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Reform and Exploration of Applied Undergraduate Teaching under the Background of Engineering Certification

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Abstract: With the increasing demand for engineering talents,engineering certification plays an increasingly important role in applied undergraduate education.This thesis aims to explore the reform and exploration of applied undergraduate teaching under the background of engineering certification.Firstly,through the analysis of the requirements of engineering certification for talent training,we find that applied undergraduate education needs to pay attention to the cultivation of practical ability,interdisciplinary comprehensive quality training and close integration with engineering practice.Secondly,we introduce some concrete reform and exploration practice,including reforming curriculum system,optimizing teaching methods,building experimental teaching center and so on.Finally,we summarize the achievements and experiences of these reforms and explorations,and point out the development trend of applied undergraduate education under the background of engineering certification.We believe that through these reforms and explorations,we can better train application-oriented undergraduate talents to meet the needs of engineering practice,and provide strong support for the development of engineering field in our country.

Keywords: Engineering Certification;Applied Undergraduate Teaching;Reform and Exploration

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Introduction

Engineering certification is an important way to ensure the quality and safety of engineering projects.With the continuous improvement and establishment of China's engineering quality supervision system,the application of engineering certification in China is more and more extensive.However,the implementation of engineering certification has also exposed some problems,-such as lack of unified standards,poor enforcement of the law and so on.The existence of these problems has seriously affected the effectiveness and credibility of engineering certification.The reform and exploration of applied undergraduate teaching under the background of engineering certification aims to provide reference for improving the implementation level of engineering certification and improving the quality of applied undergraduate teaching,and optimize course content,teaching requirements and teaching methods.[1]It is hoped that the research of this paper can promote the improvement and development of engineering certification,promote the innovation and optimization of applied undergraduate teaching,and make positive contributions to the development of engineering field.

The text:

With the rapid development of society and continuous progress of technology,the demand for engineering certification is increasing day by day.As the key link of training engineering talents,applied undergraduate teaching is facing new challenges and opportunities under the background of engineering certification.Therefore,it is very important to reform and explore applied undergraduate teaching.This paper aims to explore how to carry out the reform of applied undergraduate teaching under the background

of engineering certification,and analyze and study the actual cases,in order to provide relevant educators with targeted suggestions and guidance.

1. The significance of reform and exploration of applied undergraduate teaching under the background of engineering certification

The reform and exploration of applied undergraduate teaching under the background of engineering certification is of great significance,which can not only improve the training quality of engineering and technical talents,but also promote the interaction between engineering education and practice,and enhance students'practical ability and innovation consciousness.The following three aspects are discussed.

1.1 Improve the training quality of engineering and technical personnel

Firstly,the reform and exploration of applied undergraduate teaching can improve the training quality of engineering and technical talents.The traditional undergraduate education mode pays too much attention to the imparting theoretical knowledge and neglects the cultivation of students'practical ability.Under the background of engineering certification,applied undergraduate teaching emphasizes the combination of theory and practice,and focuses on cultivating students'ability to solve practical problems.For example,in the reform of applied undergraduate education in a certain university,a series of practical projects are provided for students to play the role of intern engineers in practical projects.Through practice,students can exercise their teamwork ability,problem solving ability and innovation ability,so that they can have better adaptability and competitiveness.

1.2 Promote the interaction between engineering education and practice

Secondly,the reform and exploration of applied undergraduate teaching can promote the interaction between engineering education and practice.Engineering certification requires a close partnership between schools and businesses to integrate practical links into teaching,so that students can be exposed to and solve practical engineering problems.For example,in the engineering certification process of a university,the university and the enterprise have developed a practical course,which integrates the practical engineering projects provided by the enterprise into the course.Through learning in practice and solving problems in practice,students can not only improve the transformation ability of learning results,but also enhance students'cognition and understanding of engineering practice,and cultivate students'innovative consciousness.

1.3 Enhance students'practical ability and innovative consciousness

Finally,the reform and exploration of applied undergraduate teaching can enhance students'practical ability and innovative consciousness.Under the background of engineering certification,schools need to strengthen the practical training of students,improve students'practical operation ability and practical engineering problem solving ability.For example,in the practical teaching of a university,participating in scientific and technological innovation projects,students carry out actual scientific research experiments and innovative designs,and thus their scientific research ability and innovative and entrepreneurial spirit are cultivated.This form of practical teaching can enable students to better apply theoretical knowledge in practice.And the exploration and innovation in practice can cultivate students'practical ability and innovation consciousness to provide necessary support and guarantee for their future work and innovation.

In short,the reform and exploration of applied undergraduate teaching under the background of engineering certification is of great significance to improve the training quality of engineering and technical talents,promote the interaction between engineering education and practice,and enhance students'practical ability and innovation consciousness.The reform and exploration of applied undergraduate teaching requires close cooperation between schools and enterprises to integrate practice into teaching,and cultivate students'practical ability and innovation consciousness through practical projects,practical courses and scientific and technological innovation projects,so as to make contributions to cultivating high-quality engineering and technical talents.

2. The reform strategy of applied undergraduate teaching under the background of engineering certification

The reform of applied undergraduate teaching under the background of engineering certification is an important task faced by current higher education.It is an urgent issue for us to discuss that how to improve the teaching quality of applied undergraduate education through reasonable strategies and specific teaching cases.This paper will elaborate the strategy of applied undergraduate teaching reform from three aspects of training objectives,teaching content and teaching methods,and discuss it with specific teaching cases.

2.1 Develop students'ability to apply professional knowledge and solve practical problems

Firstly,in terms of training objectives,applied undergraduate teaching should focus on cultivating students'ability to apply professional knowledge and solve practical problems.To achieve this goal,we can adopt the following strategies:setting up engineering practice courses or practical courses,using practical operation and experiment to cultivate students'practical ability,introducing industry-university collaborative projects to enable students to participate in practical engineering projects and thereby exercise their problem-solving skills.Taking mechanical design and manufacturing as an example,we can set up mechanical design competition courses to make students participate in real mechanical design competitions,and improve their design ability and innovation ability through communication and competition with peers.

2.2 Closely integrated with engineering practice

Secondly,in terms of teaching content,applied undergraduate teaching needs to be closely combined with engineering practice and combine theoretical knowledge with practical engineering.To this end,teachers can combine theoretical knowledge with practical problems by introducing teaching activities such as case analysis and engineering project practice to reform and innovate the training model for Innovation and Entrepreneurship Ability.[2]For example,in the major of computer science and technology,software engineering practice courses can be set up to allow students to participate in real software project development to improve their project management ability and teamwork ability.Engineering economics and management courses are set up to let students understand the economic and management issues in engineering projects and cultivate students'engineering management ability.

2.3 Adopt diversified teaching methods

Finally,in terms of teaching methods,applied undergraduate teaching needs to adopt diversified teaching methods to stimulate students'learning interest and initiative.Students can be guided to actively participate and explore through classroom discussion,group cooperation,and experimental teaching.For example,in the major of chemical engineering,the problem-oriented teaching method can be adopted to introduce practical problems in the classroom,and organize students to have group discussions and solutions,so as to cultivate students'ability to analyze and solve problems.Multimedia technology can be used to present practical engineering cases,so that students can feel the practical application of engineering knowledge and theory through observation and practice.Some hot competition themes can be selected and transformed into teaching projects to help students put abstract theory into practice through project-based teaching design.[3]

3. Conclusion

To sum up,the basic connotation of professional leadership of teacher educators in the new era refers to the ability of teachers to possess professional quality and leadership in educational work.The formation logic of professional leadership is based on the comprehensive embodiment of teachers'professional knowledge,educational experience and leadership ability.In career development and work practice,teachers have accumulated rich professional knowledge and educational experience through continuous learning and reflection.At the same time,they have gradually cultivated and improved their own leadership through interaction with students,parents and colleagues.To further enhance professional leadership,teachers need to develop strategies tailored to their individual circumstances,which include cultivating their own learning and research ability to enhance professional quality,improving interpersonal communication and collaboration skills to strengthen cooperation with others,strengthening self-management and self-development to improve their ability to adapt and undertaking the mission of social responsibility to pursue the pursuit of truth,goodness and beauty.

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