Teaching and Practice for Polymer Material Molding and Processing
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Abstract. The teaching and practice for polymer material forming and processing improves the theory teaching and practice teaching highly. The extracurricular investigation is the supplement and promotion greatly to the theory teaching and practice teaching. The students’ participation in scientific research cultivates the students’ professional skills and professional quality. The teaching results show that students are satisfied with the teaching process and gain the knowledge and skills. And the students are of the overall quality suit for engaged in forming and processing industry.

Introduction
Beijing Institute of Communication started the linkage mechanism of enrollment, training and employment since 2014 [1, 2]. Especially under the situation of Engineering Education Accreditation in the booming [3], the construction of course has very important practical significance to further improve the teaching level and teaching quality and give a strong support to the professional accreditation of engineering education [4].

Teaching of Theory Knowledge
The theory teaching is systematically reformed, which includes teaching content, teaching mode and knowledge development.

Modification and Optimization of Courseware
The layout of PPT is rescheduled, and the font, font size, line spacing and deepen are revised, so each PPT with text smooth and beautiful font and reasonable spacing is made. The optimized content gives prominence to the key points and obtains distinct levels after the content of each PPT is optimized. Expand knowledge including patents, documents and other text is added in the teaching content, the students can get other appropriate information. In short, the optimized courseware attracts students, the learning interest of students is inspired and the more information is increased in teaching content.

Improvement of Teaching Mode
The concept of teacher as the leading and students as the main body is the main teaching mode of this course. The teachers actively guide students to carry out inititively the construction of knowledge.

The use of ask and answer between teacher and student or teacher self and so on makes the thinking of students actively. The writing on the blackboard adjusting the teaching rhythm not only gives the time of review and thinking of students, but also makes the students understand the focus of knowledge.

The activities of teachers and students are very important in the teaching. In the teacher's activity of each lesson, the knowledge of the last class is reviewed, and then gives the introduction of new knowledge, and finally teaching content is taught in detail. In the student activity of each lesson, the main contents of the last course is reviewed, and then the introduction of new content is understood.
briefly, further the details of the new teaching content are listened by the students with the teacher's teaching rhythm.

**Development of Knowledge**

The introduction of the latest research results is very important in the course of teaching. The advanced results include the research papers, patents, companies and so on, which is the supplement to the teaching content. These not only make the content of the lecture more than stay in the contents of the book, but also make the content of the teaching be of the time character, fresh and personality.

The interesting of students to explore new knowledge and students' inquiry learning is stimulated. Especially the combination of the teaching content and the production of related enterprises makes students have the ability to combine theory and practice, and gradually have the ability to raise questions, analyze problems and solve problems. At the same time, the students' career planning is inspired certainly.

**Teaching of Practice**

The teaching of practice mainly includes basic experiment, content, voluntary extended experiment and extracurricular research.

**Basic Experiment**

Some of the basic experiment are set, which must be done. The arrangement of basic experiment is in accordance with the polymer materials, plastic product sampling, sample’s performance test and extrusion blow molding plastic products. The arrangement of experimental time is in accordance with the progress of teaching of theory knowledge. The basic experiments made students to master the basic knowledge of the theory through experimental activities and to deepen the understanding of theoretical knowledge, and to be of the ability to operate initially and actually.

**Extended Experiment**

The extended experiments are set up, which are independent, exploratory and research experiments. The students carry out these experiments with a flexible way. Experimental content includes the production of thermoplastic plastic bag, the barrier property test of plastic film, the thickness test of plastic film, the preparation of paper plastic composite flexible packaging materials, the oxygen index test of plastic product, the production of extrusion blow molding plastic film and its application for fruit and vegetable packaging.

The setting of extended experiments is closely related to printing and packaging characteristics. The students not only expand the knowledge and improve the practical skills, but also students can master the total knowledge of polymer materials, molding processing polymer materials and printing and packaging materials and its application which makes students not only see the trees and also see the forest. Furthermore, the students can the characteristics of printing and packaging and professional knowledge.

**Extracurricular Investigation**

The extracurricular investigations are arranged in order to further improve the students' theoretical knowledge and practical skills. The more importance is to improve the comprehensive quality of students. The extracurricular investigations include literature, product collection, network survey, enterprise survey and other aspects. The students can get the latest knowledge and market information by consulting the literature. All kinds of polymer products can be collected from the supermarket market, so the students experience the properties and applications of plastic products made with the resins by molding and processing. The equipments, process technology, polymer materials and products, mold and the new development can be collected by network survey. The
network search tools include Baidu, 360 and google and other search tools. The production of plastic materials and products and its application fields and application ABC can be obtained by business survey, and business survey is helpful to cultivate students' dedication spirit. In short, various investigation activities made students gain not only knowledge and skills, but also related quality engaged in industries.

Learning Materials

In order that students better grasp the professional knowledge, the recent research achievements related to teaching are obtained through CNKI database, Wanfang database and outstanding PhD thesis database. The research achievements include polymer materials modification and rheology science, forming and processing and so on. Those learning materials are edited to form the learning proceeding, which provide the students to expand the knowledge and guide the students to acquire knowledge ability initiatively. The mold, equipment, products and research institutes and so on can be searched by the Baidu, so the students will be expanded to the related knowledge fields, and obtain the actual situation of the enterprise and the market except of forming and processing knowledge.

Participation in Scientific Research

The students will be encouraged to combine theoretical knowledge with practice and improve the ability to engage in research and development of product. There are two ways for the students to participate in scientific research activities. The one way is the students’ participation in college students’ scientific research program. The other way is the students’ participation in the teacher's research projects. In recent years, the students participate in the college students' scientific research projects from Beijing institute of communication and Beijing city. Some students study the functional plastic packaging materials or film and its application in the preservation of fruits and vegetables to extend the shelf life. Some students participate in the teacher's industrialization projects such as low solvent residue polypropylene printing and packaging materials and the preparation of polyethylene packaging film with oxygen absorption function, which make the students not only has deep feelings to plastic material preparation and formulation design and plastic film forming, but also are familiar with the actual production equipment and process and technology, understand the equipment operation method and master the operating skills, obtain new plastic materials and product development and test ideas. The students have the comprehensive quality to engage in plastic materials forming and processing and have the actual experience to engage in technical work and management.

Summary

The teaching and practice for polymer material forming and processing improves the theory teaching and practice teaching highly. The extracurricular investigation is the supplement and promotion greatly to the theory teaching and practice teaching. The students’ participation in scientific research cultivates the students' professional skills and professional quality. The teaching results show that students are satisfied with the teaching process and gain the knowledge and skills. And the students are of the overall quality suit for engaged in forming and processing industry.

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