

Countermeasures of Mechanical Design in Teaching's

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Abstract

With the continuous development of machinery manufacturing and automation in China, the application in various industries is gradually popularized, so the social demand for mechanical design professionals will continue to expand. Therefore, to strengthen the effective training of mechanical design professionals can continue to export talents for social development, and to provide continuous talents for the design, development and application research of the whole society and even for the operation management. But at present, there are still some problems in the teaching of mechanical design specialty in our country. This paper briefly discusses it, and puts forward corresponding countermeasures, hoping to help the teaching of mechanical design specialty in our country.

Keywords

Keywords Mechanical design major; Teaching; Problems; Countermeasures.

1. Preface

The mechanical design profession emphasizes a process from overall to local refinement. And the application of mechanical design can make the social labor productivity continuously increase. In order to ensure the normal use of equipment, it is necessary to carry out scientific and rigorous mechanical design, and then combine with the specific production situation, the design of material selection, the development of functions, and so on. Mechanical design specialty can also be understood as the frame structure of an industry, according to different specific functions and uses to design it accordingly, to ensure that the designed machinery and equipment can be put into use normally. At the same time, the work done by the mechanical design specialty is also one of the main bases in the later equipment production, so it must be paid full attention to. to understand the potential problems in the current mechanical design professional teaching, and to effectively solve, comprehensively improve the level of the mechanical design industry in China.

2. The Present Situation of Teaching Development of Mechanical Design Major in China

According to the relevant statistical data, the added value of the machinery manufacturing industry in our country is very remarkable at present, and has already leapt to the forefront of the world, and our country has gradually moved to the manufacturing country. However, to gain a competitive advantage in the international machinery manufacturing industry, the development of machinery manufacturing industry must be based on scientific and technological innovation, Further enhance our country's scientific and technological innovation ability, make our country gradually build into innovative manufacturing power, form a stronger competitive advantage, and make our manufacturing industry in an invincible position.

Improving the scientific and technological innovation ability of machinery manufacturing industry cannot be separated from the support of education, whether it is higher education or

vocational education, it is the goal of cultivating scientific and technological innovation talents in our country. Mechanical design specialty is a very important subject in education and teaching. The cultivation of this subject is the basis and core of realizing scientific innovation and enhancing competitiveness in China's machinery manufacturing industry. It can be seen that if we want to further improve the overall level of China's machinery manufacturing industry, we must further strengthen the teaching ability of China's mechanical design major, improve its teaching level. At present, many mechanical manufacturing enterprises in our country have a large demand for applied talents in mechanical design. However, at this stage, some of the graduates of mechanical design majors are hardly qualified for the upcoming job, which has a certain relationship with the development of mechanical design major related courses in colleges and universities in China. At present, there are still some problems and shortcomings in the course of mechanical design in colleges and universities in our country. For example, the level of teaching staff is not high enough to better achieve the goal of combining theory with practice in teaching, Another is that the curriculum is too general, broad, lack of more serious practical content, and so on, these problems and shortcomings need to be further resolved.

3. Problems in the Teaching of Mechanical Design in China

3.1. Staff Level to Be Improved

With the continuous improvement of the level of science and technology, the social needs and standards are constantly changing, and the teaching reform of the mechanical design specialty in our country is also continuing, which also needs the comprehensive level of the corresponding teaching staff. According to the current situation, the mechanical design specialty is facing reform and optimization, and constantly build a comprehensive talent to meet the needs of society. In particular, it is necessary to strengthen the learning and application of various new technologies, especially computer aided technology has a very wide range of applications. According to the integration effect of computer technology and mechanical design specialty to strengthen the effective training of talents, teaching teachers should pay more attention to the improvement of their own strength, so as to continuously promote the teaching reform of mechanical design specialty. With the continuous improvement of science and technology, many old teachers are unable to keep pace with the times, and the learning of computer software technology is not comprehensive enough. This causes some defects and omissions in the teaching process. Therefore, we must focus on strengthening the overall improvement of the level of the teaching staff.

3.2. The Mechanical Design Course Lacks the Practical Content, the Course Study Is Too General

The content of the teaching course lacks certain practical significance, is relatively too limited and one-sided, because the mechanical design specialty teaching is in the relatively basic course, pays more attention to the promotion of students' thinking consciousness and design ability. In the course of mechanical design teaching, the first is the "reducer design" course teaching, this basic content is more helpful for students to master the course. However, with the continuous improvement and optimization of the industry, the present stage of mechanical design course teaching is relatively too one-sided. Even some colleges and universities have improved and optimized a lot of content, but in general there is still a lack of effective reform of practical teaching. Especially in the teaching process cannot really play the role and significance of practical teaching, so that the whole course is too theoretical to really apply to the concrete practice, so this is not conducive to the innovation of mechanical design major.

3.3. Lack of Innovation and Originality in Graduate Design

Mechanical design is a more comprehensive discipline, and there is a very close relationship with other similar disciplines (such as mechanical drawing, mechanical principles, etc.). Therefore, if we want to master this course, we must establish a complete teaching framework. Although the current stage of the course will be added to the curriculum design graduates, but the lack of innovation and originality, only some simple assembly drawing and part drawing. This causes graduates in the specific work cannot really play the effectiveness of mechanical design courses.

3.4. No Ideas for Reform of Mechanical Design

In the specific classroom teaching process, although the implementation of the curriculum teaching reform policy will attract the attention of teachers, However, it often relies too much on the traditional way of theoretical teaching to inculcate students with a large amount of theoretical knowledge, lacking certain guidance and design. The teacher does not let the student fully grasp the whole design principle and the train of thought, cannot really explain the design skill, just carry on the simple formula teaching, which will cause the students to be under the pressure of a wide range of knowledge, cannot really grasp the fundamental mechanical design major.

4. Countermeasures of Teaching Mechanical Design in China

4.1. Breaking with Tradition and Changing Teaching Methods

In order to improve students' practical ability and innovation level, we must strengthen the effective reform of their teaching methods. Breaking the traditional teaching methods and thinking ideas, increasing the proportion of practical teaching, and taking theoretical knowledge as the basis, make the two complement each other, effectively improve the students' comprehensive quality level. First of all, in the selection of teaching materials should constantly emphasize its practicality and practicality, but also continue to promote the application of teaching materials, more targeted to improve the level of specific practice. In addition, it is necessary to abandon the bad habits of traditional teaching ideas, increase effective interaction with students, make teachers act as a guide, and truly take students as the main body to continuously improve the quality of teaching. Let students be more active in the process of learning. Finally, in the specific teaching process, but also to strengthen the current social needs of the knowledge of the focus of teaching, for the obsolete technology and ideas to be replaced in a timely manner, At the same time, it is necessary to increase the teaching of specific practical cases so that students can fully combine theoretical knowledge with practical operation.

4.2. Selection of Authentic and Effective Classroom Teaching Content

The study contents of mechanical design major usually include plane mechanism, various transmission and theory system, and also study the mechanism and structure of various general parts, so the learning points are relatively more and more complex. This requires students to improve their understanding and mastery of theoretical knowledge through specific practice, and constantly strengthen the close connection with other courses. Only through this kind of teaching method can the students' learning content be fully applied to the concrete practice, and the phenomenon of disconnection between theory and practice can be avoided. In the development of specific teaching, can be based on certain practical work cases to teach, so that difficult to understand the knowledge point more easy to understand.

4.3. Organization of Machine Making Activities

The traditional course theory teaching cannot fully achieve the purpose of teaching, in addition, through holding a certain mechanical design activities to strengthen the effective application of theoretical knowledge, according to the relevant requirements of mechanical design. It cannot only enhance students' interest in mechanical design, but also help students build up their professional self-confidence. In the course of the event, teachers should strengthen their interaction with and guide students. so as to truly realize the transition between theoretical knowledge and specific operation, so that students can fully solve the problems encountered in the process of mechanical design.

4.4. Strengthening Teaching Staff

Mechanical design professional teaching should be the existing colleges and universities of the relevant professional teachers mechanical professional skills intensive training, In the meantime, Some design technicians with certain practical experience can be invited in the enterprises concerned with mechanical design to provide professional skills training for mechanical teachers to help college mechanical teachers improve their professional design level and comprehensive practical ability. Make the school set up a high professional and technical level, high quality teachers, for the university mechanical design professional education to lay a strong teaching force. In addition, colleges and universities can hire technical personnel with rich practical mechanical project design experience and high organizational and coordination skills to enrich these technical personnel into the teaching staff of mechanical design majors. To realize the integration of mechanical design teaching, to minimize the differences between the students' knowledge of mechanical design and the needs of the enterprise.

4.5. Full Use of Modern Means of Education

At present, the characteristics of higher education in China determine that the knowledge taught in the classroom is only a limited part of the whole teaching. Therefore, college teachers should have limited teaching time to enable students to learn as much as possible about mechanical design related knowledge. And the course of mechanical design specialty belongs to the course with strong practicality and high abstract thinking ability. It is difficult to achieve the ideal teaching effect by using only the empty description of language, so we should use more modern teaching means, such as multimedia teaching, computer aided teaching and so on. Among the many modern teaching means, one of the most promising teaching methods is computer-aided teaching CAI, which can transform the teaching content from complexity to simplicity, from abstraction to concrete, and at the same time increase the interest of teaching. A new teaching idea has been provided for the related courses of mechanical design major.

5. Conclusion

In general, there are still many problems in the teaching of mechanical design major in our country, such as unreasonable curriculum, old teaching mode, monotonous teaching methods, graduates without original design and so on. Therefore, the government, schools and enterprises should focus on strengthening the reform of mechanical design teaching. So as to provide an innovative comprehensive mechanical design personnel.

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