
Original Research Article

Research on the teaching reform of “Internet application and development technology” under the mode of applied talents training

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Abstract: Internet Application Development Technology is an important professional course of computer science in colleges and universities. This paper aims to discuss the teaching reform of “Internet application development technology” under the applied talent training mode. The paper first analyzes the current existing problems in the independent undergraduate course teaching, and then puts forward a series of targeted teaching reform measures. These measures include the optimization of course content, the innovation of teaching methods, the strengthening of practical teaching and the improvement of assessment and evaluation. Finally, this paper also verifies the effectiveness of these reform measures through empirical research, in order to provide useful reference for the teaching reform of relevant courses. In order to improve students’ professional knowledge and practical ability, to meet the needs of talents, students with the ability of applied talents.

Keywords: Internet application and development technology; Application-oriented talents training mode; Independent undergraduate colleges; Teaching reform measures

Foreword

The Internet is one of the most important human inventions in the 20th century, which has penetrated into every aspect of human society^[1]. From the end of the 20th century to the beginning of the 21st century, Internet technology developed rapidly and became a global platform for information dissemination and communication. Internet applications have become an important part of the modern society. Internet application technology plays an important role in modern society. It not only promotes social progress and economic development, but also shapes a new business model and industrial ecology, improves the efficiency of information acquisition and dissemination, and enhances social interaction and communication. With the continuous development and innovation of technology, the status of Internet application technology will be more important and prominent. Therefore, cultivating talents is of great significance to have Internet application development ability to promote social progress and development.

Independent undergraduate colleges, as the bright pearl of application-oriented undergraduate colleges, carry the important mission of cultivating high-quality application-oriented talents needed for economic and social development. Internet application development technology course is one of the core courses in the computer science and related majors in application-oriented undergraduate universities. However, there are some problems in the general teaching of “Internet application development technology” course, such as the disconnection between course content and market demand, single teaching method, insufficient practical teaching, etc., which restrict the quality and effect of talent training. Therefore, this paper aims to discuss the teaching reform of “Internet application development technology” under the applied talent training mode, in order to improve the teaching quality of the course and the effectiveness of talent training.

1. Teaching status of “Internet application and development technology” in application-oriented independent undergraduate universities

At present, Internet application technology has been widely used in all kinds of Internet application development systems of enterprises. It is the foundation of Internet application development system, improves user experience and business efficiency, and also promotes the sustainable development and innovation of the entire Internet industry. All kinds of computer majors in colleges and universities in China have offered related courses of “Internet Application Development Technology”.

In the application-oriented independent undergraduate universities, the teaching status of “Internet application development technology” course presents some obvious characteristics. First of all, there are gaps between independent school students and key undergraduate students and ordinary undergraduate students in terms of academic level and knowledge reserve, learning environment and atmosphere. Secondly, the teaching methods are lack of innovation and flexibility, and it is difficult to stimulate students’ interest and motivation in learning. Finally, the weak practical teaching links and the lack of real project practice opportunities lead to the difficulty for students to apply theoretical knowledge to practical work. These problems seriously affect the teaching quality of the curriculum and the effect of talent training.

2. Teaching reform of “Internet application and development technology”

In view of the problems existing in the teaching of “Internet application development technology”, our teachers adhere to the teaching concept of “student-centered”, take the needs of the industry as the beacon, and are committed to cultivating computer professionals with solid theoretical foundation, excellent practical ability and high application ability. We are committed to cultivating computer professionals with a solid theoretical foundation, excellent practical ability and high application ability. To this end, we redefine the course orientation and goal of Internet application development technology teaching, and conduct comprehensive and in-depth teaching methods, teaching practice, teaching environment and assessment methods

2.1. Course content and requirements

The content of Internet application development technology course is extensive and in-depth, including but not limited to the following aspects: (1) front-end development technology, such as HTML technology, JavaScript technology, CSS technology,^[3] and popular front-end framework such as React, Vue.js; (2) back-end development technology: programming languages such as Java and Python, and related knowledge of database management and server configuration. In order to enable students to adapt to the rapidly developing Internet industry, the curriculum needs to cover a full range of training from basic knowledge to practical skills. See **Table 1** for more details.

Table 1. Course content and requirements.

course content; curriculum content		
technical field	primary coverage	Related technology / tools
Front end development technology	HTML, CSS, JavaScript and other basic knowledge, front-end framework technology	React、Vue.js
Back-end development technology	Programming language, database management, database management, and server configuration	Java、Python
Curriculum requirements		

course content; curriculum content		
technical field	primary coverage	Related technology / tools
Practical skills	The ability to independently complete simple Internet application projects, further learn and explore new technologies	
Teamwork and communication	Adapt to the changing Internet industry, cultivate good team spirit, cultivate effective communication skills	

Table 1. (continued)

2.2. Enterprise-oriented teaching

In order to make the students better adapt to the enterprise environment, we introduce the enterprise teaching. Firstly, the project teaching is adopted in the classroom, and the agile development mode of the enterprise is introduced into the teaching; secondly, according to the group development of each student, the class students are divided into several groups with 5-7 students in each group, and the members of the same group can discuss and study each other to enhance the cooperation between teams. Finally, through the cooperation with enterprises, to provide students with internship opportunities and practice projects, to help students understand the development process of enterprises, team cooperation methods and so on. At the same time, we will also invite enterprise experts to participate in teaching, share practical development experience and technology trends, and provide strong support for students' career development.

2.3. Adopt offline and online mixed teaching

The Internet application and development technology course adopts the hybrid teaching mode. Offline teaching focuses on the transmission of theoretical knowledge and the guidance of practical operation, enabling real-time interaction between teachers and students. Teachers can keep abreast of students' learning and feedback their skills learning.

Online teaching provides students with more flexible learning methods through teaching videos and online discussions. It integrates rich teaching resources, including video materials, syllabus, courseware, cases, exercises, homework, etc., and real-time tracking of students' learning progress and homework, to ensure the maximum teaching effect. Through online teaching, the "whole-process integration" scheme is adopted, as shown in Figure 1.

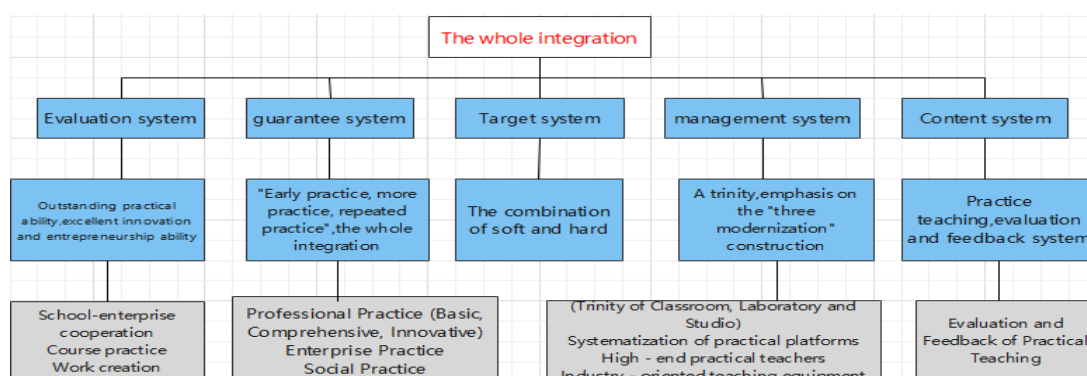


Figure 1. "Full integration" scheme.

Through the mixture of online and offline teaching, the monotony of traditional teaching is broken, and new vitality is injected into the teaching effect. The majority of teachers and students work together to seek brilliant education and promote the continuous improvement of teaching effect.

2.4. Teaching environment and conditions

2.4.1. Selection of textbooks

Textbooks are the carrier of knowledge and wisdom, not only the fertile soil for teachers to work hard, but also the ship for students to explore the world. The networking technology development technology selects the teaching materials with rich content, rigorous structure and cutting-edge technology to ensure that the teaching materials meet the syllabus and curriculum needs. We hope that through this textbook, students can easily master the theoretical knowledge, but also temper their skills in practice to realize the unity of knowledge and practice.

2.4.2. Teaching conditions

The teaching of Internet application and development technology has put forward extremely high requirements for professional teachers. It should not only have a solid theoretical foundation and rich professional skills, but also know the whole process of software development, so as to perfectly fit the core goal of talent training. As a highly practical course, teachers should not only impart theoretical knowledge, but also be able to lead students to flexibly apply the Internet application and development technology in the actual development of enterprises, so as to realize the perfect combination of theory and practice.

Internet application and development technology is a comprehensive course integrating theory and practice. The two are interwoven and support each other in the teaching process. In order to better cultivate students' practical operation ability, we arrange all the Internet application development technology teaching in the experiment room. Students can listen to the theoretical knowledge, and immediately carry out practical operation, so as to deepen the cognition and verification of the theoretical knowledge. Through hands-on practice, they will be able to master the application method of Internet application development technology system, according to the demand analysis of project cases, follow the routine process of development, complete all kinds of tasks, and realize the innovative development and design of technology. This teaching mode not only significantly improves the learning efficiency of students, but also virtually cultivates their practical ability and innovative spirit, making them more comfortable on the road of learning and growth.

2.5. Teaching assessment

Using diversified evaluation methods, we integrate multi-dimensional indicators such as theoretical teaching, experimental test, operation skills and research and development ability to conduct a comprehensive process evaluation of students. The assessment is project-oriented, paying attention to the assessment of operational skills and research and development ability. The course assessment method is shown in **Table 2**.

Table 2. Course assessment method.

Inspect the project	Assessment method	proportion
Process assessment	Theoretical teaching	The teacher adopts basic knowledge evaluation, classroom answering questions, etc 30%
	Experimental Challenge	The teacher comprehensively considers the students' experimental situation and the completion of the experimental report 15%
	Group project experiment	According to the completion of the group project, adopt the enterprise agile software development mode to realize a relatively complete Internet application system, and focus on the ability of students 40%
	Individual Performance	Evaluate grades including attendance, classroom performance, and the division of labor among each team member in the group 15%
amount to	100%	

2.6. Teaching effect

Through the reform, the engineering ability of the students who learn the Internet application and development technology has been improved, their learning attitude has been changed, and their learning effect has been significantly improved. The curriculum reform not only enables students to master a more solid technical foundation, but also cultivates important qualities such as innovative thinking, teamwork and communication skills, which lays a solid foundation for their future career development.

3. Conclusion

Through the discussion and research of the curriculum teaching reform of “Internet application and development technology”, we can see that the teaching reform is of great significance for improving the curriculum teaching quality and the effect of talent training. In the future teaching practice, we should continue to deepen the teaching reform, constantly improve the curriculum system, teaching methods and practical links, and make positive contributions to the training of more high-quality application talents with the ability of Internet application development. At the same time, it is also hoped that the research of this paper can provide useful reference for the teaching reform of related courses.

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