

## Original Paper

# Introduction to the Reform Direction of Vehicle Engineering

## Major

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### **Abstract**

*In the era of modern technology and information development, the automotive industry is expanding, and the demand for talents in the automotive industry is getting richer and richer. Faced with the continuous promotion of the “new four” in the automotive industry, universities need to make corresponding adjustments to the current problems and future trends of the industry development in the education and teaching courses of vehicle engineering, and consider how to cultivate comprehensive talents who can promote the development of the industry in the flood of the new era. Based on this, this paper focuses on the new requirements of the automotive industry for the comprehensive quality of talents, takes the needs of the industry as the guide, reconstructs the new mechanism of combining industry-university-research, carries out joint training of school and enterprise, builds a research-oriented and open engineering practice teaching system, establishes a part-time teaching team with engineering background, strengthens students' engineering ability, innovation ability and team cooperation ability, and realizes the docking of talents cultivated by school and talents demanded by enterprise. To establish a new mode of training talents in vehicle engineering.*

### **Keywords**

*Vehicle engineering, Teaching improvement, Sub-direction*

## **1. Analysis of the Current Situation of Vehicle Engineering Teaching**

Many colleges and universities in order to adapt to the development requirements of the times, opened with the vehicle specialty, these graduates after entering the talent market, employment pressure increased. Many graduates of automobile industry have weak practical operation ability and insufficient innovation consciousness, these weaknesses affect the employment quality and employment rate of graduates, and the rapid development of automobile industry makes the service object and vehicle type

of automobile service industry change, forming a fault line of industry and talent development. Vehicle engineering is based on the professional standards of the industry, mastering the basic knowledge and professional skills involved in the profession, and having the basic ability to solve the practical problems in the field of automobile service as an applied senior talent, focusing on the understanding of professional knowledge and involving a wide range of fields. This leads to a wide range of subject content, and most students are not interested and motivated to learn, teaching courses are similar to vehicle engineering, but the teaching requirements of some courses are superficial to the course content.

Many courses learned in vehicle engineering and vehicle engineering overlap too much, resulting in professional competitive advantage is not obvious. Under the trend of “new four” in automobile industry, the field of vehicle engineering is not only limited to sales and claims service, but also the safety of intelligent networked vehicles, new energy vehicle safety and travel service safety, which become the primary problems that need to be solved in the promotion of “new four” in automobile. The primary problem. Facing this development trend, the existing training mode and teaching materials are not enough to support the cultivation of vehicle engineering talents. Therefore, universities need to constantly update and improve the professional curriculum, constantly improve the existing education and teaching mode, grasp the future direction of the industry in the context of the new era, and cultivate comprehensive talents for the automotive industry.

## **2. Problems of Teaching in Vehicle Engineering**

### *2.1 The Focus of Curriculum Setting is not Obvious*

The traditional vehicle engineering is mainly based on courses related to automobile application, besides, there are courses related to economy and management, etc. The contents of these courses hardly reflect the characteristics of vehicle engineering. At present, the teaching mode of vehicle engineering in XHU is similar to that of automotive service engineering, and students cannot intuitively understand the development direction of the major. In addition, certain overlapping courses are learned more in vehicle engineering, which results in the phenomenon that vehicle engineering is broad but not deep, and lacks professional-specific courses. In addition, used car appraisal, auto accident identification and other mandatory courses have not received the attention of the college and students, and students spend less time in the learning process, and cannot absorb the theoretical knowledge and have insufficient practical experience.

### *2.2 Insufficient Teachers*

With the continuous increase of car ownership, the automotive industry covers more fields and produces more jobs. It can be said that the automotive service industry is such an emerging profession that has been born, so much so that universities have not popularized the master or doctor of this direction of study. Secondly, most of the teachers who are teaching have no experience in the automotive industry, lacking certain practical experience and channels to update news, which makes

them not close enough to the new situation of the automotive industry and out of line with the new technology, making it difficult to combine the cutting-edge and authoritative industry news with teaching.

### **3. Proposed Improvement Measures**

#### *3.1 Establishing Professional Characteristics*

The items of auto service are various, such as like auto sales, auto repair, roadside assistance and auto insurance. Therefore, a wide variety of employment directions give vehicle engineering graduates more employment options, and also put forward higher requirements for professional personnel training. First of all, vehicle engineering needs to be distinguished from other engineering majors, such as automotive service engineering, can not just borrow the training mode of other majors, to gradually form its own professional characteristics, to train comprehensive talents in the automotive service industry. At present, the focus of vehicle engineering in our university is on cultivating the basic ability to solve practical problems in the field of automobile service, and the professional orientation is not obvious, so we can consider automobile accident identification and automobile marketing and planning as key subjects. Make full use of the resources of the Accident Analysis and Identification Institute of Xihua University, so that the course of “Automobile Accident Identification” can become a special course and the examples of accident identification can be deeply penetrated into the classroom. At the same time, the Accident Identification Institute is a platform for theory and practice, and the university can consider setting up corresponding internship positions in the Institute that are open to undergraduate students to train students with professional knowledge and software, so that they can understand the accident identification process and related preparatory work and have the ability to analyze traffic accidents. Secondly, “Automobile Marketing and Planning”, as a course open only for vehicle engineering majors, should be made to the advantage of the undergraduates of this major.

#### *3.2 Diversification of Faculty Members*

Vehicle engineering majors have high requirements for the combination of theory and practice, and need to keep pace with the development of the industry. At present, the cultivation mode of major universities is more inclined to cultivate talents in automotive after-market and management, then it must focus on the connection between classroom and practice. They can bring more front-end knowledge of the industry into the classroom, lead students to analyze information in the industry from a perspective different from that of college teachers, and bring students to think in a way that is more closely integrated with practice, and also cooperate with automotive enterprises in talent training. This approach creates a strong corporate culture while also saving the school money on practical training equipment. On the other hand, teachers can adjust the teaching plan and update the teaching content according to the actual production situation and market development direction of enterprises, so that the teaching content can keep pace with the development of the times and truly realize the seamless connection between theoretical teaching and practical teaching to promote the overall development of

students. The implementation of introducing enterprises into the school can help students expand the breadth of theoretical knowledge and deliver excellent undergraduate graduates to enterprises at the same time, which is a win-win initiative.

### *3.3 Cultivation Mode by Direction*

The school can consider dividing the major into two directions in the academic year after the public courses are finished for students to choose freely. One direction cultivates talents in technical fields, mainly responsible for automobile repair and maintenance, accident analysis, etc.; the other direction cultivates talents in management and sales of automobile enterprises, mainly responsible for managing automobile enterprises, 4S store marketing planning, automobile sales, etc. The different focus of the curriculum enables students to study the content of their chosen courses in depth, and to train certain professionals in the same field in a targeted manner. The training mode of direction can be reflected in the curriculum: for students who choose the technical direction, the courses of “automobile chassis structure”, “automobile electrical and electronic control” and “automobile accident identification” can be set as mandatory courses, and the courses of “automobile electronic commerce” and “automobile insurance and claims” can be set as elective courses; for students who choose the direction of marketing management, the courses of “automobile service enterprise management”, “foreign language of vehicle engineering” and “automobile sales” can be set as elective courses. Foreign Language for Vehicle Engineering” and “Automobile Marketing and Planning” are set as compulsory courses, and “Automobile Engine Structure” and “Automobile Chassis Structure” are set as elective courses. Students can choose different study directions according to their future employment intentions. The compulsory courses allow students to systematically learn the knowledge involved in the direction to lay a solid foundation for future employment; the elective courses help students to expand the knowledge involved in the automotive industry. The intersection and combination of required and elective courses can cultivate comprehensive talents in the automotive service industry in a more targeted manner.

## **4. Conclusion**

Facing the wave of changes in the automotive industry, many students have a vague employment direction for this major, and their cognition of the market is not clear enough, and the development trend of the industry is not clear enough, so the training mode of the vehicle engineering major needs to follow the development changes of the industry to make corresponding adjustments. In view of the current situation and problems of vehicle engineering in our school, it is suggested to implement the training mode of sub-direction, and to train talents with different focus on technology and management, so as to form more distinctive professional characteristics. At the same time, it is necessary to optimize the teachers' strength, improve the quality of classroom teaching, tap the depth of theoretical knowledge, keep a finger on the pulse of the industry development, and devote to cultivating comprehensive talents in line with the industry development.

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