Regarding Engineering Education Professional Certification as a Starting Point, Do a Good Job of Audit Assessment

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Abstract. With the gradual implementation and deepening of engineering education in colleges and universities. Student-centered, guided by training objectives and graduation requirements. The teaching evaluation system aiming at improving students' learning ability and ability tends to be more accurate, comprehensive and scientific. The development of intelligent talents with student development as the core. Clear new professional development trend of "Computational Complexity of System, Technology-Driven Innovation Driven and Entrepreneurial Driven, and Promotion of Interdisciplinary Formation". Improving the students' ability to solve complex problems and the normal monitoring of basic state data have become the important means of teaching quality assurance.

Keywords: Computational complexity of system
Technology-driven innovation driven
Technology-entrepreneurial driven
Promotion of interdisciplinary formation

For a long time, our university education follows the Marxist theory of man's all-round development and established that the core of university work is to promote the all-round development of students through education. Guided by the education idea of "cultivating students' lifelong learning ability" [1], the level of professional construction has a direct impact on the talent cultivation effect of universities. Our college will focus on the certification of engineering education [2], the college audit assessment done.

1 Evaluation of the Working Principle

Computer Science and Technology, as the first engineering major in our school to pass the engineering education certification, has made a positive attempt and exploration for the school and college's strategy of engineering major. On this basis, in September 2017, information security major was the first batch

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to receive inspection of engineering education certification specialists; at the same time, software engineering major formally submitted engineering education certification applications. In October 2017, our school will also usher in the review and appraisal organized by the Ministry of Education. For this reason, the college established the working guideline of "Regarding the certification of engineering education [3] as the starting point and doing a good job in the examination and assessment of the college":

- Developed an internationalized and research-oriented training program [4] to improve the conformity degree between professional education and social needs;
- Implement professional construction and curriculum construction responsibilities and enhance the support of grassroots academic organizations [5] for specialized education;
- Improve the teaching quality monitoring system of "Five-Dimensional and Four-Ring" so as to improve the coincidence degree of all aspects of talent cultivation;
- Constructing various kinds of teaching service and management platforms to enhance the protection of teaching resources for talent cultivation;
- Introduction of university-enterprise cooperation mode, formulate a short-term visit plan, carry out CSP competency certification, and enhance the satisfaction of students, society, government and families on the quality of talent cultivation.

In September 2016, for the first time, the college put forward the goal, "The cultivation system of smart talents with the core of student development". In nearly three months, the college conducted international comparison of teaching objectives and investigated the objective and curriculum system of talent cultivation in many foreign universities, such as Stanford and MIT, especially cultivate the education characteristics of "solving complex engineering problems", and clearly defined the new professional development trend of "complexity of computing systems is enhanced, technology-driven towards innovation-driven and entrepreneurial-driven, and promote the formation of interdisciplinary" and so on. In April 2017, following the ACM/IEEE2013 international standards and OBE project certification standards, the institute formulated a program of elite-type talent cultivation that divides into four levels: general thinking cultivation, basic ability training, professional ability training and knowledge/vision expansion. The content of many courses is condensed into thinking courses, which are opened in the lower grades, emphasizing the continuity; senior courses are based on the design and structure, emphasizing the systematic and in-depth understanding of complex systems and knowledge.

2 Courses Are a Vehicle to Improve Students' Ability

As a carrier to solve the problem of cultivating the ability to solve complex engineering problems, the curriculums must have a clear system and context. First,

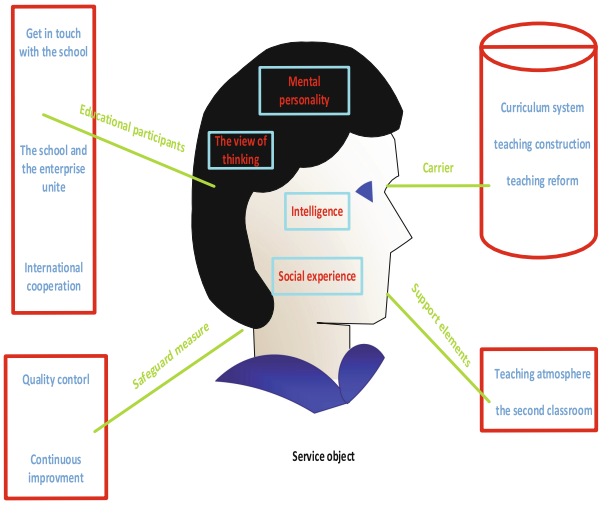

Fig. 1. The cultivation system of smart talents with the core of student development

the integration of new ideas to promote the course content innovation; Second, clear positioning, the implementation of the construction responsibility; Third, the coordination of output to ensure synchronous reform of teaching methods and assessment methods and other aspects. In order to ensure the success of the above objectives, the college has set up a Teaching and Advisory Committee to clarify the major teaching decision-making system and implemented a number of job responsibilities such as graduation design, professional internships, international exchange, quality engineering, teaching materials construction and so on, the college hired professional leader and course responsibility professor (responsible teacher), who answered "Who revised the curriculum system, who revised the syllabus, where does feedback data come from..." and many other issues. Through the above measures, teachers have published a number of national, provincial and ministerial planning textbooks, have built a number of excellent courses and moocs. The number of lectures by teachers drop by 30%, while the number of students' weekly drop by 15%, and the number of courses from more than 160 is integrated into more than 70 (Fig. 1).

In order to verify the effectiveness of teaching construction and reform, the college has introduced a multi-source course quality assurance system and a program for teachers' teaching status evaluation centering on "students" and "learning outcomes". The so-called "five-dimensional" refers to the responsible professors' assessment, student' assessment, external evaluation, professional evaluation and college internal review. The so-called "four-ring" refers to the evaluation of the rationality of the curriculum, the evaluation of the graduation requirements, the continuous evaluation of the profession and the evaluation of social satisfaction. However, the teaching responsibility is passed to the teachers through loosely quantitative state evaluation data, including four indicators: teaching attitude, teaching methods, teaching spirit and teaching effect.

In order to improve the efficiency of running a school, the college has also adjusted the elective course system and developed a procedural/accumulative assessment platform. The electronic internship notes are implemented so that students can keep record at any time and teacher, enterprise can evaluate Interactively. The graduation design management and blind review system have been piloted, and the full cycle quality monitoring is strictly regulated. At the same time, the college is actively involved in multi-resources to carry out the development work of professional education big data platform.

A variety of education teaching construction and reform measures make the school's overall educational efficiency and talent cultivation level of the college significantly improved. Professor William Webster, a former vice president of the University of California, Berkeley and a fellow of the American Academy of Engineering, is a part-time professor of our university. He once said: "Talent cultivation will often follow the traditional model because all risks are low and there is no need to think about it, thus all reform and try appear more meaningful, because it is easier to succeed," for us, engineering education professional certification is both an attempt and a necessary one.

3 Conclusion

To adhere to the engineering education certification as the starting point. Promote and improve the quality assurance system established by the university itself. Enhance engineering education of human wealth and industrial adaptability. At the same time, it is also promoting the further extension of scientific evaluation, standardization, marketization and socialization. Engineering Education Professional Certification brings about personnel training mode, teaching reform and management reform. Talent cultivation transforms from the past knowledge into ability. From Ability to Whole Person Education for Healthy Personality and Individuality. At the same time, it also profoundly affects the transformation of educational philosophy. Education is not only a means of obtaining living skills, but also a way of enhancing human spirits.

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