

Exploration on Teaching Reform of Introduction to Internet of Things technology

Xiaoming Ding^{1,*}, Liang Chen¹, Shi Hu¹, Haoyi Xu¹

¹Taishan University, Taian, 271000, China

* Corresponding author: Xiaoming Ding (Email: 493927935@qq.com)

Abstract: According to the characteristics of Internet of Things technology introduction course and the characteristics of students, the teaching reform of Internet of Things engineering introduction course is explored. In the actual teaching, it is found that the traditional teaching methods cannot adapt to the characteristics of the Internet of things, which are interdisciplinary and complicated. In view of the problems in the course teaching process, combined with the teaching practice of Taishan University, the teaching reform measures are put forward, such as integrating the ideological and political elements of the course, reconstructing the course content, etc. It provides a useful reference for the teaching of Internet of Things introduction course.

Keywords: teaching reform, Internet of Things technology

1. Introduction

Internet of Things technology has the characteristics of interdisciplinary, involving electronic science and technology, communication engineering, computer science and technology, control science and other fields. Introduction to The Internet of Things aims to help students understand the basic concepts and typical applications of the Internet of Things. On this basis, we can understand the architecture and key technologies of the Internet of Things, stimulate students' professional interest, enable them to form a preliminary and macro cognition of the basic model and basic problems of the Internet of Things, and lay a solid foundation for the subsequent study of professional courses. Introduction to Internet of Things technology involves many knowledge points and large amount of information, but the limited class hours increase the difficulty of teaching and put forward higher requirements for teachers' professional quality. It is difficult for students to start this course and grasp the real connotation of Internet of Things comprehensively and accurately by using the knowledge they have learned. Therefore, it is urgent to carry out the teaching reform of introduction to Internet of Things technology.

2. Analysis of Teaching Status

Firstly, this discipline covers important knowledge points of Internet of Things major, and radio frequency identification, wireless communication, sensor, wireless network, short-range wireless communication, intelligent communication and other technologies are the main teaching content, so it has a strong comprehensive interdisciplinary. At the same time, this subject has a wide coverage of knowledge and limited period setting, which has a great influence on the cultivation of students' autonomous learning ability. Introduction courses are usually explained in the hierarchical framework of the Internet of Things. However, due to the complicated content, if there is no detailed selection, it is easy to cause confusion to students and psychological pressure to the subsequent professional learning.

The second is the lack of teacher structure. Many teachers who teach courses related to the Internet of Things have been

transformed from computer and electronic communication majors, which makes teachers lack the ability to grasp the overall concept and architecture of the Internet of things as well as the comprehensive knowledge.

The third is the teaching method. Due to the limited practical teaching resources, the existing teaching methods are relatively simple, usually using multimedia classroom demonstration teaching, teachers as the center, students become passive recipients. In addition, the course involves a wide range of knowledge, due to the lack of foundation, blindly cramming teaching, often cause learning pressure to students, resulting in weariness. The single lecturing teaching cannot adapt to the professional characteristics of the Internet of Things, which are interdisciplinary and closely related to the industry.

3. Practice of Teaching Reform

3.1. Integrate Ideological and Political Elements into the Teaching Content

Adding ideological and political elements into the curriculum not only strengthens ideological and political education, but also improves students' interest in learning the curriculum. For example, in the understanding of the development and application of Internet of things technology mapping to ideological and political education to enhance students' confidence in China's scientific and technological development; Understanding the mapping of basic skills operation of Internet of Things into ideological and political education enables students to understand the national policy situation and regulations on college students' employment as well as China's network security situation.

3.2. Course Content Reconstruction

First of all, the interdisciplinary nature of Internet of Things Engineering makes the introduction of Internet of Things engineering have many knowledge points and large amount of information, which cannot be thrown to students overnight. Secondly, this course is taught to the "00 generation", this age group of students generally like novelty, hope to know it first, and then know why.

In view of the above two points, the teaching system of

Internet of Things engineering technology course is reorganized, and the teaching structure and teaching system of the course are designed. In this way, students' interest in learning can be improved and students can actively integrate into the course learning.

We reconstructed the content of the course with application as the main line. Based on the application of intelligent agriculture, intelligent transportation and intelligent storage, the course knowledge points are reconstructed and narrated. Finally, the integration of course content based on the Architecture of the Internet of Things is added to help students connect the reconstructed knowledge points to all levels of the Internet of Things.

3.3. Pay Attention to Internet Application in Teaching

When explaining social network, it is easy to stimulate the atmosphere of discussion by combining wechat, Q Q and other applications. In the big data, cloud computing chapter, you can introduce Baidu cloud disk, Huawei network disk and other cloud computing products, let students appreciate the elegant demeanor of cloud computing. Many research directions and technical fields of the Internet of Things are closely related to the cutting-edge information industry, and the content of teaching materials usually lags behind the development of the Internet of Things for a period of time. Teachers need to introduce the latest Internet of things technology information into their teaching in time. By establishing popular interactive platforms such as QQ and wechat group, we can not only make up for the shortage of classroom teaching, but also share the most cutting-edge Internet of Things technology and the latest application, expand students' horizons and stimulate their interest in

learning.

4. Conclusion

Introduction to The Internet of Things Technology Due to its various knowledge points and interdisciplinary characteristics, how to let students establish the concept of the Internet of Things system, understand its basic technology, and establish a comprehensive and systematic cognition of the Internet of Things is the current teaching difficulty. This paper analyzes the problems faced by the teaching surface, makes a beneficial attempt on the course teaching mode, and receives the expected teaching effect. It has certain reference significance for the teaching of introduction to Internet of Things technology.

References

- [1] Hong Qin. Exploration and Thinking on classroom introduction design of Internet of Things Engineering [J].The computer is produced Goods and Circulation, 2019 (2) : 257.
- [2] Sui TINGting, Chen Niansheng. Research on teaching reform of Introduction to Internet of Things Engineering course [J].Fujian Computer, 2018 (9) : 181.
- [3] Yu Heng. Course Research on Introduction to Internet of Things under applied Undergraduate Teaching [J]. Information and Technology Computer, 2015 (6) : 109-110.
- [4] Ma Qiaomei. Teaching practice and exploration of Introduction to Internet of Things Engineering[J]. Journal of Computer Applications, 2015 (3) : 60-61.
- [5] Wang Yongqiang. Research on curriculum reform of Introduction to Internet of Things Engineering [J]. Science and Technology Vision, 2018 (32) :151-152.