

Research and Practice on Talent Training Model of Mechanical Applied Undergraduate

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Abstract. From a macro point of view, the application type undergraduate programme of mechanical engineering is divided into two kinds, which belongs to the professional field of technology, mainly including the research on the theory of knowledge, the development of new products, mechanical design and manufacture, mechanical operation and maintenance, mechanical experiment and so on; the another is non professional field of technology, including consulting, marketing and management. There are also macro and micro differences between the training mode of mechanical application-oriented undergraduate talents. This article will analyze the connotation and practice plan of the application oriented undergraduate talents training model of mechanical engineering, and put forward personal opinions.

Introduction

The coverage of the application type undergraduate programme of mechanical engineering is very extensive, including mathematics, engineering graphics, material science, profession specific principle, electrical and electronic engineering, mechanical design and manufacture, mechanical operation and maintenance, mechanical test and so on, that requires that students should have the ability of reading accuracy, strong hands-on desire, language knowledge, computer skills, information processing ability and excellent ability of innovation and practice. This paper will give an outline of the requirements of mechanical application-oriented talents, take analyze training mode of applied undergraduates of mechanical engineering from macroscopic and microcosmic angle, discusses the existing problems of the mechanical application oriented undergraduate talents training work , and then discuss the countermeasures to solve the problem.

The Requirements of Mechanical Application-oriented Talent Quality

The basic goal of mechanical application-oriented personnel cultivation is to nurture students to become qualified mechanical engineer, not only to enhance the ability of students' reading, drawing ability, knowledge acquisition and conversion ability, computer operation ability, information processing ability, oral expression ability, writing ability, management ability and excellent ability of innovation and practice, but also pay attention to cultivating students' enterprising spirit, dedication spirit, cooperation spirit and innovation spirit[1]. At present, from a macro point of view, the application type undergraduate programme of mechanical engineering is divided into two kinds, which belongs to the professional field of technology, mainly including the research on the theory of knowledge, the development of new products, mechanical design and manufacture, mechanical operation and maintenance, mechanical experiment and so on; the another is non professional field of technology, including consulting, marketing and management. From a micro point of view, the knowledge coverage of the application type undergraduate programme of mechanical engineering is very extensive, including mathematics, engineering graphics, material science, profession specific principle, mechanics, electrics and electronics, test, mechanical design and manufacturing process, mechanical operation and maintenance, mechanical experiment, control theory and so on[2].

The Definition of Talent Training Mode of the Mechanical Applied Undergraduate

There are also macro and micro differences between the training mode of mechanical application-oriented undergraduate talents. The macro training mode of mechanical application-oriented undergraduate mainly refers to the training mode of talents according to the national conditions and the basic goal of training high-quality mechanical engineers[3]. According to the world education work, the mechanical application-oriented personnel training mode includes three kinds, the United States and Britain are using general mode, France and Germany using the expertise model, other many countries are using the combination mode of generalist and specialist. Viewed from China's national conditions and the basic goal of training high-quality mechanical engineers, China's mechanical application-oriented undergraduate education can adopt the above three models based on specific circumstances. For a prestigious university of the excellent running conditions, high quality of students and undergraduates can continue to study and Research on the theory of knowledge, mechanical design and manufacture, they should use generalist training mode; for second undergraduate colleges, taking the use of specialist training mode. In addition, in order to achieve the basic goal of cultivating high-quality mechanical engineers, colleges and universities can use the combined model of generalists and specialists in order to meet the conditions, that is necessary not only to strengthen the theoretical knowledge of the students, but also attach importance to the use of a variety of comprehensive training activities to improve students' innovative practical skills, and strengthen students' enterprising spirit, dedication the spirit of cooperation, and the spirit of innovation[4].

The microcosmic training mode of mechanical application-oriented talents is that teachers should be based on the course contents of the theory of knowledge, the development of new products, mechanical design and manufacturing, and maintenance, mechanical operation of mechanical experiment, foreign language and so on, integratedly use three talents training mode (note holding three modes that are independent of each other and contact) to design the classroom of combination of theory and practice of for students.

The Current Situations of Talent Training of the Mechanical Applied Undergraduate

The Lack of Government Functions. At present, the lack of government functions is a major problem affecting talent training of the mechanical applied undergraduate, parts of the local governments do not carry out enough publicity for mechanical application-oriented personnel training work of colleges and universities, although have introduced the corresponding policies and regulations, but there is no pertinence, lack of features, and the links of the implementation still exist many gap in the specific policy. In the implementation of the assessment policy, many local governments do not establish effective authoritative professional supervision departments, and are lack of scientific assessment of the effect and know less and less for mechanical talent cultivation of application-oriented undergraduate work, and moreover the education department of the areas or university education department is mainly care for teaching quality assessment and enrollment the comparison, but for what kind of talent need by the enterprise really is ignored. From the microscopic point of view, our government has less investment in education funding, and the source of funds is too single, that now has become an important factor to restrict the education industry, while also restricting the development of China's vocational colleges to a certain extent. If each government department of education funding shortage, will make the school educational funds expenditure decreased, resulting in hardware and software facilities of many colleges and universities to cultivate applied talents in undergraduate mechanical does not has a strong guarantee from the government's fiscal expenditure [5].

The Level of University-Enterprise Cooperation Is Shallow. The cooperation level between universities and enterprises shallow is mainly reflected in two aspects, one hand is the lack of depth of cooperation and cultivating way too single, professional teaching in some colleges and universities of mechanical applied undergraduate only pay attention to the professional skills of the students, and in the enterprise practice period, only the most simple operation skills, however, for

the students' practical ability, occupation morals, occupation planning, comprehensive quality level examination is relatively small. On the other hand refers to the universities did not reach the real seamless with the enterprise about information, lack of initiative in cooperation with enterprises, without considering the actual development from the aspects of education of mechanical applied undergraduate, can not give full play the advantages of students themselves and school education. In addition, when students participate in enterprise training posts, some enterprises worry about students to make mistakes and are not willing to let the students to participate in the actual work, which makes the practice students lost the meaning.

The Talent Training Mode Are Fuzzy And Lag. At present, China's macro perspective of mechanical application-oriented undergraduate training model is relatively vague, and has undergone four great changes. From the Republic of China to the liberation, Chinese mechanical engineering has just started, domestic university is used general patterns used in Anglo American countries under the trend of the Western civilization. After establishment of the new China, having good relations with Sino Soviet, Chinese universities adopted the Soviet specialist training mode in the impact of industrialization construction and planned economy. After the reform and opening up, countries have begun to pay attention to the innovation and practice, serve liberal education as a mechanical engineering concept. From the beginning of 1990s, the innovation is sublimated to be the soul of a nation, whether the famous university or higher education, all take cultivation of high-quality talents as the goal of education. The contemporary mechanical specialty has a wide range of knowledge, large amount of information and strong practice, and employment requirements for talents, skills and quality are very high. However, the current mechanical application-oriented talent training mode has no clear boundaries in the process of development, most universities have ignored the pre-job training for students, and can not meet the jobs requirements for high-quality mechanical engineers.

On the other hand, because the model has experienced from the long-term changes in the training of our mechanical application-oriented talents, inevitably influenced by the traditional education factors, so there is a certain lag, so to speak the present education training mode of the mechanical application oriented undergraduate talents does not adapt with educational business and employment market demand. Although from the beginning of twenty-first Century, the education sector has been advocating reform, creating mode and method of teaching, changing the teaching idea, and paying attention to the development of students' practice and, however, there are many teachers who still did not get rid of the traditional thought, teaching method relatively backward and lack of innovation and practice. Moreover, in the multimedia environment, there are many teachers who take writing content directly into the courseware, breeding the new breed of "What I say goes.", ignoring the dominant position of students, for students not leave enough time, that is not conducive to improving teaching quality.

The Way to Deal With a Situation

Give Play to the Government Function. The government must optimize the educational function, to provide adequate funding for education work for mechanical applied talents, establish effective professional supervision departments to evaluate the work. In many European countries, the government industry association plays a very important role in schools and enterprises, such as the German Industry Association to beneficial information to make full use of the platform, the domestic enterprise information, school personnel information, the social demand for talent can do statistical analysis of scientific periodical, and for schools, enterprises, cultivating professional talents of the real needs of the society and seamless docking, and the integration of the information sent to the unified platform, which makes the enterprises and schools to get the information of the industry, promote the cooperation.

Reasonable Distribution of Social Resources, Strengthening the Cooperation between Colleges and Enterprises. Universities should work together to optimize the mechanical and enterprise application oriented undergraduate talent training mode, establish an effective platform for cooperation, so as to better promote the cooperation between the two parties, good mechanical

application oriented undergraduate talent training. We can learn from the foreign excellent cooperation in the case of the formation of industry organization should belong to the best option in the increasingly fierce market competition, relatively mature enterprises will promote the school and enterprise cooperation in a certain extent, but also promote the quality of cooperation. Therefore, China's current school enterprise cooperation should also adhere to the provisions of the government under the guidance of industry norms, to enhance their strength and competitive advantage, to find their own the advantage of the industry. Only to establish good cooperation relationship, can be beneficial to the promotion of enterprises and colleges applied talents with high efficiency, high quality.

Optimize the Personnel Training Model to Make up for Defects. Teachers should try to make up for the defects of traditional education, get rid of ambiguity and lag problems, optimize the talent training mode. The first thing to do on the knowledge, the development of new products, mechanical design and manufacturing, and maintenance, mechanical operation of mechanical experiment, education courses in foreign languages. Second, teachers should pay attention to the improvement of students' comprehensive knowledge the level of practical skills and ability to work, based on the training of senior mechanical engineer ". Teachers will be" cultivating high-quality applied talents "as the new teaching ideas, promote the organic combination of theory and practice teaching of machinery, guiding students to make use of theoretical knowledge in practice, using theory to guide practice, with the theory of practice. Hold interesting practice skills competition and Innovation Contest for students in the whole teaching process, let students use the theory of knowledge in activities, give full play to their wisdom Wisdom and ability, stimulate students' innovation consciousness, strengthen students' creative ability. Some college teachers once worked in mechanical engineering in application oriented Undergraduate Education in metalworking, CAD and Turner, fitter contest, so as to effectively enhance the learning interest of the students, understand and test the reading ability and practice ability of students, and to guide students to finish the mechanical manufacturing and processing. In addition, teachers should constantly improve teaching methods, optimize the training program of Applied Undergraduates of mechanical engineering, adhere to the principle of "combination of engineering teaching and practice in the teaching process, the integration of mechanical drawing, descriptive geometry, engineering drawing, new knowledge of Auto CAD and CAD, to promote the new curriculum. The mechanical principle and the integration of machinery manufacturing, electronic design practice in the course of electrical and electronic engineering education, so as to continuously enhance the classroom vitality, promote the applied undergraduate education mechanical hair Show.

Conclusion

In summary, the cultivation of application-oriented personnel mechanical basic goal is to nurture students to become qualified mechanical engineer. Not only to enhance the ability of reading, students' drawing ability, knowledge acquisition and conversion ability, computer operation ability, information processing ability, oral expression ability, writing ability, management ability and excellent ability of innovation and practice moreover, attention should be paid to cultivating students' enterprising spirit, dedication, spirit of cooperation and innovation. To promote the development of mechanical application oriented undergraduate education, local politics should vigorously support the education work, to provide sufficient funds for education, schools, enterprises, cultivating professional talents of the real needs of the society and seamless docking; reasonable distribution of social resources, strengthen cooperation, adhere to the provisions of the government under the guidance of industry norms, enhance their own strength. The competition advantage, and find their own advantage industry; moreover, teachers should constantly innovate and optimize personnel training mode, based on" the training of senior mechanical engineers", promote the organic combination of theory and practice teaching of machinery.

References

- [1] Ming Zhe. Research and practice of the training model of Applied Undergraduates Based on numerical control technology in mechanical design, manufacture and automation. [J]. Automation of Manufacturing Industry, 2012 (02)
- [2] Ma Jian, Jiao Shengjie, Gu Jian. Research and practice of training model of industrial machinery specialty [J]. University Development and Evaluation, 2016 (11)
- [3] Xu Haizhi. Research on the innovation mechanism of school enterprise cooperation in Accounting Specialty [J]. Education and Vocation, 2014 (801).
- [4] Yang Lijun. Research and practice of training mode of Applied Undergraduate Talents in electrical engineering and automation. [J]. Journal of Liaoning Institute of Science and Technology, 2014 (06)
- [5] Liu Yue. Research and practice of training mode of Applied Undergraduate Talents in electrical engineering and automation specialty [J]. Journal of Liaoning Institute of Science and Technology, 2013 (09)