



Research on the Design of Goal-Oriented Curriculum Boards for Applied Undergraduate Programs —Taking Principles of Urban Planning for Architecture Major in Kunming College as an Example

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Abstract. It is known from the research that the application of the knowledge of Principles of Urban Planning course by the graduates of Kunming College's Architecture program is concentrated on road and transportation system planning and land use layout planning. The teaching design oriented to these two objectives needs to be sorted out in terms of teaching content, teaching process, and practical teaching methods in order to realize the conversion from theoretical knowledge to practical ability.

Keywords: applied undergraduate, goal-oriented, urban planning principles, architecture.

1 Introduction

The applied undergraduate program aims to cultivate applied talents, which is characterized by the word "application" and emphasizes the application and practice of professional abilities. In the course teaching design, the training objectives and the status and role of the courses in the professional knowledge system should be clearly defined, and the course teaching design should be oriented in this way. This can effectively improve students' learning efficiency, reduce unnecessary theoretical courses, and increase the time and opportunities for students to practice, so as to provide them with better employment and basic services for the society.

The cultivation goal of architecture in Kunming College is: "To adapt to the national macro development strategy and regional environmental construction needs, to take the basic theory and basic skills of architecture as the core, to cultivate students with more systematic professional theoretical knowledge of architectural design, architectural design ability, drawing expression ability and other professional core competencies, with excellent ideological character, solid theoretical foundation, strong professional ability, high comprehensive quality and high-level applied specialization. The core competencies of the students are: all kinds of architectural program design ability,

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architectural design related drawing expression ability, computer-aided design and drawing ability, civil building structure design ability, urban detailed planning and design ability¹. In the latest version of the training program, "Principles of Urban Planning" is a basic course, with 32 hours of course arrangement, and the purpose of the course is to enable students to understand and master the ability of detailed urban planning and design.

2 Employment situation analysis and graduate research

2.1 Employment situation of architecture in Kunming College

According to the Employment Cloud System and National College Student Employment Information System of our university, as well as the situation grasped by the employment counselors of the college, since there were graduates in 2014, most of the graduates of Kunming College of Architecture have been engaged in the construction industry, and the number of graduates each year accounts for more than 60% of the total number of graduates, which involves the design, construction, consulting, management, real estate, building materials, testing and so on, with those engaged in design, construction and consulting in the majority.

2.2 Research situation

For the application of urban planning principles, the research was conducted in the form of graduates' online questionnaire, and 134 valid questionnaires were returned. It mainly focuses on the use of the main knowledge units in teaching, and sorts them according to the frequency of use in actual work. According to the results of the survey, the most commonly used knowledge units in the principles of urban planning are transportation and road system planning, land use layout planning, settlement planning and design, and the least commonly used are urban planning theory, industrial area planning and design, and engineering special planning (see Table 1 for results).

Table 1. Survey on the frequency of use of knowledge units

	Urban planning theory Planning	organization and system	Land use layout planning	Urban traffic and road system	Greening and open space system	Residential planning and design	Industrial area planning and design	Engineering special planning
Combined score	3.058	4.038	6.173	6.212	4.962	5.077	3.096	3.384
Rank	8	5	2	1	4	3	7	6

Note: Composite Score=(∑Frequency×Weight)/Number of Fillers

3 Urban transportation and road system planning plate course design

3.1 Course content design

In the course of Principles of Urban Planning, the urban transportation and road system planning section mainly covers urban transportation and the overall layout of the city, urban road system planning, the layout of the city's external transportation facilities and land use, as well as the comprehensive planning of urban transportation and other content. The main knowledge points covered in the course include basic knowledge of urban transportation, urban transportation development strategy, urban transportation survey and analysis, urban transportation demand forecast, urban road network, urban road cross-section design, urban road intersection design, urban slow-moving transportation, urban public transportation, urban external transportation and urban transportation management. Due to the large number of contents, it is not possible to explain them in detail one by one, so it is necessary to screen out the most practical and keep the knowledge coherence of the basic knowledge according to the characteristics of the specialty and the actual needs.

3.2 Teaching process

The teaching process focuses on considering the transition from the teaching of basic knowledge to the application of knowledge. Students majoring in architecture in our university only have some knowledge of traffic organization in smaller sites in previous courses, and lack systematic thinking about road traffic in urban scale. Therefore, the teaching of this knowledge unit still needs to start from the lecture in the classroom, through a series of practical operations, so that students can learn the application of knowledge. The specific teaching process can be carried out according to the four steps of knowledge point lecture, case study, out-of-class practice and discussion and summary. After the important knowledge points are explained in the course, a series of practical exercises are used to make students understand and learn to apply them.

3.3 Practical teaching methods

3.3.1 Case Study Teaching.

After completing the basic theoretical teaching, according to the current hot issues in the urban road transportation system, choose 1-2 cases for classroom analysis, so that students can understand more easily. For the selection of cases, it is appropriate to consider the city where the school is located, students are familiar with or easy to understand the problem, such as the chronic system in the city center, public transportation hubs, urban expressway network, industrial freight transportation and hubs, etc. These cases students themselves have personal experience, or easy to obtain information, in the case of case analysis, the more the impulse to think and the enthusiasm of the speakers. In case teaching, it can be divided into two steps, at the end of the previous course the teacher introduces the background of the case and raises the ques-

tion, the students use the time after class to collect information, site investigation and thinking, in the next class students based on thinking, stating the answer, analyzing the reasons, and put forward the proposal, and finally, the teacher comments on the specific details of the case, and gives advice on the students' answers^{2,3,4}.

3.3.2 Extracurricular practice.

The extracurricular practice part is mainly to make use of the time outside the classroom to carry out the actual operation of specific projects, such as traffic volume investigation, slow-moving system investigation and analysis, cross-section organization, public transportation organization and switching hub design, urban road public facilities and traffic management. Let students use the knowledge they have learned, through the investigation of specific projects to find out the problems, analyze the problems, and put forward the solutions to the problems according to the local conditions, so as to improve the students' innovation ability and the ability to solve practical problems⁵. For this part of the extracurricular practice, the course selects 1-2 topics, chooses the actual lot in the city where the school is located, the teacher leads the team to carry out field research and analysis, the students operate independently, the teacher guides them from the side, and finally forms the project practice report.

3.3.3 Discussion Summary.

This part is mainly carried out for the extracurricular practice part, and it can also be carried out by choosing the topic individually. After the group completes the extracurricular practice and forms the report, the teacher reviews the report of each group, understands the process of each group's practice and the results of the discussion, and puts forward the opinions on where there is a big error, and then the students revise and perfect it and then focus on the discussion⁶. In the process of review, the teacher will know the students' situation in advance, so as to have a clear idea. In the classroom centralized discussion, the group first presented their practical process and discussion results, and then the rest of the group put forward questions, the presentation of the group to use theoretical knowledge to analyze and answer. In this process, the teacher gives real-time comments, and finally uses a combination of inter-group mutual evaluation, intra-group mutual evaluation and teacher scoring^{7,8}. In the process of group discussion, students as the implementation of the main body, in the process of presentation, question and answer to deepen the impression of theoretical knowledge, and gradually learn how to use. Teachers in the process of group discussion, as a listener and guide, listen carefully to the students' speeches, so that the students as the main body of free and full discussion, and timely guidance and inspiration, to avoid one-sided or contradictory results of the discussion, and finally analyze and summarize the views of the students, the groups to carry out targeted comments, so that the students have a clearer understanding of the correct and incorrect, one-sided knowledge.

4 Site Layout Planning Board Course Design

4.1 Course content design

The content of land use layout planning belongs to the basic content of urban planning, which accounts for a large proportion in master planning and detailed control planning, and other types of planning will involve this part of the content, so the knowledge unit is used very frequently in the research. In the course of Principles of Urban Planning, land use layout planning mainly involves the classification and land use composition of urban land, the layout and principles of urban land for different purposes, the pattern of overall urban layout, and the optimization of urban land use layout. The focus is on the classification of different urban land, the principles and key points of the layout of urban land for different purposes¹.

4.2 Teaching process

Urban land layout involves more macroscopic content, so the teaching is based on theory, taking into account the practice. This knowledge unit emphasizes students' literacy of knowledge, requires memorization of important knowledge points, and can be applied in the analysis of actual projects, so in addition to course lectures, supplemented by case presentations and program reviews, and fieldwork outside the classroom, in order to realize the knowledge from memorization to application. The specific teaching process can be carried out in accordance with the principle of teaching, case presentations and program reviews, field trips in three steps.

4.3 Practical teaching methods

4.3.1 Case introduction and program evaluation.

Cases are selected from the actual cases of both urban master planning and control detailed planning. In the part of urban master planning, one is to choose the master plan of a larger city in China, so that students can recognize the urban land layout and pattern from a macroscopic point of view⁹; and the other is to choose a representative county and town in the province, so as to understand the urban land layout from a smaller scale. It can also be expanded to characteristic towns and traditional villages in Yunnan. In the part of controlling detailed planning, the controlling detailed planning of the area where the school is located can be selected, combined with the students' personal experience, to guide the students to think. The case introduction can invite planners from large design units in the province to introduce and explain the actual project, so that students can have a clearer understanding of the practical way of knowledge. After the teacher's introduction and analysis is completed, each group chooses a case among the cases given by the teacher, reads, analyzes and discusses it after class, and then introduces, analyzes and comments on it in the classroom, and this process can greatly exercise the students' ability of practical use¹⁰.

4.3.2 Field visits.

Site layout planning involves a large urban area, often dozens of square kilometers, so it is not feasible to investigate the entire city, while the county, town, village inspection due to distance and time reasons, it is not easy to understand deeply enough. Therefore, it is possible to select a suitable area in the city for field investigation, limited to about four blocks (the area is too small for a single type of land, and the influence of the surrounding land is weaker, which is not conducive to the discovery and analysis of the problem), and with the help of software such as goole earth, Shui Jing Jing Zhi, and Tuxin Earth, we will draw a map of the current situation of the area, and analyze the relationship between the various types of land within the city and the relationship with the neighboring land, and find out the problems of the current situation, as well as the problems of the current situation. On this basis, we analyze the relationship between the various types of land within the area and with the surrounding land, find out the problems of the current situation, and put forward planning opinions, and finally make layout adjustments. In this series of operations, students must use the theoretical knowledge they have learned and be able to complete the transformation from knowledge to ability.

5 Conclusion

Principles of urban planning course is a systematic course with great correlation between knowledge units¹¹, in addition to the above two boards need to be designed with emphasis, the rest of the parts should be reorganized so that there is a good coherence and systematicity between the knowledge points.

At the same time, we should also start from the following aspects to strengthen the learning effect. One is to start from the aspect of students' independent learning ability to stimulate their enthusiasm for the Principles of Urban Planning course. Teachers set up discussion questions in advance, arrange 1-2 field thematic apprenticeships, carry out thematic inquiry learning in learning groups, and then arrange classroom discussions to carry out seminars, so that every student is in the situation, according to the task of continuous learning, absorption and application of new knowledge. The second is to start from the assessment system, so that students take each teaching link seriously. Assessment methods are no longer limited to theoretical exams, extracurricular practice, classroom discussions, case design, etc. can be included in the scope of performance assessment, so that students maintain a sense of urgency in the learning process. The third is to start from the teaching content, and actively expand the knowledge. In addition to the basic theoretical knowledge in the classroom, we actively carry out a series of academic lectures on urban planning, through the introduction of the key and hot issues in the field of urban planning, as well as the latest research results and development, so that the students can further understand the theory and practice of urban planning, the dynamics of the city and the field of urban planning research, to expand the knowledge of the students and their professional horizons, and to guide the students to think about the future and lay the foundation for further development. The course is

designed to expand students' knowledge and professional horizons, guide their thinking and lay the foundation for further development¹².

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