

Discussion “2 Platforms + 3 Modules” Education Program Applied Automotive Service Engineering in Application - oriented Universities

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Abstract. Application-oriented university mission is to develop a strong adaptability of high-quality talents. This paper is to study the new training program about Automobile Service Engineering major. Firstly, reconstruct expertise system tables of the Automobile Service Engineering; secondly, embody quantitative indicators of practical projects; thirdly, innovate talents and enhance the quality of personnel training, which is good for the development and improvement of Application Personnel Training program.

1 Introduction

The fundamental task of universities is education. The carrier of education is professional major^[1]. The key of major is training program, which embodies the school's guiding ideology, orientation, educational level and running features. Also the training program is blueprints to achieve training objectives, main basis to organize teaching and arrange teaching task, basic documents to monitor and evaluate education quality.

The training goal of applied undergraduate colleges is to focus on building distinctive characteristics, adhere to the regional economic and social needs and employment-oriented, under the premise of fully market research, build curriculum theory and practical teaching structure, improve the curriculum, optimization training program^[2]. This article will focus on the design and characteristics of “2 platforms + 3 modules” education program in Automotive Service Engineering, research on the structure of Automobile Service Engineering undergraduate training program.

2 Connotation of Automotive Service Engineering “2 Platforms+3 Modules” Education Model

i Connotation of “2 Platforms+3 Modules” Education Program

“2 platforms” is the subject of basic education platform and general education platform. Depending on the industry and market generic capabilities of personnel needs, innovative general education platform construction, highlight “project” feature of automotive service engineering in general education platform. Depending on the needs of training professional basic capabilities, strengthen basic education platform, reflect mechanical characteristics of the automobile Service Engineering in basic education platform. “3 modules” is a professional core competencies module. According to the demand of industry capacity, automotive service engineering can establish three modules adapt to the training goal. The main feature of the training program is relatively stable of general education platform and discipline-based education platform and dynamically adjustment of professional capability module according to market change^[3]. The structure is shown in Fig. 1.

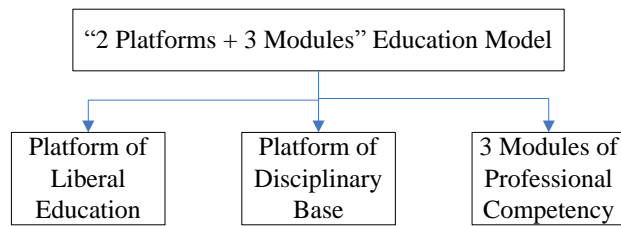


Figure.1 Schematic Diagram of “2Platforms +3Modules”

ii Main Features of “2 Platforms+3 Modules” Education Program

“2 platforms + 3 modules” education model of Automobile Service Engineering is based on the needs of industry’s development, which further clarify training goal of applied talents adapt to the production, management and service line based on the analysis of the production line requirements on professional competence. The main features of the training program is to study the core competencies in-depth of Automobile Service Engineering, to build flexible curriculum combination of "three modules" according to industry and market capacity needs, to implement dynamic combination, to form a market-oriented course system ,to highlight the practical ability, to develop innovation and engineering quality. Establish curriculum dynamic adjustment mechanism, adjust course structure to optimize capabilities and enhance students' social adaptability according to economic and social development needs of the professional competence.

3 Teaching System content of “2 Platforms + 3 Modules” Education Program

Education program of "2 platforms + 3 modules" reconstructs a new teaching system, which combines the theory and practice, knowledge and technique, learning ability and social skills. It’s shown specifically in the following three areas.

i Construction of Automobile Service Engineering Training Mode Teaching Content and Knowledge System

According to automotive service engineering “2 platforms + 3 modules” education model, construct teaching content and knowledge system adapt to professional training objectives. In formulating teaching content and ability foundation of general education platform and discipline-based education platform, module capacity can be determined based on professional capacity of the professional core competencies and curriculum requirements. In determining the professional core competencies and curriculum, integrate CDIO engineering education model and industry certification program content based on market demand [4]. The teaching content and knowledge system of Automobile Service Engineering “2 platforms + 3 modules” education program is shown in Table 1.

Table 1 Teaching Content and Knowledge System of Automobile Service Engineering

Platform/Module Name	The Ability to Express	Specific Contents	The Course Category of Correspondence Training Program	Main Courses
Liberal Education Platform of Engineering	Ability to Apply Basic Knowledge and Quality	Basic and Generic Computer Use Capability	General Education	Related Courses 1
		Ability to apply English		
		Ability to Apply Using Mathematical Knowledge		
		Human Spirit and Moral Qualities		
		Physical Fitness		
Disciplinary Base Platform of Mechanical	Subject Generic Capability	Engineering Capability (Analysis, Calculation, Basic use)	Basic Course of Subject	Related Courses 2
		Electric and Electronic Basic Proficiency		
		Engineering Graphics Capabilities		
Module Capacity	Vehicle Management Capacity	Vehicle Planning and Matching Ability	Basic Professional and Specialized Courses	Related Courses 3
		Vehicle Operation Process Management Ability		
		Car Repair and Crafts Design Capabilities		
	Vehicle Inspection and Maintenance Capability	Automotive Testing and Troubleshooting Capabilities		Related Courses 4
		Automotive Repair and Maintenance Capability		
		Automotive Marketing Capability		
	Vehicle Service and Management Capability	Assess the Damage, Claims, Evaluation Capacity		Related Courses 5
		Automotive Service Business Management Skill		

ii Building Practical Teaching System With Ability As a Main Line

Depending on the applied talents training requirements, determine the main role of practical teaching content in training program combining characteristics of Automobile Service Engineering professional development, optimize four categories of practical teaching links including class lab, school training, campus internship and graduation design (thesis), achieve four levels' goal including the professional basic training, special ability, professional competence and comprehensive quality, reach a practical teaching system which can train talents of the whole process, build innovative, effective and valuable practice project development mechanisms, increase comprehensive and innovative pilot projects, increase internal and external laboratory opening up, exert application-oriented universities advantages on playing an active role in innovation and comprehensive application. As shown in Table 2.

Table 2 Practice Teaching Contents and Knowledge System of Automobile Service Engineering

System	Practice Teaching Category		Practice Teaching	Practice Teaching Capacity Requirements
Practical Teaching System	Basic Ability	Common Base Practice	School Education and Military Training	Develop students have a good political quality, professional thinking, and basic military knowledge, skills and ideas and national defense concept
			Employment and Entrepreneurship Education	Develop students have employment and entrepreneurial concept
			Metalworking Practice	Develop students have basic traditional and modern processing skills
			Public Basic Education Curriculum Experiment	Training basic experimental skills and experimental abilities
	Specific Ability	Professional Basis Practice	Engineering Mechanics Experiment, Electrical and Electronic Technology Experiment	Training professional basic experimental skills and organizational test ability
			Cartography Mapping	Training computer graphics capabilities and integrated mapping capability
			Cognition Practice	Understanding Working environment and job market requirements set
			Automotive Sheet Metal Practice	Develop basic automotive sheet metal repair technology and processes ability
	Application Capabilities	Professional Capacity Practice	Car Decoration and Beauty	Develop toner and fast repair capacity
			Automobile Dismantling Practice	Training students to master the proper using of car dismantling tools and instrument settings, correct disassembly, adjustment and major components of each system and grasp the basic structure and working, etc.
			Automotive Electrical Equipment System Maintenance Training	Training students to master basic knowledge and skills of automotive electrical equipment structure, the basic working principle, use and maintenance, testing and commissioning and fault diagnosis
			Automotive Market Research and Business Practice	Training students to master the method of automotive aftermarkets survey and forecast, the operation of automotive logistics, automotive 4S business model and business processes
			Vehicle Inspection and Repair Practice	Training students to master basic use of car repair tools, simple device repair
	Comprehensive Capacity	Comprehensive professional Practices	Graduation Practice	Training practical application ability
			Graduation Project (Thesis)	Training Comprehensive design, research capacity

iii Construction of Comprehensive Quality and Ability Education System

“2 platforms + 3 modules” education program takes more attention to the students' comprehensive quality education and comprehensive capacity building from the basic contents and construction sense, which reforms the original two modules with comprehensive quality and ability upgrading to four education modules, namely "moral training and education", "scientific and technological innovation ability," "professional competence promotion" and "social practice exercise" and so on, and which makes continuity, consistency, practicality and innovative quality education for an effective unity. Meanwhile, “2 platforms + 3 modules” education program improves the assessment of student credits; organically innovates characteristics of applied Universities according to the level of students in scientific research and the level in social practices. As shown in table 3.

Table 3 The Overall Quality Educational System of Automobile Service Engineering

Type	Project	Contents
Moral Training	"Eight Thematic" of Moral Training	Loving education, law and discipline education, integrity education, responsibility education, Self-education, innovation education, entrepreneurship education, dedication education
Scientific and Technological Innovation Ability	Papers Published	Published in scholarly journals
	Subject Contest	Participate in scientific and technological disciplines contest
	Research	Participation of teachers or business research
	Intellectual Property	Intellectual Property Declaration
Vocational Capacity Building	Non-English Professional Certificate	Get CET-4 or more certificates
	Computer Certificate	Taking part in National/university computer grade exam, obtain a certificate
	Vocational Skills Certificate	Vocational (practice) skills certificate
	Driver's License	Participate in car driving training, get a driver's license
Social Practice Exercise	Participate in Literature, Arts and Sports Activities	Participate in literature, arts and sports activities at all levels
	Social Practice	Participate in social investigation, social services (volunteers, large-scale performances and other programs), sending science and technology, culture, health to countryside, work-study and cold summer social practice, and to submit all kinds of social practice report

4 Role of "2 Platforms+3 Modules" Education Program Teaching System in Automobile Service Engineering

i Role of Teaching Content and Knowledge System Table of "2 Platforms+3 Modules" Education Program in Automobile Service Engineering

It should be noted that in three capacity module settings, there are several functions. One is to refine the Automobile Service Engineering undergraduates' ability. on the basis of considering undergraduate ability, combined with the actual needs of automotive after-market development, Provide effective reference for the running direction of Automobile Service Engineering Master in application oriented university. The second is to set up a more scientific ability direction. Combined with the employer's capacity requirements for personnel, setting related courses, Implementing appropriate teaching reform on course, Developing a "project of talent" as the goal, Reform education system, Implementing the "Integration" or "process-oriented work" teaching method, achieve "zero distance of businesses and schools on teaching. The third is to embody and clear the student's learning goals. By setting the refining capacity of the module, the students can be organically combined with the ability, to organic unity of knowledge and capacity needs, students can organic unity of purpose and enthusiasm.

ii Role of Practice Teaching System Tables

In practical teaching system Training Ability as the main, there are mainly three effects as following. One is refining the requirements of ability, embodying capabilities content, creating a student-centered teaching system, highlighting the market demand and the requirements of professional competence. The second project is setting the scientific and professional practice issues. From the public infrastructure practice, basic professional practice, professional competence practice to the Comprehensive practice, such four inter-related sessions, on the basis of meeting the needs of Previous level, guide the demand of next part, reflecting the hierarchy, progressive, logic, relevance and scientific of knowledge, also highlighting the professional training model of Automotive Service Engineering; The third is to reflect the positioning of practice ability and professional positions with adaptability. Such as automotive market research and business practice aspect, is Competency-oriented, reference of Single capacity, evaluating complex requirements, which reflect the characteristics of multi-skill and solve a single specific programs. Set up practice processes based

on personnel positions understood 、 capacity standard requirements, personnel standard requirements and the subsequent service requirements of posts.

iii Role of Comprehensive Quality and Ability Enhancing Education System

On the basis of overall quality education, develop capacity requirements of science and technology innovation. To rely on application-oriented Institutions, reflect the characteristics of vocational education. One is to combine academic and learning, to clear academic needs 、 academic management and supporting policies of the students as major groups. Secondly, refine academic projects and guidelines for students. Implement school and community-based comprehensive ability academic activities, learn from each other, optimize content, innovative training mechanism, set flexible credits, adopt incentives to encourage the advanced, stress practical and social value. The third is the derivative of the "Full All Soldiers" academic participation mode, enriching the features and enhancing the quality of Auto Service Engineering professional training programs. The fourth is taking vocational ability as the training goal in Automotive Service Engineering, which practice the characteristics of vocational education, expand capacity requirements of vocational education, enrich students' occupational hobby between love and social needs.

Practice shows that the new training program, not only embodies the specific training objectives, organically unites of the training objectives and curriculum design, curriculum development, teaching forms , practical teaching and assessment and other aspects, but also reflects the characteristics of the modern application-oriented universities, which also reflects the central idea of student-centered education.

5 Conclusion

Automobile service engineering applied talents training is a systematic project, only by constantly exploring and improving the professional talent training programs of Automobile Service Engineering can meet the social market demand in high-quality talents with creativity and practical ability ^[5]. From the departure based on the connotation of the application oriented undergraduate education, we should research the training objectives, training requirements of Automotive Service Engineering professional training program , and build the professional knowledge system of automotive service engineering. From the perspective of the composition of the programs for the cultivation of talents, the talent training program can achieve the goal of cultivating high quality applied talents.

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