

Exploration on the Course Construction of “Engineering Project Management” Based on Private Undergraduate Colleges

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Abstract—This paper is composed in order to respond to the "golden course" construction advocated by the Ministry of Education, improve the teaching quality and fully mobilize students' initiative and enthusiasm in class. Based on the analysis of the learning situation of private undergraduate colleges, this paper explores how to build the course toward the "golden course" through the analysis of teaching team construction, teaching design, teaching method reform and teaching evaluation by taking students as the center and combining the course content of "Engineering Project Management".

Keywords: *curriculum analysis, construction path, teaching reform*

I. INTRODUCTION

One of the core elements of university personnel training is courses, and it is through courses that students can benefit most effectively in school. In August 2018, the Ministry of Education issued the "Notice on the Implementation of the Spirit of the National Conference on Undergraduate Education in Institutions of Higher Learning in the New Era". It is required that universities should comprehensively sort out the teaching contents of undergraduate courses, eliminate "shoddy courses", create "golden courses" and comprehensively improve the quality of courses. In recent years, the school has been promoting the curriculum reform and classroom teaching reform through the establishment of online learning platform, MOOCs and micro-course competitions. How to carry out the curriculum reform and effectively implement the classroom teaching is also the content of the teachers' unremitting efforts in Xi'an Fanyi University according the real situation of students. As one of the specialty core courses of engineering management in this university, how can "Engineering Project Management" become a golden course that "reasonably improves the degree of academic challenge, increases the difficulty and expands the depth? Based on the learning situation analysis of private undergraduate colleges, this paper explores and analyzes how to construct the course in the direction of "golden course" by taking students as the center and combining the course contents.

II. THE LEARNING SITUATION ANALYSIS OF PRIVATE UNDERGRADUATE COLLEGES

No matter it is the traditional classroom teaching, or the innovative MOOCs, micro-courses and other teaching methods, with forms changing, the purpose is always to enable students to learn theoretical knowledge and improve their ability. Therefore, the curriculum must be constructed on the premise of take students as the center, which requires teachers to determine the foundation of the learning subject according to the learning situation analysis of the university.

A. Analysis of students' learning foundation

The university is a private undergraduate university, and students' learning foundation before university has been roughly set in a relatively concentrated range through the college entrance examination. The learning basis here consists of students' learning attitude, their ability to accept new knowledge in class, and their ability to apply the knowledge they have mastered. Compared with ordinary undergraduate students, students' learning basis is more general. This means that learning new knowledge, especially difficult part requires a slowed-down pace of teaching to ensure that the part being taught and learnt can be mastered by students.

B. Semester of course setting

"Engineering Project Management", as a comprehensive major course, is offered in the sixth semester of university. Due to the intense specialized course learning in this semester, the allocation of learning energy for each of their course is limited. In addition, two years of relaxing university life after high school, students tend to become fatigued and weak in their study. This requires the curriculum and even the classroom design to develop the learning interest of the course, the efforts to mobilize students' enthusiasm for the study of the course, as well as corresponding academic pressure exerted to them to some extent even.

C. The characteristics of times

In the era of network development today, the campus network of the university has covered the dormitory and teaching area. Each student is equipped with a mobile phone, which gives them the access to the Internet anytime and anywhere. This is conducive to online learning and rapid data access, broaden the learning horizon and improve learning efficiency. However, while bringing convenience, the Internet is also a "double-edged sword". Especially the students with weak self-control can carry out online activities irrelevant to learning at anytime and anywhere. This adds to the challenge of classroom instruction: how can teacher instruction, especially classroom instruction, be more appealing than games and videos on the phone? It requires the exploration of the teacher him or herself in this superb art of teaching.

III. COURSE ANALYSIS

A. Course content

"Engineering Project Management" is a discipline that studies the objective law, management theory and management method of construction engineering project construction process. It integrates the theoretical knowledge of engineering technology, management science, and engineering economy and so on, and has certain systematicness. Guided by the objective law of engineering project construction activities, and centered on the objective control of engineering projects, this course comprehensively elaborated the basic theory and modern management method of the whole process management of engineering projects from planning and decision-making to completion, delivery and use.

The course content includes project organization management, project quality, progress, cost control, project safety, environment management, project information management, project completion acceptance and post-evaluation. These are closely related to the theoretical knowledge and professional quality foundation required by students to work in the engineering industry in the future, especially to the theoretical knowledge and professional quality foundation required of the construction site management and related activities in construction enterprise. At the same time, the content of this course is basically the same as the subject of "Construction Engineering Management" in the theoretical examination of practice qualification certificate of registered builder, the corresponding qualification of engineering management, and also the basic part of the subject content of "Construction Engineering Management and Practice".

B. Course objectives

This university is positioned as an application-oriented private undergraduate university. Therefore, according to the requirements of cultivating application-oriented talents who are "skilled in technology, good at management, strong in practice and capable of innovation", this course has the following objectives:

1) *Establishing a systematic theoretical framework of project management*: Students are required to master the basic theories and methods of engineering project management, and have the knowledge base of core objective control, site management and engineering consulting for construction projects.

2) *Basic ability to apply project management theory*: On the basis of teaching students knowledge, it is also necessary to teach them how to obtain and master knowledge themselves. Through theoretical knowledge learning, case analysis, and finally through course design, sand table simulation and practical training, the course improves students' ability to solve practical problems with what they have learned.

IV. PATH OF COURSE CONSTRUCTION

A. Teaching team

- It is the organizational guarantee of curriculum construction to set up the teaching team of "Engineering Project Management" made up of at least three teachers who will discuss the concrete implementation method of the course together
- It is necessary to form a teaching team composed of senior, middle-aged and young teachers. First, there should be a senior professional teacher with rich engineering experience in the course group, who can set an example for young teachers.
- Before the course begins, members of the teaching team conduct intensive lesson preparation and discussion. The content mainly includes the selection of teaching materials, whether the syllabus needs to be revised and improved, how to carry out the teaching design, discussion on the implementation of the key contents of the course, the arrangement of the teaching plan, the compilation of the teaching plan, the reform of teaching methods, and the making of electronic courseware, etc. Combined with the actual situation of students, a complete set of high-quality teaching materials can be formed.
- Young teachers should pay attention to the improvement of practical ability and scientific research ability to lay a foundation for expanding the depth of the curriculum. Meanwhile, they should learn more teaching methods and classroom teaching skills from senior teachers to improve their teaching ability.
- After three rounds of course teaching, the teaching team should combine students' actual situation and course learning objectives to compile a course learning manual suitable for students.

B. Teaching design

Teaching is a superb art, in which teaching design is the first step for it to become artistic. How can the design not

only attract students, stimulate learning interest, but also allow knowledge to be effectively absorbed? This is also the question that the author has been exploring since I started teaching. From time to time, the author feels that the course has too little charm for some part of the students, and at the same time, there are some students have so eager eyes for knowledge, which inspires the teacher to set high standards for him or her own in classroom teaching.

Good teaching design is able to make students develop interest in, like the course and learn actively, so that the student-centered learning activities can be carried out efficiently. There are things that need to be carefully analyzed and determined in the course of teaching design of "Engineering Project Management": how to introduce learning content with engineering examples, what are the classic cases that appeal to students, for the part of calculation, how to allocate teaching time according to students' learning basis in this college, and how to let students conduct training and learning to master the it, how to make students understand the text theory, the way the teacher speaks, etc.

C. Micro-course making

It is necessary to make full use of the advantages of the Internet and mobile phones, and teach difficult points of the course with the help of the network platform, and provide repeated learning materials for students by making micro-courses of key and difficult points. For example, in the part of flow construction and network planning and optimization, according to students' learning foundation and previous students' learning conditions, students are slow to learn and accept new knowledge in this part. So in the teaching arrangement, while laying emphasis to this part and managing more class exercise, teachers can also make micro-courses on key knowledge points to help students to master and consolidate them.

D. Teaching reform

In the course of teaching activities, on the basis of traditional teaching, with the development of the times, teaching methods have been in constant reform and innovation. How to be student-centered in the teaching process so that students can take the initiative to learn? In the course of "Engineering Project Management", different teaching methods will be adopted according to the characteristics of each chapter.

1) *The teaching method of "case analysis + theoretical teaching + practice consolidation"*: Beginning with the introduction of engineering cases, basic theoretical knowledge on the basis of analysis is taught then in the course, and students are guided to practice in the end. The teaching is organized through three interlocking links. In the teaching of "Flow Construction Method" for example, a four-story interior decoration project is used to introduce the influence of different construction organization methods on the construction period. The teacher can let students compare the advantages and disadvantages of the three

construction organization methods of sequential construction, parallel construction and flowing construction, and then explain the theoretical knowledge. After students master the basic knowledge, they can use case practice to consolidate it.

2) *The teaching method of "given project + situation setting + role playing"*: In the given engineering project scenario, the teacher can let students complete the practical training task in the sand table simulation training room of engineering management as the project manager, go to the engineering management sand table real simulation training room. For example, in the teaching chapter of "management practice", each group consists of five students playing the project manager, operation manager, production manager, purchasing manager and financial manager respectively. Based on the analysis of the project, the managers make the project schedule first. According to the progress plan, each manager shall, under the leadership of the project manager, respectively prepare the labor resource plan, entry and exit plan of mechanical equipment, material purchase plan and capital use plan, conduct construction simulation on the project sand table until the completion of the project, and finally carry out various accounting and summary. The whole process allows students to be systematically trained in terms of schedule control, cost control, construction site management and so on.

3) *The teaching method of "inspiration + interaction"*: In the course of teaching, new concepts of theoretical knowledge are proposed in terms of inspiration and interaction, so as to make classroom teaching student-centered, create a learning atmosphere in class and improve their independent learning ability.

4) *Strengthening practice teaching*: At present, course learning focuses mainly on theory yet undervalues practice. Practice is an effective way to consolidate and deepen the cognition of theoretical knowledge in the teaching in school, however and it is the most important way for students to acquire practical application ability in school. In this course, theoretical knowledge is consolidated and applied through practical training, such as the formulation of progress plan and the compilation of organizational design of unit engineering construction. The in-class practical training is organized in the form of groups. Through the method of mutual evaluation between groups, each group discusses and scores the practical training results of other groups, and gives reasons and basis, so as to stimulate students' enthusiasm in practical training. At the same time, the experimental training room of the college should also be made full use of the for practical teaching, such as the practice of sand table simulation training room and the engineering software training room for the application of BIM technology.

At the same time the skill competition is taken as the lead to organize extracurricular practice. In the process of

practical teaching, independent learning of students should be primary and teachers' instruction complementary. That is, the teacher should point out the thinking of analyzing the problem and the method of solving the problem, let the students deal with it by themselves, finally analyze the problems existing in the process and solve them uniformly, after which the new project practice can be carried out. This enables students to really grasp the methods of analyzing and solving the problems. For example, students are organized to participate in the BIM construction project management competition, through which they can strengthen their grasp and understanding of the overall planning of the construction process, the layout of the construction site, the contents related to bidding and contract management.

5) *Course assessment*: On the basis of the existing written examination and practice examination, it is envisaged to add the "interview" link. Similar to the Q & A mode of graduation defense, the teacher prepares part of the questions in advance and the students answer them on the spot, in which process the students' comprehensive quality can be examined to a certain extent.

E. Teaching evaluation

Attention paid to teaching evaluation is the motive power source that carries on optimizing ceaselessly to the course. The result of teaching evaluation is actually a kind of information feedback, which provides objective basis for effective teaching. At present, the school mainly adopts mid-term teaching evaluation, including student evaluation, peer evaluation and expert evaluation.

In the process of teaching, through the quality of students' homework and course design, the effect of classroom teaching atmosphere, the summary of daily tutoring and answering questions for students, and the timely communication and feedback with students, teachers can get some evaluation to make real-time dynamic design and adjustment for the follow-up teaching, and thus get a better teaching effect.

V. EFFECTIVE IMPLEMENTATION

All the ideas and designs are finally put into practice to effectively execute the teaching process, which is also the key to achieving the effect of curriculum construction. When designing the teaching process, it is necessary to make clear the resources required for the course, specific behavioral activities and guidance language that needs special instructions, design the teaching process, and make clear the teaching objectives and corresponding evaluation methods of each teaching stage, which is to be strengthened in future teaching process. Both theoretical teaching and practical teaching require teachers to constantly explore the art and skills to help achieve the course objectives.

VI. CONCLUSION

Teaching benefits teachers as well as students. In the process of daily teaching, teachers need to constantly learn

professional theoretical knowledge through a variety of channels, enrich the connotation and improve the ability, innovation methods. At the same time, they should pay close attention to the learning needs of the society and students, and make every course "effective" through careful preparation, reasonable design, enriched content and reform of teaching methods. It is expected that the course "Engineering Project Management" of Xi'an Fanyi University will be constructed in the direction of "golden course" that suits the actual situation of students in private undergraduate colleges.

REFERENCES

- [1] Cong Peijing. Engineering Project Management [M]. Beijing: China Architecture and Building Press, 2017.
- [2] Wang Na, Xu Chonghua. Study on the Teaching Reform of "Construction Engineering Project Management in Higher Vocational Education [J]. Science & Technology Vision, 2012 (22): 132-133. (in Chinese)
- [3] Li Yunlong. Research on Teaching Reform of Engineering Management in Application-oriented Undergraduate Universities [J]. Journal of Henan Radio & TV University, 2019 (32): 86-90. (in Chinese)
- [4] Shao Xiaoshuang, Liu Weixing, Cheng Zhihui, Zhang Youjia. Research on Curriculum Reform and Practice of Engineering Project Management [J]. Science & technology vision, 2017 (04): 119. (in Chinese)