Research on The Training Mode of Applied Talents in Traffic Engineering Based on Big Data under The Background of "New Engineering"

Xue Han¹* and Dongdong Zhang²

¹School of Civil Engineering, Wanjiang University of Technology, Manshan, Anhui, China, 243031
²Engineering Training Center, Nanjing Forestry University, Nanjing, Jiangsu, China, 210037

*Corresponding author e-mail: hanxue_echo@hhuwtian.edu.cn

Abstract. In our country has entered a new period, the development of traffic construction and intelligent power snatched the transportation development are put forward for traffic engineering talents cultivation requirements, in this article, combined with some actual situation, studies the traffic type talent cultivation mode for this kind of agent, rope, and set the actual situation, leads to social demand, reshape the talents training target, put forward the development strategy and the theory of service traffic strong power to shape talents as the main room, based on training target rearranged the curriculum system structure, on the carrier of curriculum, the curriculum teaching personnel restructuring, optimization of the whole process of teaching, The revised talent training program with the characteristics of Southeast University meets the requirements of the new era and is implemented steadily, promoting the construction of national first-class undergraduate major in transportation engineering, and providing experience for the development of similar universities in China.

Key words: New Era, Intelligent Connectivity, Training Objectives, Curriculum System.

The traffic engineering major focuses on the internal law, interaction and collaborative optimization of human, vehicle, road and environment elements in the traffic system, and is committed to training talents in transportation planning, design, construction and management. By 2018, more than 130 universities across The country had offered undergraduate majors in transportation engineering. The major of Transportation Engineering of Southeast University is one of the earliest similar majors in China. It was selected as one of the first national first-class undergraduate major construction sites in 2019, which has a strong influence at home and abroad and plays a demonstrative and leading role. With the implementation of major national strategies such as the construction of a powerful country in transportation and the emergence of new modes and technologies such as intelligent network transportation, the training of talents in transportation engineering is required one by one[1]. Based on
the careful analysis research at home and abroad transportation - flow university bachelor benchmarking the talent training scheme, investigating the industry experts, unit of choose and employ persons, alumni opinions, on the basis of according to the specific situation of the professional, set out for school development orientation of professional training objectives and support the training goal and the agenda of the graduation requirements to achieve system with the syllabus[2].

1. Research background and significance
The promotion of new engineering construction by the Ministry of Education is based on the new demand of national strategic development, the new situation of international competition, and the new requirement of training all-round talents. "Excellent Engineer Education and Training Plan 2.0" is the further promotion of new engineering construction.Intelligent sn atched the transportation system is gradually replacing the infrastructure construction and focus, as a new transformation of transportation industry development "is the result of civil engineering, give attention to two or more things traditional traffic engineering mechanics, structure, materials," the limitations of knowledge system is hard to adapt to the development of modern traffic demand, need more integrated into the "information, computer, big data"[3]. Therefore, the knowledge structure and skills of traffic engineering professionals are required to be more complex and cross-sectional, and the traditional traffic engineering major needs to be transformed and upgraded with C' information as the main line and new engineering construction as the orientation.In March 2019, southeast university formally issued the action plan for 2020 - flow of southeast university undergraduate course education, around the party and the state gives "double - flow 'new mission of colleges and universities X) the new requirements, in accordance with the" 1-10-100 "university dream" vision, to cultivate the feelings and the international field of vision, and navigating the future benefit of human talents as the goal, in accordance with the "thought leading, ability cultivation, knowledge" new pattern of education, to strengthen the connotation construction as the fundamental, to reconstruct the knowledge system as the center of gravity, in order to deepen the reform of the mode of thrust, to perfect the systems and mechanisms to protect, improve personnel training quality in an all-round way[4].

2. Status quo investigation and analysis
Professional setting of colleges and universities both home and abroad, the survey found at the university of California, Berkeley, and purdue university in the United States, the United Kingdom imperial university, university of France luqiao, such as Japan university of Tokyo and Kyoto university foreign undergraduate specialty construction of colleges and universities have, which is based on large civil engineering, traffic engineering as the direction, pay attention to the foundation and professional foundation education, students choose their space; Pay attention to the cultivation of students' comprehensive ability, and the background of enterprise cooperation is strong. The system of flexible teaching is perfect.

The domestic universities represented by Tongji University, Beijing Jiaotong University, Southwest Jiaotong University, etc., usually consider the specialty setting and talent training program design according to their own resource advantages and the needs of the industry departments, adhere to the specialty characteristics, integrate the advantageous discipline resources, and coordinate to support the specialty construction and direction expansion[5].

The main experiences for reference include: optimizing teaching guarantee system and improving students' independent choice space; Personnel training should be closely combined with social needs; Pay attention to the training of engineering practice ability; The curriculum system lays emphasis on interdisciplinary integration; Pay attention to the training of compound professional talents under the background of informatization.

After horizontal standard and multi-channel solicitation, there are two outstanding problems in the last version of talent training program of the school's transportation Engineering major :The foundation of general education is not solid enough, the core courses of the major are not systematic enough, and the personalized development is not prominent enough; Second, the color of traffic and
civil construction is strong, and there are too many basic courses of mechanics, which obviously lack the support of informationization.

3. Optimize the ideas and measures

Insist on khalid ents to students as the center, in accordance with the "thick foundation, wide caliber, heavy cross, strong innovation and bright characteristic" the cultivation of the path, and adapt to the national standards for undergraduate professional quality and professional certification standards, on the basis of carefully traffic engineering professional knowledge, ability, quality system and the demand of economic and social development and the student development fit, curriculum system and training goal of coupling on the graduation requirements agreed upon teaching outline, the revised form in line with the requirements in the new period, with characteristic of southeast university transportation IC undergraduate talent training scheme.

Figure 1. Optimization ideas.

3.1. Reshape the goal of talent training

On the basis of the orientation of the school's personnel training objectives, through multiple rounds of comparison and demonstration, the training objectives of this major are as follows: to serve the development of a transportation power in the new era; to cultivate students with firm ideals and beliefs, noble moral sentiments, solid knowledge foundation, profound humanistic quality and outstanding innovative consciousness; Transportation systems analysis and planning, road traffic facilities design, traffic system management and control, road traffic safety, intelligent made traffic, traffic data and multidisciplinary knowledge and innovation ability of professional talents, shaping with feelings home countries and international vision, navigating and the benefit of human talents potential in the future. Capable of technical research and development and application, organization and management in road and traffic engineering and other related fields. About five years after graduation, After further study, independent learning and work training, C 'can adapt to different job requirements, and become a backbone of engineering technology or management with high business level and strong innovation ability.

The training target indicates the professional field, occupational characteristics, occupational orientation and occupational ability of graduates. Compared with the previous version of talent training objectives, the most prominent feature is that it clearly puts forward the professional mission of "serving the development strategy of a transportation power" and the target direction of "shaping
3.2. Reconstruct the curriculum architecture
Further develop measurable graduation requirements and index points that meet the training objectives, comb the curriculum composition and relationship that support graduation requirements, and revise and form a broad and personalized professional training curriculum system based on general education.

Wide range: Optimize the basic courses of the major subjects and improve the main courses of the major.

3.3. Further optimize the course setting of mechanics and clarify the boundary between it and the major of road bridge crossing.
The original three mechanics courses were integrated, and "Theoretical Mechanics C" was retained as the basic course of the major discipline. "Material Mechanics C" Structural Mechanics "and the original major main course" subgrade and pavement Engineering "were combined to rebuild the 4-credit professional main course road engineering foundation. At the same time, "road survey and design" will be adjusted from a major main course to a major discipline basic course.

3.4. Responding to the development trend of informatization, strengthening the curriculum construction of computer application ability support.
Will focus on both the statistical expansion for the "traffic data analysis" course "traffic data analysis", "new information and control basis" "traffic behavior analysis" course to improve personnel training in mathematics, computer and information engineering point and compaction degree up in view of the traffic system in the factor analysis of course.

3.5. Condense the main course, highlight the key points, strengthen the practice, and improve the standard of the main course
Optimize the relationship of major curriculum setting according to the core knowledge fields of traffic system analysis, planning and design, traffic organization and traffic operation management; The courses of "Traffic System Analysis", "Traffic flow Theory", "Traffic design", "Traffic control and Management" and "Road traffic safety" each add a few credits, which are dedicated to strengthening students' practical operation ability cultivation.

After the adjustment, 6 of the 7 basic courses of major subjects have no less than 3 credits, and all the 7 main courses have no less than 3 credits. The elimination of the phenomenon of small classes, scattered classes and person-oriented courses makes the curriculum more focused and more in line with the national engineering education certification standards and national quality standards.

Recrossing: Reform specialized courses and provide personalized learning programs
Aiming at the reform of "integration of multiple plans", the course of "Principles of Urban Planning" in the original training scheme is adjusted to the course of "Principles of Land Space Planning", which echoes the new connotation and new methods of urban planning and transportation...
planning within the framework of the Land space planning system in charge of the Ministry of Natural Resources. Strengthen traffic economics "traffic Simulation Experiment" and other majors limited elective courses (equivalent to compulsory courses), to ensure the economic foundation, engineering management awareness and simulation practice ability of talent training; Further response. "Intelligent network" industry trend, the new "data structure and algorithm" "driving behavior and psychology" traffic system dynamic simulation "and other courses: enrich the elective course group to improve the degree of personalized choice of talent training.Strong innovation: Improve practical courses to cultivate the ability to solve complex problems

Construction of two comprehensive curriculum design and professional comprehensive design courses, including "comprehensive practice of Traffic Engineering" and "comprehensive design of Traffic engineering". "Traffic engineering practice" says cheng cover "traffic engineering base" "traffic data analysis, information and control basis" categories such as traffic behavior analysis "internship practice discipline foundation course content:" pay recite engineering design "love cover six recite planning" : six general designer "traffic control and management and other professional backbone course content design practice

4. Conclusion

Under the background of the traffic power and new engineering construction in this paper, based on the change of demand and the development of science and technology industry, traffic engineering in southeast university professional talent training scheme of preliminary exploration into the optimization and, by analyzing the previous research of reshaping the talent training goal, reconstruct curriculum system structure, restructuring course teaching content, to promote creating - flow product professional, also provide case with similar domestic professional development model. Of course, the talent training scheme still needs further practice and improvement, especially to establish a continuous improvement mechanism with output orientation and dynamic feedback to support the construction of future leading talent training mode[10].

Acknowledgments
1. Anhui Province University quality engineering teaching research major project, Research on the Training Mode of Traffic Engineering Applied Talents under the Background of "New Engineering" (2018jyxm0238);
2. Anhui University Quality Engineering Teaching research Project, Research on Teaching Model Innovation Based on New Engineering Transportation Professional Curriculum System (2018jyxm0239).

References
[1] Fudan education forum, 2017, 15(2): 27-28.
[2] Yang Bixia. Research on the Training Mode of Undergraduate Innovative Talents [D]. Southwest Jiaotong University, 2011.
[3] Guo Guangsheng. Connotation, Characteristics, types and Factors of Innovative Talent Training [J]. China Higher Education, 2011(05): 12-15. Huaibe Normal University, 2017.
[4] Cheng Lin, Wang Wei, Guo Xiu-cheng. Research on the Training Mode of Traffic Engineering professionals [J]. Higher Education Development and Evaluation, 2006(2): 58-61.
[5] Feng Tianjun, Wu Lixin, Liang Chunyan. Strategies for improving engineering ability of students majoring in traffic engineering [J]. Journal of jilin university of architecture and engineering, 2013, 30(02): 72-74.
[6] Guo Hui, Han Ting, Yu Xiuping, et al. An exploratory study on the achievements of science and engineering university students in scientific research activities -- based on a case study of the project leader of the "National Innovation and Entrepreneurship Training Program for College Students" [J]. Higher Engineering Education Research, 2015(6): 59-66.
[7] Heather Thiry, Sandra L.Laursen, Anne-Barrie Hunter. What Experiences Help Student
Become Scientist? A Comparative Study of Research and Other Sources of Personal and Professional Gains for STEM Undergraduates [J]. The Journal of Higher Education, 2011, 82(4): 357-388.

[8] Li Zheng, Xiang Cong, Lu Kaicong, et al., Practice and Exploration of Innovative and Entrepreneurial Talent Cultivation in South China University of Technology [J]. Chinese University Teaching, 2014(12): 29-31.

[9] Chen Xuejun, Li Li. Research on the Training System of College Students' Application-oriented Innovative Talents [J]. Education and Careers, 2011(24): 19-21.

[10] Wang Zongtian, Fu Anzhou. A Review of Ideological and Moral Education in German Universities [J] Ideological and Theoretical Education (First half Of the Comprehensive edition), 2007(1): 23-26.