

Research on Talent Training Mode of Applied Undergraduate Material Chemistry Specialty

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Abstract: With the continuous progress of science and technology, the society puts forward higher requirements for material chemistry professionals. More and more attention has been paid to the practical training of students in China. The Ministry of education clearly requires that some colleges and universities should transform to application-oriented undergraduate. As a practical course, material chemistry specialty, which has the characteristics of many fields, is doomed to be unable to carry out personnel training in the traditional mode. Therefore, on the basis of expounding the necessity of exploring the talent training mode of applied undergraduate material chemistry specialty, this paper puts forward the talent training objectives of material chemistry specialty, and six suggestions for the talent training mode of material chemistry specialty. It is hoped that it will be helpful for the application-oriented undergraduate to establish the talent training mode of material chemistry major, and inspire the students of related majors.

Keywords: Applied Undergraduate; Material Chemistry Major; Applied Talents; Training Mode

The full name of application-oriented undergraduate course is applied technology oriented undergraduate, which focuses on application. Its orientation of running a school is the type of applied technology rather than the academic type in people's inherent thinking. In recent years, the Ministry of Education has made it clear that some colleges and universities should transform to the application-oriented undergraduate. With the change of social development needs, China also pays more and more attention to practical teaching and the cultivation of applied technical talents. As an interdisciplinary discipline, material chemistry is the foundation of industrial technology development in many fields, and is also a hot subject which is expected to achieve significant results. Most of the materials chemistry majors are set up in local universities. Due to the practicality, exploration and innovation of material chemistry, the personnel training mode of this specialty should not be the same as that of academic undergraduate education, but should be oriented to the application-oriented undergraduate training mode. Therefore, it is necessary to explore the talent training mode of applied undergraduate material chemistry.

1. Personnel training objectives of material chemistry

Combined with the related fields of material chemistry, understand the current social talent demand, based on the school running philosophy of each school, we should formulate the talent training objectives of material chemistry specialty, and cultivate the applied talents of chemical materials specialty that can meet the requirements of the times. The application-oriented undergraduate should emphasize the practice-based and innovation oriented cultivation of all-round high-quality talents who firmly grasp the professional theoretical knowledge, skillfully apply the learned knowledge, and have the ability to adapt to the society quickly, so as to keep up with the progress of social development and meet the changing needs of the

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society, meet the needs of national development and technological innovation, and realize the goal of serving the motherland and contributing to the society.

2. Personnel training mode of material chemistry

(1) According to the requirements of the syllabus, combined with the social demand for talents' professional ability, this paper constructs the curriculum framework required by the major, analyzes the repetition and emphasis of the contents of each course, and cuts or integrates the courses, so as to achieve the ideal effect of imparting the most comprehensive knowledge in the least time. Courses with high repetition in content can be deleted, and courses with different emphasis but highly related can be integrated.

(2) According to the importance of the course, the course length and teaching schedule should be arranged scientifically. We should not blindly compress the class hour arrangement of the course. On the premise of ensuring the students' high acceptance, we should reasonably reduce the class hour arrangement of directional courses, increase the classroom teaching time of important professional courses, and ensure that students are proficient in basic professional theoretical knowledge, in order to reserve more autonomous learning time for students as far as possible, cultivate students' ability to find and solve problems by themselves, and develop the habit of collecting materials and reading independently. For example, we can delete the constant temperature, maintenance and other process class hours in engineering test, and increase the interaction between professional teachers and students. Through these measures, we can cultivate students' ability to arrange time independently, strengthen the communication between students and professional teachers, and let students have a more comprehensive and in-depth understanding of the specialty, so as to enhance students' enthusiasm and initiative for professional learning. By setting up courses such as engineering practice and putting the classroom on the working site of the practice base, students can have a more intuitive understanding and insight for their major and understand the talent needs of enterprises.

(3) According to the current social needs, we can cultivate application-oriented talents as the starting point and end point, improve professional equipment and facilities to meet the needs of students in a variety of experiments. According to their own interests and hobbies, employment needs and future planning, students can freely choose experimental equipment to carry out experiments. Students with employment needs can arrange enterprise tutors to guide them and cultivate relevant knowledge and skills required for their ideal positions. At the same time, it can optimize the scoring and award evaluation measures, include the students' job performance into the reference range, comprehensively investigate the students' mastery of theoretical knowledge, autonomous learning ability, experimental effect, tutors' opinions outside school and enterprise evaluation, so as to cultivate all-round development talents, train students' ability to adapt to the society in advance, and achieve win-win results for students, schools and enterprises.

(4) With the support of national policies and the efforts of the university, we should change the existing academic education concept as soon as possible, plan the construction of teachers, and create a teaching team dedicated to training applied undergraduate material chemistry professionals. Senior engineers with working experience in enterprises are employed as the guidance teachers for students' engineering experiments, and academic teachers are encouraged to provide intellectual support for counterpart enterprises and enhance practical engineering cognition. In order to serve the students better, we should divide the tasks of the existing teachers and the school can try to cooperate with enterprises more. Enterprises provide practical posts for the school, so that students can effectively contact the application of professional knowledge. The school provides labor for enterprises to solve the employment crisis of enterprises in the peak period. In addition, the school and enterprises can try to build laboratory together to jointly research and develop engineering projects. Both sides can play their own advantages and ultimately achieve the goal of mutual benefit.

(5) According to the needs of economic development, this paper compares the development of different colleges and universities, and strengthens the communication and cooperation between universities and enterprises, and between colleges and universities. First of all, based on the social needs, combined with the development situation of colleges and universities, we should choose the direction with relatively large vacancy or obvious advantages to strengthen the training, cultivate the applied talents needed by enterprises, and more importantly, cultivate outstanding and top-notch professional leading applied talents. Different colleges and universities choose suitable cooperation units according to their own professional development

direction and carry out practice activities regularly. Colleges and universities should clarify the direction and content of practical teaching with enterprises, and test the practical results, so as to avoid blindness, formalization and hollowing out of this link. The joint training mode of colleges and enterprises can effectively reduce the financial and material burden of colleges and universities, and effectively improve the participation of enterprises in the cultivation of application-oriented professionals, so as to effectively improve the professional quality of students in the relevant direction, enhance the adaptability and survival ability of students in the future, and broaden the employment channels of students; at the same time, it can also strengthen the technology between colleges and enterprises exchange, constantly promote innovation, and accelerate the development of material chemistry. Different colleges and universities should also strengthen contact and communication, in the communication between the two sides to find their own advantages and the other's advantages, to learn from each other, save teaching costs and improve the quality of teaching. Meanwhile, it is conducive to strengthen the communication between students in different colleges and universities and broaden their interpersonal relationship.

(6) Establish and improve the supervision and feedback mechanism. For the students trained under the existing training mode, the school should timely investigate and understand the relevant situation of the students, timely understand the development trend of the industry, and broaden the feedback channels of the students; for the graduates who have entered the society, it is necessary to carry out relevant investigation, timely understand the help degree of the relevant policies of the school for the graduates in the enterprise work, and timely for the existing talent training mode. For the students who have not contacted or will contact the professional direction, we should investigate and understand the relevant needs of students, and constantly improve the existing curriculum framework and talent training mode.

3. Conclusion

As the society puts forward new requirements for the talents of material chemistry, colleges and universities should adapt to and strive to meet the needs of the times as soon as possible, speed up the reform to the direction of application-oriented undergraduate, and clarify the training objectives of material chemistry professionals. Taking the opportunity of constructing the talents training mode suitable for application-oriented undergraduate material chemistry specialty, the teaching content, curriculum system and teaching staff are updated to improve the teaching quality of material chemistry specialty; the practical application ability of students in material chemistry specialty is cultivated, and the social adaptability of students is enhanced; the communication among different universities, colleges and enterprises are strengthened to promote material chemistry professional innovation and development, and to promote the construction of other disciplines.

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