teaching reform ideas of "Hydrogeology Basis" in higher vocational colleges

2.1Strengthen the improvement of teaching content

The improvement of the course content is the main body of the training plan and the key to cultivating talents suitable for economic and social development. Therefore, in order to adapt to the talents training scheme of hydrogeology-related majors and disciplines, and meet the social demand for talents in the new era, it is necessary to strengthen the improvement of hydrogeology teaching content suitable for sustainable development. According to the characteristics of hydrogeology, with the basic principles of highlighting key points, broadening knowledge, and paying attention to the cultivation of the ability of integrating theory with practice, the teaching contents of the course are deleted, merged and optimized, and the teaching contents adapted to new forms and new developments are appropriately increased. At the same time, on the basis of ensuring the original key teaching contents, we should emphasize the basic concepts and principles in the course, deepen students' understanding of the basic concepts and principles, and make students learn and use them flexibly. Highlight the frontier content of the development of this discipline, the focus of current research and major scientific issues, so that students can not only know the current situation of the discipline, but also know the future development direction of the discipline; At the same time, as always, we should attach importance to experimental teaching, improve experimental teaching content and deepen students' ability to solve practical application problems by using what they have learned.

2.2 Strengthen the education of basic knowledge

It is very important to strengthen the education of basic knowledge, make the cause and effect of the basic concepts and principles of the course clear and thorough, and let students have a deep understanding of these basic concepts and principles, which is not only the basis for teachers to teach next step, but also the key for students to flexibly use the knowledge they have learned to solve practical problems. Some teachers, especially young teachers, don't pay attention to the explanation of basic noun concepts. In class, they often read out the definitions of noun concepts directly according to the textbooks. If some students ask questions, they should explain them appropriately. If no students ask questions, they will pass by. According to the actual teaching experience, few students will ask questions in class. On the one hand, students just come into contact with these nouns, and they don't understand their meanings at all, so they can't ask questions. In fact, asking questions is more difficult than answering them, because only when you have experienced them with your heart can you find out the problems and ask them. On the other hand, students may have a little knowledge of these

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definitions, but in class, teachers don't set aside time for students to ask questions, which leads to the accumulation of students' little knowledge and problems, and ultimately affects the whole teaching effect and teaching quality.

Therefore, in the teaching process, teachers should explain the basic noun concepts clearly. As for how to explain them, each teacher has different methods, but the ultimate goal is not only to explain them clearly, but more importantly, to make students understand them. Here, the author thinks that it is not simple, even difficult, to do this. The author thinks that the background and process of the initial definition of nouns should be explained clearly. For example, the definition of "streamline" in Fundamentals of Hydrogeology (a line in the seepage field at an instant where the instantaneous flow direction of all water quality points on the line is tangent to this line) is very simple. If the teacher reads this concept directly, the students may also understand it, but the students may not be able to master this concept deeply and flexibly. A reasonable explanation should first tell the students about the phenomena and laws of groundwater flow observed by predecessors. At the same time, different explanations of these phenomena and laws by different scholars in different periods are clearly explained, and finally the concept of "streamline" is introduced, so as to enable students to deeply understand and flexibly use it.

2.3 Strengthen the cultivation of innovation ability

To strengthen the cultivation of students' innovative ability, first of all, students should accumulate knowledge, which requires teachers to strictly abide by the above ideas and methods of curriculum construction and teaching reform in the teaching process, strengthen the improvement of teaching content, strengthen the education of basic knowledge, and strengthen the combination of theory and practice, gradually guide students to deeply understand the curriculum content, flexibly apply the curriculum knowledge, cultivate students' ability to find and analyze problems, and let students boldly put forward their own ideas and ideas to solve problems, some of which accumulate over time.

2.4 Strengthen the combination of teaching research and scientific research

The purpose of teaching is to serve students, but also to serve the society. During the course construction and teaching reform of Hydrogeology, teaching achievements are transformed into social achievements. Teachers are required to strengthen scientific research while strengthening teaching research, so as to achieve the unity of teaching and scientific research. On the other hand, students are also required to fully understand the focus of scientific research and the development direction of future disciplines. This will not only help to transform teaching achievements into social achievements, but also point out the direction for students in their future study, work and scientific research, so that students can better adapt to the ever-changing and developing society.

2.5 Strengthen the connection between theoretical teaching and practical teaching

It is imperative to strengthen the combination of theoretical teaching and practical teaching in order to complete the objectives and tasks of the course construction and teaching reform of Fundamentals of Hydrogeology. The basic concepts and principles of Fundamentals of Hydrogeology are literally easier to understand than other professional courses in this discipline, but the course itself has strong applicability and comprehensiveness. Only by analyzing practical application problems in the teaching process can students understand deeply, master comprehensively and use flexibly. In addition, with the rapid development and renewal of science and technology, students will become backward workers who can't keep up with the development of the times in the future if they don't have a thorough grasp of its essence. On the contrary, if students can grasp the essence of the curriculum flexibly, they will be able to adapt to the situation in the future.

In addition, with the rapid development of computers, the development and application of various hydrogeology numerical simulation softwares have injected new energy into the development and innovation of this discipline. Therefore, in the course construction and reform, we should strengthen the teaching of numerical simulation, and comprehensively improve students' comprehensive analysis and practical problem solving ability. Therefore, the curriculum construction and teaching reform of hydrogeology should integrate theory with practice, strengthen the teaching of experimental practice and numerical simulation, and focus on cultivating students' practical ability and ability to solve practical problems.

3. Summary

Through the curriculum construction and teaching reform of Hydrogeology Fundamentals in higher vocational colleges, starting from changing the way of explaining basic concepts and principles, students' interest in learning has been improved, their learning enthusiasm and initiative have been stimulated, their ability to ask, analyze and solve problems has been cultivated, their innovative ability has been improved, and a group of high-quality adaptable talents have been trained for the society.

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