

The construction of excellent resource-sharing course based on large-scale online open platform

--A case study on "Construction Technology of Building Engineering" course

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Abstract: Based on the research on the construction and application of teaching resource platform of "Construction Technology of Building Engineering" course, this paper expounds the main contents of curriculum design, construction idea and resource construction in the course construction of excellent resource-sharing courses based on large-scale online open platform, and provides a set of effective construction plan of excellent resource-sharing course, which provides reference for the construction of excellent resource-sharing course.

1. Introduction

The construction of excellent resource-sharing course is an important measure to speed up the reform of vocational education and teaching by using modern information technology^[1]. It is of great significance for improving teachers' teaching ability, innovating teaching methods and improving the quality of personnel training. In this paper, based on the core course of engineering cost majors-"Construction Technology of Building Engineering", the course construction concept based on large-scale online open platform, and sum up the experience and deficiencies in the development of excellent resource-sharing course, through curriculum design, construction plan, resources construction, and provides some references for improving the construction quality of other courses in civil engineering.

2. Integrated design of course

2.1. Accurately grasp the orientation of curriculum

It is clear that the orientation of the excellent resource-sharing course in the curriculum system, combining with the students' cognitive law, arranging the relevant courses before and after the order, so as to make the high-quality resources courses play a key supporting and promoting role in the training of students' vocational post ability^[5].

Construction technology of construction engineering is a core competence training course of engineering cost specialty. It is an important part of the course system of engineering cost specialty, and it is a strong support for professional employment--Cost engineer. This course takes the courses of "Architectural drawing and construction", "Building Materials", "engineering survey" and so on as the former courses, and also provides services for the following courses, such as "Construction Engineering Measurement and valuation", "Analysis of Engineering cost case" and so on, play a connecting role. Through the study of this course, the students can master the construction procedure of the building project, master the main construction methods, construction technology, and can make the construction plan, control the construction quality, etc. And they can solve the general technical problems in the construction, so as to meet the requirements capacity of cost engineer.

2.2. Optimize the content of the course

Through the analysis of the professional ability of Cost engineer, the corresponding training

objectives of this course are formulated, and the construction process of the real project of the school student apartment dormitory is taken as the clue. Abstract typical technological process and task as course content and resource carrier, adopt "Project Oriented, Task Driven" teaching methods, take construction procedure as the main line, connect each construction craft in series in turn, ensure the integrity of the construction process, but also meet the practical requirements of teaching content.

On the other hand, relying on the joint council of schools and enterprises, through the integration of the "professional standards for construction site professionals", industry and enterprise standards, cost engineer division, constructor division, to realize "course certificate financing", "school enterprise financing", and to further optimize the structure of the curriculum and the corresponding content.

2.3. Innovative teaching model

In the construction and application, this course explores the teaching mode based on "large-scale online open curriculum platform". This model divides teaching into three processes: before, during and after class. Through the information-based instructional design. and the teaching implementation, using the Internet technology, the digital resources and the information teaching environment, the system optimizes the teaching process .

Before class, teachers send out teaching tasks through the "large-scale online open curriculum platform". Students log in to the curriculum platform to watch the "micro video" for pre-class preparation, to find out the difficulties and doubts in learning. In class, create situations, using the "Project Oriented, Task Driven" teaching methods, the teacher uses the course platform to teach , and the student carries on the study practice with the curriculum resources. after class, students upload the tasks assigned by the teacher to the curriculum platform and complete the test exercises. They can also communicate, discuss, and learn independently through the course forum .

3. planning curriculum construction scheme

This course is based on a real construction project and "large-scale online open course platform", follow the principle of "resource available", in accordance with the "fragmented resources, systematic design, structured curriculum" train of thought for construction, mainly includes two aspects of curriculum content development and construction of curriculum resources.

3.1. Design of curriculum content construction.

Relying on the new student dormitory building projects as the carrier, the actual construction process as the main line, with an emphasis on the cultivation of vocational ability, selecting typical project (task), to form teaching module, and breaking down the content of the module in accordance with the corresponding "knowledge points" and "skill points" . the organization and arrangement of teaching content adopts "Project Oriented, Task Driven" teaching methods to realize the training of students' vocational position ability ^[2].

3.2. Design of curriculum resources construction.

According to the typical project of teaching content, the diversified course resources are built with "micro-lecture video, 3D virtual digital model and Video of building construction".

In accordance with the project and categories of resources for unified coding, ensuring that the teaching resources are uploaded to the large-scale online open platform, the corresponding content and resources can be found quickly and easily, And facilitate the use, maintenance and promotion of resource platform. A partial list of course resources is shown in Table 1.

Table 1 List of Basic Resources for Courses(Portion)

Teaching Project	The subtasks	Resource coding	Resource Name	Format	Quantity	Completion time
01 Earthworks	0101 Land Leveling & Earthwork Calculation	010101	Microlecture	MP4	4	2017.10
		010102	Multimedia Courseware	PPT	4	
		010103	Video of Construction	Mp4	5	
		010104	The engineering case	MP4、Word	2	
		010105	Teaching Plan	Word	1	
		010106	Construction Pictures	JPG	5	
		010107	Simulation Animation	Flash	2	
		010108	Virtual Simulation	BIM、CAD	3	

4. Building diversified and high-quality resources

This course is relying on the new student dormitory building, selection of typical work tasks, to collect, organize and integrate resources. Finally, and it has built a diversified resource platform, including teaching courseware, engineering pictures, teaching micro-lecture video, acquisition library, construction live video, virtual simulation model, animation demonstration, engineering case, etc.

(1) The construction of serialized curriculum resources based on "construction procedure".

The construction project is divided into seven serialize typical projects according to construction procedure and construction schedule, and perform uniform coding after resource integration for several sub-items of the seven items. The teaching organization form of the serialization, able to ensure that students according to the process of building to complete the construction task until completion inspection and acceptance of the project, and conforms to the students' cognitive learning rule.

(2) "Online Internet learning + offline construction simulation practice" resources combination.

Students study online on a large online open platform.

Offline students can enter the construction entity at any time for comparison and study ((when the project is finished, it can be replaced with 3D model and live video.). Using the resource combination of "online Internet learning + offline construction simulation practice", the "online + offline" dual-wheel drive is realized.

(3) Build the resources of "strengthening cultivation capacity".

Principles of the construction of the curriculum resources is the material of tiny, granular, with "the smallest unit of knowledge and skill points" as the foundation, using resource "availability and recognition" as the fulcrum, closely integrated theory and engineering entity, through the "micro-lesson to teach knowledge, live video to learn operation, the virtual simulation to Practice" of supporting learning, Through "from knowledge point to knowledge", finally develop the students' comprehensive ability^[3].

(4) "Keeping up with The Times" of resource content

In recent years, with the changes and revisions of building standards, codes, and drawings, this course utilizes the opportunity of students' dormitory building to update and improve the original teaching content and teaching resources, and eliminate backward and obsolete resources. In addition, a curriculum development resource library should be established to broaden the horizon of students, enrich the forms of resources, and supplement and improve new Building technologies and craftwork^[4].

5. Conclusion

The construction of the excellent resource platform of the course "Construction Technology of Building Engineering" already has a certain scale and hardware guarantee, it will enrich and perfect the resource platform continuously in the later period, and actively promote the application of the resource platform. And it will improve the value of sustainable utilization of curriculum resources, promote the construction of other courses of specialty, push the construction and application of curriculum resources to a new height.

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