

Research on the Adaptability of Urban and Rural Planning Professional Practice Teaching under the Background of Industry Reform

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Abstract: The urban master plan is on a very important planning level in the urban and rural planning system, and the traditional urban master plan faces the national land space development and protection system based on the spatial planning and the use of control, which is the foundation of the ecological civilization construction and deepening institutional reform. The technological development has added new elements to the urban and rural planning disciplines and the dual challenge of thinking and technical support is also supported by industry reform. Based on technological development, this paper puts forward the teaching innovation reform ideas, that is, the “City Master Planning” curriculum which includes adapting teaching content, teaching links and teaching characteristics.

1. The subject background development

In China's current urban planning system, the urban master planning has a very important position and the urban master plan is the basis for the construction and management of the city which is an important public policy of the government, it is also a comprehensive and strategic work involving political, economic, cultural and social life. The preparation and implementation of the urban master plan is an important means to achieve the government's strategic objectives to make up for the lack of market and effectively allocate the public resources, protect resources and the environment, to coordinate interest relations, maintain social equity, and maintain social stability. In the urban and rural planning professional education system, as the core backbone design course, the urban master plan plays an important guiding role for students to comprehensively and macroscopically understand the city's construction, operation and management and cultivate students' planning and design ability and professionalism with greater planning.

In the setting of ecological civilization construction, the urban transformation and rapid development of information technology, the traditional urban master planning and teaching content face the following two challenges:

From the perspective of the ecological civilization construction and deepening institutional reform, as the main means, a land-based space development and protection system based on spatial planning and using control has gradually formed, the national land space has two attributes of resources and space. The spatial planning is multi-scale and multi-dimensional. Therefore, the spatial planning system should be composed of multiple levels involving countries, regions and towns, and it has both overall special planning, the planning system; on the other hand, spatial planning is a very comprehensive plan which the spatial content elements involved are very diverse and require multidisciplinary participation. The construction of the spatial planning system is the most influential in the urban master plan (including the urban planning in a certain area), which puts forward a new requirements for the planning concept, thinking pattern and planning content of the urban master plan design. Therefore, the concept of planning education should also shift from “development” to “development” and “protection”, from “development” thinking to the “bottom line” thinking, from “quantity” in the development of the urban and rural construction to the emphasis on “quality”. This will inevitably bring about systematic changes in the personnel training objectives, curriculum systems, and teaching content of the urban and rural planning professional education.

2. The status quo of design curriculum education in “Urban Master Plan”

Based on the relevant majors of the School of Civil Engineering of Lanzhou Railway College, the School of Architecture and the Urban Planning of Lanzhou Jiaotong University was established in March 2003. It was founded by three famous architects, Deng Yanfu, Yang Shizhen and Liu Chunhan. The existing majors include architecture as well as the urban and rural planning, which are two five-year undergraduate ones, and a postgraduate major, the urban and rural planning. After the establishment of the first-level discipline of the urban and rural planning combined with the certification standards of the engineering education, the practical and the operational characteristics of the urban and rural planning profession of our school are more obvious, after few years of reform, although the school system has achieved great success in improving the teaching of the subject system but the overall planning and city design has always been regarded as the core main course of professional education. It is arranged to be taught in the second semester of the fourth year of undergraduate course, some achievements have been accumulated in the past teaching practice. However, in the face of the new requirements which put forward by the development of the urban and rural planning disciplines in the new urban planning system, the following major deficiencies in the teaching of the urban master planning and design courses in our school still exist:

First, the curriculum covers the solidification of the urban master plan content structure and it is difficult to adapt to the current situation requirements, which is the course design that includes the two parts: regional urban system planning and central urban overall planning. The urban system planning is based on the traditional “three structures and one network” (level scale, positioning function, spatial distribution, three urban structures and integrated transportation system network). Planning and design content, the overall planning of the central urban area from the urban population size, nature functions to the land space layout and related facilities planning, forming a complete and comprehensive planning and design content, facing changes in the new situation, the idea of the urban system planning needs to shift from “development” to “development” and “protection”, from “development” thinking to “bottom line” thinking. The planning content needs to highlight the “bottom line, protection” content; the overall planning of the central urban area needs to conform to the transformation of urban development. The planning idea needs to shift from the development of “quantity” of urban and rural construction to the improvement of “quality”, focusing on the perspectives of “double repair”, “stock planning” and “urban renewal” and emphasize on the spatial layout and utilization value of urban land use.

Second, the course teaching process is simple but the traditional “teaching-learning” and the “investigation-design” operation mode can no longer meet with the teaching requirements in the new situation. The city's master plan covers a wide range of content, the instructor needs to explain the knowledge points at the beginning of the design course. However, this “learning-learning” model is prone to the phenomenon that the knowledge system is solidified and the students' independent research and thinking ability is insufficient as the important part of the planning work is indispensable, but in the process of “research-design”, students often float on the status quo and refer to the planning case, the intervention planning concept and finally complete the planning the design tasks and the lack of analysis of the status quo. And the research link did not form an in-depth exploration of the current situation of the town, which blindly introducing the planning concept and the result was that the planning plan was not grounded.

In face of the transformation of the development of the urban and rural planning disciplines and in order to better cultivate the urban planning professionals to meet the needs of the society, the teaching of the urban master planning and design curriculum will continue to be reformed and improved.

3. The adaptable teaching needs to be solved

3.1 The adaptive teaching objectives

The adaptive teaching is to solve the existing problems of the theoretical knowledge learning and planning design practice in the urban master planning design curriculum, the lack of new

technologies such as the big data and GIS and the difficulty in in-depth analysis and problem solving of the planning design content floating in the form of results.

To adapt to the development of disciplines and changes of the social needs, to improve the urban master planning and design curriculum teaching plan, to form a comprehensive teaching model that combines the theory and practice, special research and planning design, and cross-disciplinary curriculum teaching to improve the students' problems and deepen their problems of the research and analyze problems of multi-professional skills and the ability to solve problems.

3.2 Adaptation teaching course links and content

In combining with the development and transformation of the urban and rural planning disciplines under the new situation and based on the summary and reflection of the overall planning and design teaching work of our city, the following construction contents are proposed:

3.2.1 To optimize the teaching course

The key point is to re-set the classroom teaching link, and combine the urban master planning and design course according to the logical relationship of the relevant knowledge system, the characteristics of the cognitive knowledge of the students' knowledge points, and the actual link relationship of the legal master plan preparation work, and to build a “One Main Course + Three training modules + multiple teaching sessions” teaching mode. Among them, “one main course” is the overall planning and design of the city, including the urban system planning and the central urban planning. The “three training modules” are the three teaching modules of “knowledge learning, scientific research training and the practical production”. As “Knowledge learning” includes the relevant knowledge of the urban master planning and the excellent planning case studies. “Scientific research and training” includes special research on key issues of the urban master planning and the outstanding status quo. The “Practical production” includes on-site research and data compilation documents and the urban master planning results, compilation; “Multiple Teaching Links” is to divide the overall design curriculum plan into a number of teaching courses and to submit the results and the exchange of the results.

The re-established course teaching tasks will be integrated into a multi-complex, one-to-one, closely linked teaching chain, and a new teaching calendar will be developed based on the teaching model to clarify the specific tasks and requirements of each course, compared with the previous teaching plan because the adjusted teaching link highlights the use of multidisciplinary knowledge and technical means is to analyze the status quo of the city as the special research on key issues and the display of the planning results.

3.2.2 To strengthen the construction of the teaching staff

In order to ensure the smooth progress of the re-established course teaching, the teaching staff team should also be enriched and be constructed accordingly. The single teacher team of the original “course-supervising teacher + assistant teacher” is gradually adjusted to the “course responsible teacher + auxiliary instructor + inter-professional teacher”. The teaching group + postgraduate teaching assistant + external guidance expert teacher” is combined with the multi-disciplinary cross-interaction, production, study and research combined to the innovative application-oriented teaching team. The number of faculty members should be expanded from the first professional teacher and one assistant instructor to one professional teacher, one assistant instructor, and two to three interdisciplinary teachers (mainly including road traffic, ecological environment and remote sensing and geography). Information system major), 2 postgraduate teaching assistants and 2 off-campus experts, the professional background of the teachers should have also been extended from the original single engineering city planning design to the economic geography, regional economy, urban ecological environment, urban road traffic, geographic information system, etc. An off-campus teacher with a background in the production design unit is also in our team.

3.2.3 To optimize the selection of teaching projects

To gradually change the original class to complete a project in a group and change to a different group and to also select a number of different projects for course design, as the course project is mainly composed of small town of the urban master plans with different regional characteristics so as to enrich the content of the course project, highlighting the differences between the groups.

3.2.4 To strengthen the construction of the teaching curriculum

The current curriculum of the college's current training plan is centered on the urban master plan which has covered the “urban planning principles”, “urban geography”, “urban economics”, “urban ecology and the environment”, “urban planning management and regulations”, “urban roads and traffic”. “City Engineering System Planning” and “Remote Sensing and Geographic Information System” courses, but there are problems of the independent teaching which are the mutual repetition, and disconnection between theory and practice among the various courses, making it difficult to realize the teaching content of the courses related to the course group. The combination of the urban master planning curriculum design makes it difficult for the students to apply the relevant knowledge in planning and design, through the integration of courses, and to find the combination of the relevant courses and the urban master planning practices and to realize the transition from the separation to the system and from part to whole. It is mainly embodied in the teaching mode of “one main course + three training modules + multiple teaching links”, with “urban ecology and environment”, “urban roads and traffic” and “remote sensing and geographic information system”, etc. The combination of the teaching process, teaching content and teaching results of the Planning and design course can enables the students to combine the theory with practice and understand the comprehensiveness of the overall planning, so that the students' learning has more pertinence and autonomy.

4. The characteristics of the “master plan” adaptive practice teaching should be reflected

According to the basic experience of the college's existing of the urban planning professional teaching that is making full use of the teaching conditions of other colleges and schools, and is improving in the teaching arrangement of the urban master planning and design curriculum which mainly reflects the several characteristics of the teaching innovation reform:

4.1 Classroom teaching to combined with innovative entrepreneurship education and practical education:

Adapting to the development of disciplines, the advancement of science and technology and the improvement of the social needs are the teaching reform of the urban master planning and design curriculum which is presents in the characteristics of the diversified teaching content, the diverse teaching forms and multi-class teaching achievements. It is to realize the classroom teaching and the innovation and entrepreneurship education and practice for the mutual integration of education.

4.2 To actively improve on the teaching methods and cultivate the students' ability to study and explore:

In the teaching reform of the urban master planning and design course, the teaching link is re-set, the teaching module of “scientific research training” is added, and the special research on the key issues of the city and the status quo in the planning and design is emphasized, so as to support the design completion of the planning results and improve the students ability to study and explore as well.

4.3 The comprehensive practice course is to create the students' solid professional skills:

The teaching reform of the urban master planning and design curriculum highlights the active application of the multidisciplinary cross-teaching and new technologies, starting from the perspectives of “ecology and environment”, “roads and traffic” and “remote sensing and geographic information systems” that directly affect the planning results form of a multi-faceted model of

thinking and problem solving, and a comprehensive practical courses in order to create solid professional skills.

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