

武汉理工大学汽车工程学院

School of Automobile Engineering of  
Wuhan University of Technology

# 本科专业培养方案

Undergraduate Program

**(Grade 2013)**

武汉理工大学教务处

Academic Affairs Office of Wuhan University of Technology

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# 车辆工程专业本科培养计划

## Undergraduate Program for Specialty in Automotive Engineering

### 一、业务培养目标

#### I Educational Objectives

本专业培养具有机械工程、车辆工程基础知识与应用能力,能在汽车工程领域内从事汽车理论研究、汽车产品开发、汽车设计制造、汽车生产管理方面工作的富有创新精神、实践能力和国际视野的工程技术人才。

This major aims at training high-ranking specialists, which would have the foundation knowledge and application ability of mechanical engineering and automotive engineering, and which would have the innovation spirit, practice capability and international view. They also would specialize on the automobile theory research, product design, product experiment, product manufacturing and production management in the automotive engineering realm.

### 二、业务培养要求

#### II Educational Requirement

本专业学生主要学习机械工程及车辆工程的基础理论,学习电工电子技术、计算机技术、试验及信息处理技术等,在车辆工程中的应用知识,学习车辆系统的性能分析方法及试验方法,具有汽车整车及零部件设计、制造和生产组织的基本能力。

毕业生应获得以下几方面的知识和能力:

1. 具有较扎实的工程科学基础,较系统地掌握本专业领域的基础理论知识,主要包括工程力学、机械学、电工电子学、材料学、车辆系统分析与设计、汽车制造基础、试验与信息处理技术等;
2. 具有本专业必需的设计、计算、试验测试、计算机应用、文献检索和基本工艺操作等基本技能;
3. 具有汽车产品的设计制造、试验、运用等所必需的专业知识和解决实际问题的能力,了解现代汽车技术的发展趋势,根据人才市场变化,在车辆工程的某个专业方向,掌握实用的专业技能;
4. 具有一定的艺术和人文社科基础及正确运用本国语言、文字的能力,基本掌握一门外语;
5. 具有较强的创新精神和获取新知识的能力、收集处理信息的能力、团结协作和社会活动的能力。
6. 具有初步的科学研究、科技开发及组织管理能力。

At first, students in this major should study the foundation theory of mechanical engineering and vehicle engineering. Second, they should study Electrical Engineering & Electronic Technology, computer technology, experiment and information processing technology, which are applied in vehicle engineering. Third, they should grasp the method of vehicle system performance analysis and experiment, and are capable of both the whole automobile design and parts design, and manufacturing.

Graduates would acquire the following knowledge and abilities:

1. Students should systematically grasp the comprehensive basic knowledge in this realm, which include: Engineering Mechanics, mechanics, electrotechnics, materialogy, vehicle system analysis and design, fundamentals of vehicle manufacturing, experiment, information process and enterprise management, etc.
2. They are required to have the essential skills in design, calculation, experiment test, computer application, references retrieval and basic craft manipulation.
3. They should possess the essential specialty knowledge, which is applied in automotive product design and manufacturing, experiments and application. They should can solve a certain problem, have an eye on the development trend of modern automotive technology and can possess an applied expert skill in a certain aspect of automotive specialty according to the talented market change.
4. They should have the firm natural science foundation, good humanities, arts and social science basis.

They also should make use of their native language with accuracy, and grasp a foreign language (e.g. English or French).

5. They should have creative and cooperating consciousness, ability of acquiring knowledge and ability of collecting and analyzing information.

6. Students are capable of primary science research, exploitation in science and technology and organization and management.

### 三、主干学科

#### III Major Disciplines

主干学科：机械工程、车辆工程

Major Disciplines: Mechanical engineering, Vehicle Engineering

### 四、专业核心课程与专业特色课程

#### IV Core Courses and Characteristic Courses

专业核心课程：理论力学、材料力学、电工与电子技术基础、计算机技术基础、机械原理、机械设计、汽车构造、汽车理论、汽车设计等。

Major Courses: Theoretical Mechanics, Mechanics of Materials, Electrical Engineering B, Fundamentals of Computer Technology, Mechanism and Machine Theory, Mechanical Design, Construction of Automobile, The Theory of Automobile, Automobile Design, etc.

专业特色课程：汽车构造、汽车理论、汽车试验学、汽车设计、汽车与发动机制造工艺学、汽车性能实验

Characteristic Courses: Construction of Automobile, The Theory of Automobile A, Test Technology of Vehicle, Automobile Design, Manufacturing Technology of Automobile and Engine, Auto Performance Test

### 五、计划学制与学位

#### V Length of School and Degree

修业年限：四年

Duration: Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

### 六、最低毕业学分规定

#### VI Graduation Credit Criteria

课程类别 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	44.5	38.5	\	26	\	190
选修课 Elective Courses	9	4	13	10	\	10	

### 七、课程修读指导建议

#### VII Recommendations on Course Studies

## 八、理论教学建议进程表

### VIII Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term				
通 识 课 程  Public Basic Courses	必修课程 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6				
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese	2	32					1-6				
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6				
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6				
		1060001110	军事理论 Military Theory	2	32			16		2-4				
		4210001110	体育 1 Physical Education I	1	32					1				
		4210002110	体育 2 Physical Education II	1	32					2	体育 1			
		4210003110	体育 3 Physical Education III	1	32					3	体育 2			
		4210004110	体育 4 Physical Education IV	1	32					4	体育 3			
		4030002110	大学英语 A1 College English A I	3	64				16	1				
		4030003110	大学英语 A2 College English A II	3	64				16	2	大学英语 A1			
		4030004110	大学英语 A3 College English A III	3	64				16	3	大学英语 A2			
		4030005110	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3			
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1				
		程序设计语言课程组(三选一, 3 学分)												
				4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2	大学计算机基础	
				4120024110	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2	大学计算机基础	
				4120025110	计算机程序设计基础(VB 语言) Fundamentals of Computer Program	3	48		12			2	大学计算机基础	
				小 计 Subtotal		35	720							
		选修课程 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 学分, 且在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and select at least one course in five categories respectively.								
人文社科类 Arts and Social Science Courses														
经济管理类 Economy and Management Courses														
科学技术类 Science and Technology Courses														
艺术体育类 Art and Physical Education Courses														

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			建议修读学期 Suggested Term	
学 科 大 类 课 程  Basic Disciplinary Courses	必 修 课  Required Courses	4090070010	专业导论 Introduction to Specialty	1	16			2		1			
		4050063110	高等数学 A1 Advanced Mathematics A I	5	80					1			
		4050064110	高等数学 A2 Advanced Mathematics A II	5	80					2	高等数学 A1		
		4080039110	工程图学 A1 Engineering Graphics A I	3.5	56					1			
		4080039110	工程图学 A2 Engineering Graphics A II	2.5	40					2	工程图学 A1		
		4050229110	线性代数 A Linear Algebra	2.5	40					2			
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3			
		4050463130	大学物理 B Physics B	5	80					2			
		4050224110	物理实验 B Physics Experiment B	1	32	32				3	大学物理 B		
		4200318130	普通化学基础 Fundamentals of General Chemistry	2	32	10				5			
		4100009110	电工与电子技术基础 A1 Fundamentals of Electrical and Electronic Technology A I	3.5	56	10				3			
		4100009110	电工与电子技术基础 A2 Fundamentals of Electrical and Electronic Technology A II	3.5	56	10				4	电工与电子 技术基础 A1		
		4080034110	工程材料 Engineering Materials	2.5	40	4				2			
		4080078110	金属工艺学 B Metallurgical Technology B	2.5	40	4				3	工程材料		
		4080054110	互换性与测量技术 B Interchangeability and Measurement B	2	32	4				5			
	小 计 Subtotal				44.5	728	74		2				
	选 修 课  Elective Courses	4090024110	汽车 CAD/CAE Computer Aided Design and Engineering	2	32		10			4			
		4090021110	流体力学基础 C Fluid Mechanics Elements C	2	32	2				4			
		4090075110	轨道车辆概论 Introduction to Railway Vehicle	2	32					4			
		4110023110	电子线路 EDA B	2	32	10				4			
4090064110		热工基础 Elements of Thermodynamics	2	32	2				5				
4090003020		电机学基础 Fundamentals of Electrical Machinery	2	32	2				5				
4090154130		MATLAB 及应用 MATLAB and Application	2	32		6			5				
4100065110		自动控制原理 C Automatic Control Principle C	2.5	40	8				5				

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term			
		小 计 Subtotal		16.5	264	24	16						
修读说明：要求至少选修 4 学分。 NOTE: Minimum subtotal credits: 4.													
专 业 课 程	必 修 课 Required Courses	4050129110	理论力学 A Theoretical Mechanics A	4.5	72					3			
		4050018110	材料力学 C Mechanics of Materials C	4	64	4				4	理论力学 A		
		4080062110	机械原理 Mechanism and Machine Theory	3.5	56	4				4	工程图学 A2		
		4080060110	机械设计 Mechanical Design	4	64	6				5	机械原理		
		4090037110	汽车构造 A Construction of Automobile A	4	64			4		5	机械原理		
		4090010110	发动机原理 B Engine Principle B	2	32					5	汽车构造 A		
		4090042110	汽车理论 A The Theory of Automobile A	3.5	56					6	汽车构造 A		
		4090049110	汽车试验学 A Test Technology of Vehicle A	3	48					6	汽车构造 A		
		4090119120	汽车与发动机制造工艺学 Manufacturing Technology of Automobile and Engine	4	64			24		6	汽车构造 A		
		4090053110	汽车性能实验 Auto Performance Test	1	32	32				6	汽车理论 A		
		4090145130	汽车设计 Automobile Design	5.0	80			32		7	汽车理论 A		
				小 计 Subtotal		38.5	632	46	0	60			
		专 业 课 程	选 修 课 Elective Courses	汽车整车方向 Automotive chassis Professional Field (专业方向 1)									
4090004110	电子控制技术及应用 Technology and Applications of Electronic Control			3	48	8				6	计算机程序设计基础		
4090028110	汽车电器与电控系统 Automobile Electric Equipment and Control System			3	48	6				6	汽车构造 A	*	
4090061110	汽车自动变速技术 Technology of Automobile Automatic Transmission			2	32	4		2		7			
4090056110	汽车优化设计 Optimization Design of Automobile			2	32		12			7		*	
4090025110	汽车车身结构与设计 Construction and Design of Automobile			2	32					7			
4090069110	新能源汽车结构与原理 Structures and Theory of Electric Vehicle			2	32			2		7			
4090041110	汽车可靠性 Automobile Reliability			2	32					7			
4090044110	汽车排放与噪声控制 Automobile Emission and Noise Control			2	32					7			
4090045110	汽车碰撞与安全 Collision and Safety of Vehicle			2	32					7			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope- ration	实践 Prac- tice	课外 Extra- cur	建议修 读学期 Suggested Term		
		4090071110	专用车结构与 设计 Construction and Design of Special Automobile	2	32			2		7		
		4090040110	汽车结构有限元分析 Finite Element Method Analyze of Automotive configuration	2	32		14			7		
		4090054110	汽车液压与气压传动 Hydraulic and Air Pressure Transmission of Automobile	2	32			2		7		
		小 计 Subtotal		26	416	18	26	8				
车身工程方向 Body Engineering Professional Field (专业方向 2)												
		4090004110	电子控制技术及 应用 Technology and Applications of Electronic Control	3	48	8				6	计算机程序 设计基础	
		4090028110	汽车电器与电 控系统 Automobile Electric Equipment and Control System	3	48	6				6	汽车构造 A	
		4090025110	汽车车身结构 与设计 Construction and Design of Automobile	2	32					7		*
		4090061110	汽车自动变速 技术 Technology of Automobile Automatic Transmission	2	32	4		2		7		
		4090026110	汽车车身艺术 设计 Automobile Body Art Design	2	32		4			7		
		4090102120	汽车材料 Automobile Materials	2	32					7		
		4090110120	汽车空气动力 学 Automobile Aerodynamics	2	32					7		
		4090104120	汽车车身覆盖 件模具设计 Automobile Body Panel Die Design	2	32			4		7		
		4090111120	汽车模型制作 Automobile Model Execution Technology	2	32	8		4		7		
		4090127120	现代汽车生产 与管理 Modern Automobile Production and Management	2	32					7		
		4090069110	新能源汽车结 构与原理 Structures and Theory of Electric Vehicle	2	32			2		7		
		4090040110	汽车结构有限 元分析 Finite Element Method Analyze of Automotive	2	32		14			7		
		小 计 Subtotal		26	416	26	18	12	0			
新能源汽车方向 New Energy Automobile Professional Field (专业方向 3)												
		4090004110	电子控制技术 及应用 Technology and Applications of Electronic Control	3	48	8				6	计算机程序 设计基础	
		4090031110	汽车动力装置 匹配技术 Automobile Power Device Matching	2	32					6	发动机原理 A	
		4090028110	汽车电器与电 控系统 Automobile Electric Equipment and Control System	3	48	6				6	汽车构造 A	*
		4090069110	新能源汽车结 构与原理 Structures and Theory of Electric Vehicle	2	32			2		7		
		4090052110	汽车新能源及 其动力装置 Automotive New Energy and Power Unit	2	32					7		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Ope- ration	实践 Prac- tice	课外 Extra- cur	建议修 读学期 Suggested Term		
		4090095120	电池及其管理系统 Battery and Management System	2	32					7		
		4090062110	燃料电池技术基础 Fundamentals of Fuel Cell Technology	2	32					7		
		4090099120	可编程控制系统 Programmable Control System	2	32		10			7		
		4090097120	电力拖动与控制系统 C Electrical Drive and Control System C	2	32					7		
		4090032110	汽车发动机排放与控制 Automobile Engine Exhaust Emission and	2	32					7		
		4090061110	汽车自动变速技术 Technology of Automobile Automatic Transmission	2	32	4		2		7		
		4090025110	汽车车身结构与设计 Construction and Design of Automobile	2	32					7		
		4090056110	汽车优化设计 Optimization Design of Automobile	2	32		12			7		
		小 计 Subtotal		28	448	18	22	4				
汽车电子方向 Automotive Electronics Professional Field (专业方向 4)												
		4110094110	信号与系统 B Signal and System B	3	48	8				6		
		4090004110	电子控制技术及应用 Technology and Applications of Electronic Control	3	48	8				6	计算机程序 设计基础	
		4100004110	传感与检测技术 B Sensors and Testing Techniques B	2	32	8				7		
		4090128120	虚拟仪器在汽车中的应用 Application of virtual instrument in Automobile	2	32					7		
		4090061110	汽车自动变速技术 Technology of Automobile Automatic Transmission	2	32	4		2		7		
		4090100120	控制系统仿真与设计 Simulation and Design of Control System	2	32					7		
		4090109120	汽车故障诊断与处理 Auto Diagnosis and Treatment	2	32	4				7		
		4090116120	汽车网络技术 Automobile Network Technology	2	32					7		
		4090097120	电力拖动与控制系统 C Electrical Drive and Control System C	2	32					7		*
		4090099120	可编程控制系统 Programmable Control System	2	32		10			7		
		4090069110	新能源汽车结构与原理 Structures and Theory of Electric Vehicle	2	32			2		7		
		小 计 Subtotal		24	384	32	10	4				
修读说明：要求至少选修 13 学分（要求选择与必修模块相同的选修模块。） NOTE: Minimum subtotal credits: 13.												

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term			
个性课程 Personalized Course	选修课 Elective Courses	4090060110	汽车振动基础 Fundamentals of Vehicle Vibration	2	32					5	机械原理	方向 1、2 优选	
		4090155130	汽车新技术概论 Automobile New Technology Introduction	2	32					7			
		4090156130	汽车创新设计 Automotive Innovation Design	2	32			16		7			
		4090067110	先进制造技术概论 Introduction to Advanced Manufacturing Technology	2	32					7			
		4100019110	电力电子技术 C Power Electronics & Electric Technology C	2.5	40					6		方向 4 优选	
		4090028110	汽车电控系统 & 设计 Automobile Electronic Control System and Design	3	48	6				6	汽车构造 A	方向 4 优选	
		4090157130	汽车电控系统 & 设计实验 Experiment of Automobile Electronic Control System and Design	1	32	32				6	汽车电控系统 & 设计	方向 4 优选	
		小 计 Subtotal											
		修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.											

### 九、集中性实践教学环节建议进程表

#### IX Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4080150110	机械制造工程实训 B Metal Techniques Practice B	4	4	3	
4100069110	电工电子实习 B Electrical practice B	1	1	4	
4080149110	机械原理课程设计 Mechanical Principles Course Design	1.5	1.5	4	
4080147110	机械设计课程设计 Mechanical Design Course Design	3	3	5	
4090084110	汽车拆装实习 Automobile Construction Practice	2	2	6(分散)	
	汽车制造工艺实习 Automobile Manufacturing Technology Practice	1	1	6	
4090081110	毕业实习 Graduation Practice	2	2	8	
4090077110	毕业设计(论文) Graduation Design(Graduation Thesis)	15	10	8	
小 计 Subtotal		32.5	26		

## 十、其它要求

### **X Other Demands**

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

# 能源与动力工程专业本科培养方案

## Undergraduate Program for Specialty in Energy and Power Engineering

### 一、业务培养目标

#### I Educational Objectives

本专业培养具备能源与动力工程等方面基础知识和应用能力，能从事动力机械与动力工程的设计、制造、试验研究、开发、管理等方面工作，具有创新精神与实践能力的高级工程技术人才。

This program aims at cultivating the senior engineering and technical talents who have the basic acknowledge and application ability in energy and power engineering, are capable of designing, manufacturing, experimental study, developing, managing etc in power machinery and engineering, and possess the spirit of innovation and practical ability.

### 二、业务培养要求

#### II Educational Requirement

本专业学生主要学习动力工程热物理的基础理论知识，学习能量转换及有效利用的理论和技術，受到现代动力工程师的基本训练；具有进行动力机械与热工设备设计、运行、实验研究的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 掌握本专业的技术理论知识，主要包括工程力学、机械设计基础、工程热物理、流体力学、电工与电子学、控制理论及企业管理等基础知识。
2. 具有热能与动力工程的专业知识，获得相关的工程实践训练，具备开展动力机械与热工设备设计、运行、实验研究的基本能力；
3. 具有一定的计算机和外语应用能力；
4. 了解该学科的前沿知识及其发展趋势；
5. 具有较强的自学能力，创新意识和较高的综合素质。

The students of this program mainly learn foundational theoretical knowledge of thermal physics in power engineering, study theory and technology of energy transformation and effective utilization. They get basic training as modern power engineer, and have the basic ability of designing, operating, experimental research in power machinery and thermal engineering.

Graduates should acquire the following aspects of knowledge and ability:

1. The technical theory knowledge of this specialty, mainly including engineering mechanics, fundamental of machine design, engineering thermal physics, hydrodynamics, electrician and electronics, control theory and enterprise management etc;
2. Specialty knowledge in thermal energy and power engineering, relevant engineering practice training, basic abilities as designing, operation, and experimental studies of power machinery and thermal equipment;
3. Computer and foreign language application skill;
4. Understanding of the disciplines trend and current stage of development;
5. Strong self-learning ability, innovative thinking and higher quality.

### 三、主干学科

#### III Major Disciplines

主干学科：动力工程与工程热物理，机械工程

Major Disciplines: Power Engineering and Engineering Thermal Physics, Mechanical Engineering

#### 四、专业核心课程与专业特色课程

#### IV Core Courses and Characteristic Courses

专业核心课程：发动机原理、汽车发动机设计

Core Courses: Fundamentals of Internal Combustion Engine, Automobile Engine Design

专业特色课程：热能与动力机械测试技术、汽车构造

Characteristic Courses: Measurement Technology in Thermal Energy and Power Machinery, Automobile Construction,

#### 五、计划学制与学位

#### V Length of School and Degree

修业年限：四年

Duration: Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

#### 六、最低毕业学分规定

#### VI Graduation Credit Criteria

课程性质 课程类别	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	41	43	\	25	\	190
选修课 Elective Courses	9	4	13	10	\	10	

#### 七、课程修读指导建议

#### VIII Recommendations on Course Studies

#### 八、理论教学建议进程表

#### IX Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
通识课程 Public Basic Courses	必修课 Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6		
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6		
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6		
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6		
		1060003130	军事理论 Military Theory	1	32			16		1-4		
		1050001130	心理健康教育 Mental Health Education	1	16					1-2		
		4210001110	体育 I Physical Education I	1	32					1		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crts	学时分配 Including					先修课程 Prerequisite Course	第二专业 Second Major			
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			建议修读学期 Suggested Term		
		4210002110	体育 2 Physical Education II	1	32					2	体育 1			
		4210003110	体育 3 Physical Education III	1	32					3	体育 2			
		4210004110	体育 4 Physical Education IV	1	32					4	体育 3			
		4030002110	大学英语 A1 College English A 1	3	64				16	1				
		4030003110	大学英语 A2 College English A II	3	64				16	2	大学英语 A1			
		4030004110	大学英语 A3 College English A III	3	64				16	3	大学英语 A2			
		4030005110	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3			
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1				
		程序设计语言课程组(三选一, 3 学分)												
		4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48			12			2			
		4120024110	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48			12			2			
		4120025110	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48			12			2			
		小 计 Subtotal				35	736		24	64	64			
			选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		<p>全校学生要求至少取得 9 学分, 建议在每个类别中分别至少选修一门课程。</p> <p>All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.</p>								
人文社科类 Arts and Social Science Courses														
经济管理类 Economy and Management Courses														
科学技术类 Science and Technology Courses														
艺术体育类 Art and Physical Education Courses														
学科大类课程 Basic Disciplinary Courses	必修课 Required Courses	4090091110	专业导论 Introduction to Materials Physics	1	16					1				
		4050063110	高等数学 A1 Advanced Mathematics A I	5	80					1				
		4050064110	高等数学 A2 Advanced Mathematics A II	5	80					2	高等数学 A1			
		4080039110	工程图学 A1 Engineering Graphics A I	3.5	56					1				
		4080040110	工程图学 A2 Engineering Graphics A II	2.5	40					2	工程图学 A1			
		4050229110	线性代数 Linear Algebra	2.5	40					2				
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3				

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 CrS	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
		4050024110	大学物理 C Physics B	4.5	72					2		
		4050224110	物理实验 B Physics Lab. B	1	32	32				3		
		4100009110	电工与电子技术基础 A1 Fundamentals of Electrical and Electronic Technology A I	3.5	56	10				3		
		4100010110	电工与电子技术基础 A2 Fundamentals of Electrical and Electronic Technology A II	3.5	56	10				4	电工与电子技术基础 A1	
		4080062110	机械原理 Mechanism and Machine Theory	3.5	56	4				4		
		4080034110	工程材料 Engineering Materials	2.5	40	4				3		
			小 计 Subtotal	41	676	64						
	选修课 Elective Courses	4090005110	发动机 CAD/CAE Engine Computer Aided Design/Computer	2	32		10			6		
		4090063110	燃烧理论基础 Fundamentals of Combustion Theory	2	32					6		
		4090003110	电机学基础 Fundamentals of Electrical Machinery	2	32	2				6		
		4090125120	热能与动力机械基础 basic thermal and power equipment	2	32					6		
			小 计 Subtotal	8	128	2	10					
修读说明：要求至少选修 4 学分。 NOTE: Minimum subtotal credits: 4.												
专业课程 Specialized Courses	必修课 Required Courses	4050129110	理论力学 A Theoretical Mechanics A	4.5	72					3		
		4050018110	材料力学 C Mechanics of Materials C	4	64	4				4		
		4080060110	机械设计 Mechanical Design	4	64	6				5		
		4080078110	金属工艺学 B Metallurgical Technology B	2.5	40	4				4		
		4080054110	互换性与测量技术 B Interchangeability and Measurement B	2	32	4				5		
		4090019110	流体动力学基础 A Fluid Mechanics in Thermal and Power	3	48	4				5		
		4090150130	工程热力学 Engineering Thermodynamics	3.5	56	4				5		
		4090002110	传热学 Heat Transfer	3	48	4				6	工程热力学	
		4090037110	汽车构造 A Automobile Construction A	4	64			4		5		

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crts	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term			
		4090008110	发动机原理 A Fundamentals of Internal Combustion	3.5	56	4				6	汽车构造 A		
		4090065110	热能与动力机械测试技术 Measurement Technology in Thermal and Power Machinery	3	48	4				7			
		4090033110	汽车发动机设计 Automobile Engine Design	5	80			32		7			
		4090066110	热能与动力机械性能实验 Performance Experiment in Thermal Energy and Power Machinery	1	32	32				7	热能与动力机械测试技术		
		小 计 Subtotal			43	704	62		60				
	选修课 Elective Courses	4090159130	汽车与发动机制造工艺学 Manufacturing Technology of Automobile	4	48			32		6	汽车构造 A		
		4090074110	内燃机新技术（双语） Advanced Engine Technology	1	16					7			
		4090006110	发动机管理系统(双语) Engine Management System	3	48	4				7			
		4090031110	汽车动力装置匹配技术 Automobile Power Device Matching Technology	2	32					7			
		4090040110	汽车结构有限元分析 Automobile Finite Element Analysis	2	32		14			7			
		4090007110	发动机优化技术 Engine Optimal Technology Control	2	32					7			
		4090073110	发动机振动与噪声 Vibration and Noise of Engine	2	32					7			
		4090032110	汽车发动机排放与控制 Automobile Engine Exhaust Emission and Control	2	32					7			
		4090022110	内燃机增压技术 Internal Combustion Engine Turbocharged Technology	2	32					7			
		4090052110	汽车新能源及其动力装置 Automotive New Energy and Power Unit	2	32					7			
		4090062110	燃料电池技术基础 Fundamentals of Fuel Cell Technology	2	32					7			
		4090072110	摩托车构造与设计 Motorcycle Construction and Design	2	32					7			
		小 计 Subtotal			25	400	4	14					
		修读说明：要求至少选修 13 学分。 NOTE: Minimum subtotal credits: 13.											
	个性化课程 Personalized Course	选修课 Elective Courses	4090069110	新能源汽车结构与原理 Structures and Theory of Electric Vehicle	2	32			2		7		
4090043110			汽车理论 B Theory of Vehicle B	2	32					7			
4090160130			汽车发动机新技术 New Technology of Automobile Engine	2	32					7			
4090161130			汽车发动机创新设计 Innovative Design of Automobile Engine	2	32			16		7			
4090067110			先进制造技术概论 Introduction of Advanced Manufacturing	2	32					7			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur		
		小 计 Subtotal		10	160			18			
修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.											

## 九、集中性实践教学环节建议进程表

### IX Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4080150110	机械制造工程实训 B Practice of Technology of Metals B	4	4	3	
4100069110	电工电子实习 B Practice of Electrical Engineering & Electronics B	1	1	4	
4080147110	机械设计课程设计（上机 10 学时） Mechanical Design Course Design	3	3	6	
4080149110	机械原理课程设计 Mechanical Principles Course Design	1.5	1.5	4	
4090084110	汽车拆装实习（下午进行） Automobile Construction Practice	2	2	5(分散)	
4090080110	毕业实习 Practice for Graduation	2	2	8	
4090078110	毕业论文（设计） Graduation Thesis	15	10	8	
小 计 Subtotal		31.5	25		

## 十、其它要求

### X Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

*Situation & Policy*, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term. The course will be arranged by the University Students' Affairs' Department in each school.

# 汽车服务工程专业本科培养方案

## Undergraduate Program for Specialty in Automotive Support Engineering

### 一、业务培养目标

#### I Educational Objectives

本专业培养具有扎实的机械（汽车）工程科学、管理科学理论基础，掌握一定的现代信息技术和经营管理知识，了解学科发展前沿，具备“懂技术、善经营、会服务”的能力素质，能够适应汽车技术支持、汽车营销、产品规划、服务管理等汽车服务领域工作的复合型高级人才。

The major brings up inter-disciplinary advanced talents who have the knowledge of mechanical (Automotive) engineering and management science, grasp modern info technology and operation and management knowledge, understand the discipline development frontier, possess the ability of knowing both technology and management and being good at service and adapt to jobs in automotive supporting fields such as automotive technology support, automotive marketing, product planning and support management.

### 二、业务培养要求

#### II Educational Requirement

本专业学生主要学习机械（汽车）工程科学、管理科学的基本理论知识，接受现代汽车技术支持、汽车营销管理与决策、汽车服务运作与规划的系统训练，具有从事汽车技术支持、汽车营销、产品规划、服务系统设计与管理等工作的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 具有较扎实的机械（汽车）工程科学、管理科学理论基础，较系统地掌握汽车服务工程领域的基础理论知识，主要包括工程力学、机械学、电工电子学、工程材料、汽车结构与性能、营销管理、服务运作管理等；
2. 获得相关的工程和管理实践训练，具备开展汽车技术支持、市场研究、分析决策的基本能力；
3. 掌握实用的专业技能，具有从事汽车技术支持、汽车营销及相关服务、汽车服务运作与规划等相关领域工作所必需的专业知识和解决实际问题的能力；
4. 具有较强的外语应用、信息技术应用和文献检索等能力；
5. 了解本学科发展动态、相关法规和国际惯例，具有较强的创新意识、一定的科学研究和组织管理能力；
6. 具有良好的人文和身心素质，较强的团队意识、协作精神和社会活动能力。

The undergraduate programs of the specialty are designed to study basic theories of mechanical (Automotive) engineering and management science, receive systematic training on modern automotive technology support, management and decision-making of automotive marketing and operation and planning of automotive support and possess the ability for the jobs of automotive technology support, automotive marketing, product planning and design and management of support system.

The students awarded their bachelor degree of automotive support engineering have the capacities and knowledge as follows.

1. Possess basic theory of mechanical (Automotive) engineering and management science, systematically grasp fundamental theoretical knowledge of automotive support engineering fields, including Engineering Mechanics, mechanics, electrotechnics, materialogy, engineering material, structure and performance of automotive, marketing management and support operation management, etc.

2. Receive relevant practical training; possess basic abilities for automotive technology support, marketing research and analysis and decision-making.

3. Grasp practical specialized skills; possess the abilities for specialized knowledge needed for jobs in fields of automotive technology support, automotive marketing and operation and planning of automotive support and for practical problem solving.

4. Possess powerful abilities in English, information technology application and information retrieval, etc.

5 Understand the development trend of the discipline; be familiar with relevant policies, as well as laws and regulations; possess innovative consciousness and the abilities for science research and organizational management in some degree.

6. Possess good quality in humanity and mind and body and strong abilities for teamwork and social activities.

### 三、主干学科

#### III Major Disciplines

主干学科：机械工程、管理工程

Major Disciplines: Mechanical Engineering, Managing Engineering

### 四、专业核心课程与专业特色课程

#### IV Core Courses and Characteristic Courses

专业核心课程：汽车构造、汽车理论、汽车电子控制系统、汽车电器设备

Core Courses: Construction of Automobile, The Theory of Automobile, Vehicle Electronic Control System, Vehicle Electric Equipment

专业特色课程：汽车服务系统规划、汽车营销与策划、汽车维修工程

Characteristic Courses: Vehicle Support System Programming, Vehicle Marketing and Planning, Vehicle Maintenance and Repair Engineering

### 五、计划学制与学位

#### V Length of School and Degree

修业年限：四年

Duration: Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineering

### 六、最低毕业学分规定

#### VI Graduation Credit Criteria

课程类别 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	40	42.5	\	27	\	190
选修课 Elective Courses	9	4	12.5	10	\	10	

### 七、课程修读指导建议

#### VII Recommendations on Course Studies

## 八、理论教学建议进程表

### VIII Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur					
通 识 课 程  Public Basic Courses	必 修 课 程  Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6				
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6				
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6				
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6				
		1060003130	军事理论 Military Theory	1	32			16		1				
		4210001110	体育 1 Physical Education I	1	32					1				
		4210002110	体育 2 Physical Education II	1	32					2	体育 1			
		4210003110	体育 3 Physical Education III	1	32					3	体育 2			
		4210004110	体育 4 Physical Education IV	1	32					4	体育 3			
		1050001130	心理健康教育 Mental Health Education	1	16					1				
		4030002110	大学英语 A1 College English A I	3	64				16	1				
		4030003110	大学英语 A2 College English A II	3	64				16	2	大学英语 A1			
		4030004110	大学英语 A3 College English A III	3	64				16	3	大学英语 A2			
		4030005110	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3			
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1				
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of three, Credits: 3)												
				4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
				4120024110	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
				4120025110	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2		
				小 计 Subtotal		35	736		24	64	64			
			选 修 课 程  Elective Courses	创新创业类 Innovation and Entrepreneurship Courses		全校学生要求至少取得 9 学分, 建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.								
		人文社科类 Arts and Social Science Courses												
		经济管理类 Economy and Management Courses												

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		科学技术类 Science and Technology Courses										
		艺术体育类 Art and Physical Education Courses										
学 科 大 类 课 程  Basic Disciplinary Courses	必 修 课  Required Courses	4090070110	专业导论 Introduction to Automotive Engineering	1	14			2		1		
		4050063110	高等数学 A 上 Advanced Mathematics A I	5	80					1		*
		4080039110	工程图学 A1 Engineering Graphics A I	3.5	56					1		*
		4050064110	高等数学 A 下 Advanced Mathematics A II	5	80					2	高等数学 A 上	
		4080040110	工程图学 A2 Engineering Graphics A II	2.5	40					2	工程图学 A1	
		4050229110	线性代数 Linear Algebra	2.5	40					2		
		4050463130	大学物理 B Physics B	5	80					2		*
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		*
		4050224110	物理实验 B Physics Lab. B	1	32	32				3		
		4080078110	金属工艺学 B Metallurgical Technology B	2.5	40	4				3		
		4100009110	电工与电子技术基础 A1 Fundamentals of Electrical and Electronic Technology A I	3.5	56	10				3		*
		4100010110	电工与电子技术基础 A2 Fundamentals of Electrical and Electronic Technology A II	3.5	56	10				4	电工与电子技术基础 A1	
		4080054110	互换性与测量技术 B Interchangeability and Measurement B	2	32	4				5		
		小 计 Subtotal				40	654	60		2		
	选 修 课  Elective Courses	4090034110	汽车服务工程基础 Vehicle Support Engineering Foundation	2	32	2				5		
		4090024110	汽车 CAD/CAE Computer Aided Design and Engineering of Automobile and Engine	2	32		10			5		
		4090048110	汽车市场调查与预测 Vehicle Marketing Research and Forecast	2	32					6		
4090039110		汽车检测技术 Vehicle Inspection Technology	2	32	2				6			
小 计 Subtotal				8	128	4	10					
修读说明：要求至少选修 4 学分。 NOTE: Minimum subtotal credits:4.												

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crts	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur					
专 业 课 程	必 修 课	4080034110	工程材料 Engineering Materials	2.5	40	4				2				
		4050129110	理论力学 A Theoretical Mechanics A	4.5	72					3				
		4050018110	材料力学 C Mechanics of Materials C	4	64	4				4				
		4080062110	机械原理 Mechanism and Machine Theory	3.5	56	4				4				
		4090037110	汽车构造 A Construction of Automobile A	4	64			4		4				
		4090009110	发动机原理 B Engine Principle B	2	32	4				5				
		4080060110	机械设计 Mechanical Design	4	64	6				5				
		4090042110	汽车理论 A The Theory of Automobile A	3.5	56	6				5				
		4090036110	汽车服务系统规划 Vehicle Support System Programming	3	48					5				
		4090055110	汽车营销与策划 Vehicle Marketing and Planning	3	48					5				
		4090027110	汽车电器设备 Vehicle Electric Equipment	2	32	4				5				
		4090030110	汽车电子控制系统 Vehicle Electronic Control System	3	48	6				6				
		4090050110	汽车维修工程 Vehicle Maintenance and Repair Engineering	2.5	40					6				
		4090059110	汽车诊断实验 Vehicle Diagnosis Experiment	1	32	32				6				
		小 计 Subtotal				42.5	696	70		4				
		选 修 课	技术类课程模块（要求至少选修 4 学分） Technique-related course module (Minimum subtotal 4 credits)											
			4090020110	流体力学基础 B Fluid Mechanics Elements B	2	32	2				6			
			4090064110	热工基础 Elements of Thermodynamics	2	32	2				6			
			4090069110	新能源汽车结构与原理 Structures and Theory of Electric Vehicle	2	32			2		6			
4090004110	电子控制技术及应用 Technology and Applications of Electronic Control		3	48	8				6					
4090054110	汽车液压与气压传动 Hydraulic and Air Pressure Transmission of Automobile		2	32					6					
4090047110	汽车设计基础 Automobile Design Foundation		2	32					6					
4090041110	汽车可靠性 Automobile Reliability		2	32					7					
4090044110	汽车排放与噪声控制 Vehicle Emission and Noise Control	2	32					7						

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crts	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur					
		4090057110	汽车与发动机制造工艺学 Manufacturing Technology for Automobile and Engine	2.5	40					7				
		4090099120	可编程控制系统 Programmable Control System	2	32		10			7				
		营销类课程模块（要求至少选修 4 学分） Marketing-related course module (Minimum subtotal 4 credits)												
		4090163130	专业英语 English for Automotive Support Engineering	2	32						6			
		4090015110	国际汽车贸易理论与实务(双语) Theory and Practice of Vehicle International Trade(bilingual)	3	48						7			
		4090016110	机动车保险与理赔 Vehicle Insurance and Compensation	2	32						7			
		4090035110	汽车服务企业财务管理 Financial Management for Automotive Operation Enterprise	2	32						7			
		4090147130	汽车物流 Logistics of Automobile	2	32						7			
		4090108120	汽车工业经济学基础 Foundation for Automobile Industry Economic	2	32						7			
		4090103120	汽车产品研发管理 Management of Automotive Product R&D	2	32						7			
		4090107120	汽车服务企业运营 Management for Automotive Operation Enterprise	2	32						7			
		4090148130	汽车项目管理 Management for Automotive Project	2	32						7			
		4090146130	汽车生产与运作管理 Production and Operation Management for Automotive	2	32						7			
		小 计 Subtotal				42.5	680	12	10					
		修读说明：要求至少选修 12.5 学分。 NOTE: Minimum subtotal credits: 12.5												
个性化课程 Personalized Course	选修课 Elective Courses	4090164130	科技文献检索与写作 Technical Document Retrieval and Writing	1	16					4				
		4090165130	汽车企业伦理与社会责任 Automotive Business Ethics and Social Responsibility	1	16					5				
		4090166130	学科前沿讲座 Frontiers of Science	2	32					6				
		4090167130	商务交流与谈判 Business Communication and Negotiation	2	32					7				
		小 计 Subtotal				6	96							
修读说明：学生可跨专业自主选择修读全校其他专业的课程，建议修读以上课程。要求至少选修 10 学分。 NOTE: Students can choose any courses from the other specialties, and are especially suggested to choose the courses above. Minimum subtotal credits: 10.														

## 九、集中性实践教学环节建议进程表

### IX Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crts	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4080150110	机械制造工程实训 B Practice of Technology of Metals B	4	4	3	
4080149110	机械原理课程设计 Mechanical Principles Course Design	1.5	1.5	4	
4100069110	电工电子实习 B electrical practice B	1	1	4	
4090084110	汽车拆装实习 Automobile Construction Practice	2	1	5	
4080147110	机械设计课程设计 Mechanical Design Course Design	3	3	6	
4090089110	汽车维修实习 Vehicle Maintenance Practice	2	2	6	
4090088110	汽车市场调查与商务实习 Vehicle Market Investigation and Business Practice	1	1	7	
4090079110	毕业实习 Practice for Graduation	2	2	8	
4090130120	毕业设计 (论文) Graduation Thesis(Design)	15	10	8	
小 计 Subtotal		34.5	27		

## 十、其它要求

### X Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

*Situation & Policy*, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

# 车辆工程专业（卓越工程师班）本科培养方案

## Undergraduate Program for Specialty in Automotive Engineering (Excellent Engineer Class)

### 一、业务培养目标

#### I Educational Objectives

通过卓越工程师训练计划的实施，培养基础知识和专业理论扎实，工程能力突出，敬业精神强、团队精神强、创新精神强，受国内外汽车及零部件企业欢迎，适应国家汽车科技和汽车产业发展要求，能够胜任汽车科学研究和汽车整车及零部件产品设计开发、试验、制造等领域工作的高级创新型工程技术人才。

With the help of the training program, this major aims at cultivating the senior innovative engineering and technical talents who have strong specialty basic theory and specialized knowledge, outstanding engineering capability, excellent professionalism, strong team spirit and good pioneering spirit. They also are welcomed by domestic and foreign automobiles and parts enterprises and can meet the national automotive technology and automotive industry requirements. They also are capable of scientific research and automobiles and parts products design, development, testing, manufacturing and other fields.

### 二、业务培养要求

#### II Educational Requirement

本专业学生主要学习机械工程及车辆工程的基础理论，学习电工电子技术、计算机技术、试验及信息处理技术等车辆在工程中的应用知识，学习车辆系统的性能分析方法及试验方法，具有汽车整车及零部件设计、制造和生产组织的基本能力。

本专业培养的学生，其基本知识、能力和素质要求为：

- (1) 具有扎实的数学、物理等自然科学基础，以及良好的人文社会科学基础和管理科学基础。
- (2) 具有本专业必需的机械、电工与电子技术、信息及网络技术、计算机应用技术的基本知识和技能。
- (3) 系统地掌握本专业领域技术基础理论和专门知识，具有本专业领域的专业知识和技能，能够根据产品和工程要求优化、设计有关产品、工艺系统及设备，熟悉本专业学科前沿和发展趋势、相关专业领域的基本知识。
- (4) 能应用适当的理论知识和实践方法，分析和解决车辆工程方面的实际问题，并经过车辆的设计、制造、运行和维护等方面的系统训练。具有汽车产品的设计制造、试验、运用等所必需的专业知识和解决实际问题的能力，具备较强的工程创新意识、工程创新的基本能力。
- (5) 具备系统思维和工程推理能力，具有对工程问题的基本认知和判断能力，汽车及工程的设计、实施和控制初步能力。
- (6) 具有较强的自我获取知识的能力，信息收集、处理能力，具备终生学习的能力。
- (7) 具有较强的交流和沟通能力、团队合作的能力，具有一定的组织管理能力、价值效益意识，能够参与跨专业及国际性的竞争与合作。
- (8) 面对社会和环境的各种变迁具有较强的调节和适应能力，良好的身体素质、心理素质，较强的社会责任感和良好的工程职业道德及社会服务意识。
- (9) 熟悉本专业领域技术标准，相关行业的政策、法律和法规。

Students in this major mainly learn the basic theories of mechanical engineering and vehicle engineering, and they will learn how to apply these technologies, such as electrical and electronic technology, computer technology and information technology and some other technologies about vehicle engineering. They should learn performance analysis and test method of vehicle system so as to get the basic abilities for automobile

parts and automobile design, manufacture and production organization.

The requirements of basic knowledge, ability and quality for those students are as follows:

(1) They should have the solid foundation of natural science, such as mathematics, physics and so on, humanities and social science and management science.

(2) They should process the basic knowledge and skills of mechanical technology, electrical and electronic technology, information and network technology and computer application technology, which are professional and necessary.

(3) They should master the technical basic theories and specialized knowledge of this field, getting the professional knowledge and skills systematically, being able to optimize and design relevant products, technology systems and equipment, and be familiar with the frontier and development trend of this field and the basic knowledge of relevant field.

(4) They should be able to apply appropriate theoretical knowledge and practical methods to analyze and solve practical problems in engineering vehicles, and through the systematic training in these field, such as the vehicle design, manufacture, operation and maintenance and so on, getting professional knowledge which is necessary to automobile product design and manufacturing, testing and application and the ability to solve practical problems, and having strong consciousness and basic ability for engineering innovation.

(5) They should have systems thinking and engineering reasoning ability, basic understanding of the engineering problems and the ability to judge, and the primary ability of project design, implementation and control.

(6) They should have the strong ability of self-access to knowledge, the ability of collecting and processing information, and the ability of life-long learning.

(7) They should have the strong ability of exchange and communication, team work, and organizational management, and at the same time they can participate in the multi-disciplinary international competition and cooperation.

(8) They should have the strong ability to adapt to the various changes of society and the environment, have the good physical and psychological quality, strong social responsibility, and good engineering professional ethics and social services awareness.

(9) They should be familiar with the technology standard in the professional field, the policies, laws and regulations of the related industries.

### 三、主干学科

#### III Major Disciplines

主干学科：机械工程、车辆工程

Major Disciplines: Mechanical engineering, Vehicle Engineering

### 四、专业核心课程与专业特色课程

#### IV Core Courses and Characteristic Courses

专业核心课程：理论力学、材料力学、电工与电子技术基础、计算机技术基础、机械原理、机械设计、汽车构造、汽车理论、汽车设计等。

Major Courses: Theoretical Mechanics, Mechanics of Materials, Electrical Engineering B, Fundamentals of Computer Technology, Mechanism and Machine Theory, Mechanical Design, Construction of Automobile, The Theory of Automobile, Automobile Design, etc.

专业特色课程：汽车构造、汽车理论、汽车试验学、汽车设计、汽车与发动机制造工艺学、汽车性能实验

Characteristic Courses: Construction of Automobile, The Theory of Automobile A, Test Technology of

Vehicle , Automobile Design、 Manufacturing Technology of Automobile and Engine、 Auto Performance Test

### 五、计划学制与学位

#### V Length of School and Degree

修业年限：四年

Duration: Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineer

### 六、最低毕业学分规定

#### VI Graduation Credit Criteria

课程类别 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	44.5	46.5	\	31	\	190
选修课 Elective Courses	9	4	10	\	\	10	

### 七、课程修读指导建议

#### VII Recommendations on Course Studies

## 八、理论教学建议进程表

### VIII Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term				
通 识 课 程  Public Basic Courses	必 修 课  Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6				
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese	2	32					1-6				
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6				
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6				
		1060001110	军事理论 Military Theory	2	32			16		2-4				
		4210001110	体育 1 Physical Education I	1	32					1				
		4210002110	体育 2 Physical Education II	1	32					2	体育 1			
		4210003110	体育 3 Physical Education III	1	32					3	体育 2			
		4210004110	体育 4 Physical Education IV	1	32					4	体育 3			
		4030002110	大学英语 A1 College English A I	3	64				16	1				
		4030003110	大学英语 A2 College English A II	3	64				16	2	大学英语 A1			
		4030004110	大学英语 A3 College English A III	3	64				16	3	大学英语 A2			
		4030005110	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3			
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1				
		程序设计语言课程组(三选一, 3 学分)												
			4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2	大学计算机基础		
			4120024110	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2	大学计算机基础		
			4120025110	计算机程序设计基础(VB 语言) Fundamentals of Computer Program	3	48		12			2	大学计算机基础		
			小 计 Subtotal			35	720							
		选 修 课  Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 学分, 且在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and select at least one course in five categories respectively.								
人文社科类 Arts and Social Science Courses														
经济管理类 Economy and Management Courses														
科学技术类 Science and Technology Courses														
艺术体育类 Art and Physical Education Courses														

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
学 科 大 类 课 程  Basic Disciplinary Courses	必 修 课  Required Courses	4090070010	专业导论 Introduction to Specialty	1	16			2		1		
		4050063110	高等数学 A1 Advanced Mathematics A I	5	80					1		
		4050064110	高等数学 A2 Advanced Mathematics A II	5	80					2	高等数学 A1	
		4080039110	工程图学 A1 Engineering Graphics A I	3.5	56					1		
		4080039110	工程图学 A2 Engineering Graphics A II	2.5	40					2	工程图学 A1	
		4050229110	线性代数 A Linear Algebra	2.5	40					2		
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3		
		4050024110	大学物理 B Physics B	5	80					2		
		4050224110	物理实验 B Physics Experiment B	1	32	32				3	大学物理 B	
		4200318130	普通化学基础 Fundamentals of General Chemistry	2	32	10				5		
		4100009110	电工与电子技术基础 A1 Electrical Engineering A I	3.5	56	10				3		
		4100009110	电工与电子技术基础 A2 Electrical Engineering A II	3.5	56	10				4	电工与电子技术基础 A1	
		4080034110	工程材料 Engineering Materials	2.5	40	4				2		
		4080078110	金属工艺学 B Metallurgical Technology B	2.5	40	4				3	工程材料	
		4080054110	互换性与测量技术 B Interchangeability and Measurement B	2	32	4				5		
		小 计 Subtotal				44.5	728	74	0	2		
	选 修 课  Elective Courses	4090024110	汽车 CAD/CAE Computer Aided Design and Engineering	2	32		10			4		
		4090021110	流体力学基础 C Fluid Mechanics Elements C	2	32	2				4		
		4090075110	轨道车辆概论 Introduction to Railway Vehicle	2	32					4		
		4090064110	热工基础 Elements of Thermodynamics	2	32	2				5		
		4090003020	电机学基础 Fundamentals of Electrical Machinery	2	32	2				5		
			MATLAB 及应用	2	32		6			5		
		4100065110	自动控制原理 C Automatic Control Principle C	2.5	40	8				5		
小 计 Subtotal				14.5	232	14	16					
修读说明：要求至少选修 4 学分。 NOTE: Minimum subtotal credits: 4.												

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
专 业 课 程	必 修 课  Required Courses	4050129110	理论力学 A Theoretical Mechanics A	4.5	72					3		
		4050018110	材料力学 C Mechanics of Materials C	4	64	4				4	理论力学 A	
		4080062110	机械原理 Mechanism and Machine Theory	3.5	56	4				4	工程图学 A2	
		4080060110	机械设计 Mechanical Design	4	64	6				5	机械原理	
		4090037110	汽车构造 A Construction of Automobile A	4	64			4		5	机械原理	
		4090010110	发动机原理 B Engine Principle B	2	32					5	汽车构造 A	
		4090060110	汽车振动基础 Fundamentals of Vehicle Vibration	2	32					5	机械原理	
		4090042110	汽车理论 A The Theory of Automobile A	3.5	56					6	汽车构造 A	
		4090049110	汽车试验学 A Test Technology of Vehicle A	3	48					6	汽车构造 A	
		4090119120	汽车与发动机制造工艺学 Manufacturing Technology of Automobile and Engine	4	64			24		6	汽车构造 A	
		4090053110	汽车性能实验 Auto Performance Test	1	32	32				6	汽车理论 A	
		4090004110	电子控制技术及应用 Technology and Applications of Electronic Control	3	48	8				6	计算机程序设计基础	
		4090028110	汽车电器与电控系统 Automobile Electric Equipment and Control System	3	48	6				6	汽车构造 A	*
		4090112120	汽车设计 Automobile Design	5.0	80			32		7	汽车理论 A	
		小 计 Subtotal				46.5	760	60	0	60		
	选 修 课  Elective Courses	4090155130	汽车新技术概论 Automobile New Technology Introduction	2	32					7		
		4090156130	汽车创新设计 Automotive Innovation Design	2	32			16		7		
		4090067110	先进制造技术概论 Introduction to Advanced Manufacturing	2	32					7		
		4090061110	汽车自动变速技术 Technology of Automobile Automatic Transmission	2	32	4		2		7		
		4090056110	汽车优化设计 Optimization Design of Automobile	2	32			12		7		*
		4090025110	汽车车身结构与设计 Construction and Design of Automobile	2	32					7		
		4090069110	新能源汽车结构与原理 Structures and Theory of Electric Vehicle	2	32			2		7		
		4090041110	汽车可靠性 Automobile Reliability	2	32					7		
4090044110		汽车排放与噪声控制 Automobile Emission and Noise Control	2	32					7			
4090045110		汽车碰撞与安全 Collision and Safety of Vehicle	2	32					7			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			建议修读学期 Suggested Term
		4090071110	专用车结构与 设计 Construction and Design of Special Automobile	2	32			2		7		
		4090040110	汽车结构有限元分析 Finite Element Method Analyze of Automotive configuration	2	32		14			7		
		4090054110	汽车液压与气压传动 Hydraulic and Air Pressure Transmission of Automobile	2	32			2		7		
		小 计 Subtotal		26	416	4	26	24				
修读说明：要求至少选修 10 学分 NOTE: Minimum subtotal credits: 10.												

### 九、集中性实践教学环节建议进程表

#### IX Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crs	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4080150110	机械制造工程实训 B Metal Techniques Practice B	4	4	3	
4100069110	电工电子实习 B Electrical practice B	1	1	4	
4080149110	机械原理课程设计 Mechanical Principles Course Design	1.5	1.5	4	
4080147110	机械设计课程设计 Mechanical Design Course Design	3	3	5	
4090084110	汽车拆装实习 Automobile Construction Practice	2	2	6(分散)	
4090133120	汽车制造工艺实习 Automobile Manufacturing Technology Practice	1	1	6	
4090158130	企业工程实践 Enterprise Engineering Practice	5	5	6(暑期), 7	
4090081110	毕业实习 Graduation Practice	2	2	8	
4090077110	毕业设计(论文) Graduation Design(Graduation Thesis)	15	10	8	
小 计 Subtotal		37.5	31		

### 十、其它要求

#### X Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term. The course will be arranged by the University Students' Affairs' Department in each school.

# 汽车服务工程（卓越工程师）专业本科培养方案

## Undergraduate Program for Specialty in Automotive Support Engineering (Excellent Engineer Class)

### 一、业务培养目标

#### I Educational Objectives

本专业培养具有扎实的机械（汽车）工程科学、管理科学理论基础，掌握一定的现代信息技术和经营管理知识，了解学科发展前沿，具备“懂技术、善经营、会服务”的能力素质，能够适应汽车技术支持、汽车营销、产品规划、服务管理等汽车服务领域工作的复合型高级人才。

The major brings up inter-disciplinary advanced talents who have the knowledge of mechanical (Automotive) engineering and management science, grasp modern info technology and operation and management knowledge, understand the discipline development frontier, possess the ability of knowing both technology and management and being good at service and adapt to jobs in automotive supporting fields such as automotive technology support, automotive marketing, product planning and support management.

### 二、业务培养要求

#### II Educational Requirement

本专业学生主要学习机械（汽车）工程科学、管理科学的基本理论知识，接受现代汽车技术支持、汽车营销管理与决策、汽车服务运作与规划的系统训练，具有从事汽车技术支持、汽车营销、产品规划、服务系统设计与管理等工作的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 具有较扎实的机械（汽车）工程科学、管理科学理论基础，较系统地掌握汽车服务工程领域的基础理论知识，主要包括工程力学、机械学、电工电子学、工程材料、汽车结构与性能、营销管理、服务运作管理等；
2. 获得相关的工程和管理实践训练，具备开展汽车技术支持、市场研究、分析决策的基本能力；
3. 掌握实用的专业技能，具有从事汽车技术支持、汽车营销及相关服务、汽车服务运作与规划等相关领域工作所必需的专业知识和解决实际问题的能力；
4. 具有较强的外语应用、信息技术应用和文献检索等能力；
5. 了解本学科发展动态、相关法规和国际惯例，具有较强的创新意识、一定的科学研究和组织管理能力；
6. 具有良好的人文和身心素质，较强的团队意识、协作精神和社会活动能力。

The undergraduate programs of the specialty are designed to study basic theories of mechanical (Automotive) engineering and management science, receive systematic training on modern automotive technology support, management and decision-making of automotive marketing and operation and planning of automotive support and possess the ability for the jobs of automotive technology support, automotive marketing, product planning and design and management of support system.

The students awarded their bachelor degree of automotive support engineering have the capacities and knowledge as follows.

1. Possess basic theory of mechanical (Automotive) engineering and management science, systematically grasp fundamental theoretical knowledge of automotive support engineering fields, including Engineering Mechanics, mechanics, electrotechnics, materialogy, engineering material, structure and performance of automotive, marketing management and support operation management, etc.
2. Receive relevant practical training; possess basic abilities for automotive technology support, marketing research and analysis and decision-making.

3. Grasp practical specialized skills; possess the abilities for specialized knowledge needed for jobs in fields of automotive technology support, automotive marketing and operation and planning of automotive support and for practical problem solving.

4. Possess powerful abilities in English, information technology application and information retrieval, etc.

5 Understand the development trend of the discipline; be familiar with relevant policies, as well as laws and regulations; possess innovative consciousness and the abilities for science research and organizational management in some degree.

6. Possess good quality in humanity and mind and body and strong abilities for teamwork and social activities.

### 三、主干学科

#### III Major Disciplines

主干学科：机械工程、管理工程

Major Disciplines: Mechanical Engineering, Managing Engineering

### 四、专业核心课程与专业特色课程

#### IV Core Courses and Characteristic Courses

专业核心课程：汽车构造、汽车理论、汽车电子控制系统、汽车电器设备

Core Courses: Construction of Automobile, The Theory of Automobile, Vehicle Electronic Control System, Vehicle Electric Equipment

专业特色课程：汽车服务系统规划、汽车营销与策划、汽车维修工程

Characteristic Courses: Vehicle Support System Programming, Vehicle Marketing and Planning, Vehicle Maintenance and Repair Engineering

### 五、计划学制与学位

#### V Length of School and Degree

修业年限：四年

Duration: Four Years

授予学位：工学学士

Degree Granted: Bachelor of Engineering

### 六、最低毕业学分规定

#### VI Graduation Credit Criteria

课程类别 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	40	49.5	\	27	\	190
选修课 Elective Courses	9	4	15.5	\	\	10	

### 七、课程修读指导建议

#### VII Recommendations on Course Studies

## 八、理论教学建议进程表

## VIII Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur				
通 识 课 程  Public Basic Courses	必 修 课 程  Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6			
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6			
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6			
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6			
		1060003130	军事理论 Military Theory	1	32			16		1			
		4210001110	体育 1 Physical Education I	1	32					1			
		4210002110	体育 2 Physical Education II	1	32					2	体育 1		
		4210003110	体育 3 Physical Education III	1	32					3	体育 2		
		4210004110	体育 4 Physical Education IV	1	32					4	体育 3		
		1050001130	心理健康教育 Mental Health Education	1	16					1			
		4030002110	大学英语 A1 College English A I	3	64				16	1			
		4030003110	大学英语 A2 College English A II	3	64				16	2	大学英语 A1		
		4030004110	大学英语 A3 College English A III	3	64				16	3	大学英语 A2		
		4030005110	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3		
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1			
		程序设计语言课程组(三选一, 3 学分) Courses of Computer Program Design (select one out of three, Credits: 3)											
			4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
			4120024110	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2		
	4120025110	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2				
	小 计 Subtotal			35	736		24	64	64				

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur				
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 学分，建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.								
		人文社科类 Arts and Social Science Courses											
		经济管理类 Economy and Management Courses											
		科学技术类 Science and Technology Courses											
		艺术体育类 Art and Physical Education Courses											
学 科 大 类 课 程 Basic Disciplinary Courses	必修课 Required Courses	4090070110	专业导论 Introduction to Automotive Engineering	1	14			2		1			
		4050063110	高等数学 A 上 Advanced Mathematics A I	5	80					1			
		4080039110	工程图学 A1 Engineering Graphics A I	3.5	56					1			
		4050064110	高等数学 A 下 Advanced Mathematics A II	5	80					2	高等数学 A 上		
		4080040110	工程图学 A2 Engineering Graphics A II	2.5	40					2	工程图学 A1		
		4050229110	线性代数 Linear Algebra	2.5	40					2			
		4050463130	大学物理 B Physics B	5	80					2			
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3			
		4050224110	物理实验 B Physics Lab. B	1	32	32				3			
		4080078110	金属工艺学 B Metallurgical Technology B	2.5	40	4				3			
		4100009110	电工与电子技术基础 A1 Fundamentals of Electrical and Electronic Technology A I	3.5	56	10				3			
		4100010110	电工与电子技术基础 A2 Fundamentals of Electrical and Electronic Technology A II	3.5	56	10				4	电工与电子技术基础 A1		
		4080054110	互换性与测量技术 B Interchangeability and Measurement B	2	32	4				5			
		小 计 Subtotal				40	654	60		2			
			选修课 Elective Courses	4090034110	汽车服务工程基础 Vehicle Support Engineering Foundation	2	32	2				5	
4090024110	汽车 CAD/CAE Computer Aided Design and Engineering of Automobile and Engine			2	32		10			5			
4090020110	流体力学基础 B Fluid Mechanics Elements B			2	32	2				6			
4090064110	热工基础 Elements of Thermodynamics			2	32	2				6			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur				
		小 计 Subtotal		8	128	6	10						
修读说明：要求至少选修 4 学分。 NOTE: Minimum subtotal credits: 4.													
专 业 课 程  Specialized Courses	必 修 课  Required Courses	4080034110	工程材料 Engineering Materials	2.5	40	4				2			
		4050129110	理论力学 A Theoretical Mechanics A	4.5	72					3			
		4050018110	材料力学 C Mechanics of Materials C	4	64	4				4			
		4080062110	机械原理 Mechanism and Machine Theory	3.5	56	4				4			
		4090037110	汽车构造 A Construction of Automobile A	4	64			4		4			
		4080060110	机械设计 Mechanical Design	4	64	6				5			
		4090042110	汽车理论 A The Theory of Automobile A	3.5	56	6				5			
		4090009110	发动机原理 B Engine Principle B	2	32	4				5			
		4090036110	汽车服务系统规划 Vehicle Support System Programming	3	48					5			
		4090055110	汽车营销与策划 Vehicle Marketing and Planning	3	48					5			
		4090027110	汽车电器设备 Vehicle Electric Equipment	2	32	4				5			
		4090004110	电子控制技术及应用 Technology and Applications of Electronic	3	48	8				5			
		4090030110	汽车电子控制系统 Vehicle Electronic Control System	3	48	6				6			
		4090050110	汽车维修工程 Vehicle Maintenance and Repair	2.5	40					6			
		4090059110	汽车诊断实验 Vehicle Diagnosis Experiment	1	32	32				6			
		4090048110	汽车市场调查与预测 Vehicle Marketing Research and Forecast	2	32					6			
		4090039110	汽车检测技术 Vehicle Inspection Technology	2	32					6			
		小 计 Subtotal				49.5	808	78		4			
	选 修 课  Elective Courses	技术类课程模块（要求至少选修 6 学分） Technique-related course module (Minimum subtotal 4 credits)											
		4090069110	新能源汽车结构与原理 Structures and Theory of Electric Vehicle	2	32				2		6		
4090004110		电子控制技术及应用 Technology and Applications of Electronic	3	48	8				6				
4090054110		汽车液压与气压传动 Hydraulic and Air Pressure Transmission of Automobile	2	32					6				
4090047110		汽车设计基础 Automobile Design Foundation	2	32					7				

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including					建议修读学期 Suggested Term	先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur			
		4090041110	汽车可靠性 Automobile Reliability	2	32					7		
		4090044110	汽车排放与噪声控制 Vehicle Emission and Noise Control	2	32					7		
		4090057110	汽车与发动机制造工艺学 The Manufacturing Technology for Automobile and Engine	2.5	40					7		
		4090099120	可编程控制系统 Programmable Control System	2	32		10			7		
营销类课程模块（要求至少选修 6 学分） Marketing-related course module (Minimum subtotal 4 credits)												
		4090163130	专业英语 English for Automotive Support Engineering	2	32					6		
		4090015110	国际汽车贸易理论与实务(双语) Theory and Practice of Vehicle International Trade(bilingual)	3	48					7		
		4090016110	机动车保险与理赔 Vehicle Insurance and Compensation	2	32					7		
		4090035110	汽车服务企业财务管理 Financial Management for Automotive Operation Enterprise	2	32					7		
		4090147130	汽车物流 Logistics of Automobile	2	32					7		
		4090108120	汽车工业经济学基础 Foundation for Automobile Industry	2	32					7		
		4090103120	汽车产品研发管理 Management of Automotive Product R&D	2	32					7		
		4090107120	汽车服务企业运营管理 Management for Automotive Operation	2	32					7		
		4090148130	汽车项目管理 Management for Automotive Project	2	32					7		
		4090146130	汽车生产与运作管理 Production and Operation Management for Automotive	2	32					7		
			小 计 Subtotal	38.5	616	8	10					
修读说明：要求至少选修 15.5 学分。 NOTE: Minimum subtotal credits: 15.5.												

## 九、集中性实践教学环节建议进程表

### IX Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	周数 Weeks	学分 Crts	建议修读学期 Suggested Term	第二专业 Second Major
1060002110	军事训练 Military Training	3	1.5	1	
4080150110	机械制造工程实训 B Practice of Technology of Metals B	4	4	3	
4080149110	机械原理课程设计 Mechanical Principles Course Design	1.5	1.5	4	
4100069110	电工电子实习 B electrical practice B	1	1	4	
4090084110	汽车拆装实习（下午进行） Automobile Construction Practice	2	1	5	
4080147110	机械设计课程设计(上机 10 学时)(1~3 周进行) Mechanical Design Course Design	3	3	6	
4090089110	汽车维修实习（下午进行） Vehicle Maintenance Practice	2	2	6	
4090088110	汽车市场调查与商务实习 Vehicle Market Investigation and Business Practice	1	1	7	
4090079110	毕业实习 Practice for Graduation	2	2	8	
4090076110	毕业论文(设计) Graduation Thesis(Design)	15	10	8	
小 计 Subtotal		34.5	27		

## 十、其它要求

### X Other Demands

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

*Situation & Policy*, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.

# 能源与动力工程专业（卓越工程师班）本科培养方案

## Undergraduate Program for Specialty in Energy and Power Engineering for Excellent Engineers

### 一、业务培养目标

#### I Educational Objectives

本专业培养具备能源与动力工程方面基础知识和应用能力，能从事动力机械与动力工程的设计、制造、试验研究、开发、管理等方面工作，具有创新精神与实践能力的高级工程技术人才。

This program aims at cultivating the senior engineering and technical talents who have the basic acknowledge and application ability in energy and power engineering, are capable of designing, manufacturing, experimental study, developing, managing etc in power machinery and engineering, and possess the spirit of innovation and practical ability.

### 二、业务培养要求

#### II Educational Requirement

本专业学生主要学习动力工程热物理的基础理论知识，学习能量转换及有效利用的理论和技術，受到现代动力工程师的基本训练；具有进行动力机械与热工设备设计、运行、实验研究的基本能力。

毕业生应获得以下几方面的知识和能力：

1. 掌握本专业的技术理论知识，主要包括工程力学、机械设计基础、工程热物理、流体力学、电工与电子学、控制理论及企业管理等基础知识。
2. 具有热能与动力工程的专业知识，获得相关的工程实践训练，具备开展动力机械与热工设备设计、运行、实验研究的基本能力；
3. 具有一定的计算机和外语应用能力；
4. 了解该学科的前沿知识及其发展趋势；
5. 具有较强的自学能力、创新意识和较高的综合素质。

The students of this program mainly learn foundational theoretical knowledge of thermal physics in power engineering, study theory and technology of energy transformation and effective utilization. They get basic training as modern power engineer, and have the basic ability of designing, operating, experimental research in power machinery and thermal engineering.

Graduates should acquire the following aspects of knowledge and ability:

1. The technical theory knowledge of this specialty, mainly including engineering mechanics, fundamental of machine design, engineering thermal physics, hydrodynamics, electrician and electronics, control theory and enterprise management etc;
2. Specialty knowledge in thermal energy and power engineering, relevant engineering practice training, basic abilities as designing, operation, and experimental studies of power machinery and thermal equipment;
3. Computer and foreign language application skill;
4. Understanding of the disciplines trend and current stage of development;
5. Strong self-learning ability, innovative thinking and higher quality.

### 三、主干学科

#### III Major Disciplines

主干学科：动力工程与工程热物理，机械工程

Major Disciplines: Power Engineering and Engineering Thermal Physics, Mechanical Engineering

### 四、专业核心课程与专业特色课程

#### IV Core Courses and Characteristic Courses

专业核心课程：传热学、发动机原理、汽车发动机设计、热能与动力机械测试技术、汽车与发动机制造工艺学

Core Courses: Heat Transfer, Fundamentals of Internal Combustion Engine, Automobile Engine Design, Measurement Technology in Thermal and Power Machinery, Manufacturing Technology of Automobile

专业特色课程：、汽车构造 A、热能与动力机械测试技术

Characteristic Courses: Automobile Construction A , Measurement Technology in Thermal Energy and Power Machinery

### 五、学制与学位

#### V Length of School and Degree

修业年限：四年

Duration: 4 years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineer

### 六、最低毕业学分规定

#### VI Graduation Credit Criteria

课程类别 课程性质	通识课程 Public Basic Courses	学科大类课程 Basic Disciplinary Courses	专业课程 Specialized Courses	个性课程 Personalized Course	集中性实践 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	35	41	50	\	25	\	190
选修课 Elective Courses	9	4	16	\	\	10	

### 七、课程修读指导建议

#### VII Recommendations on Course Studies

## 八、理论教学建议进程表

### VIII Theory Course Schedule

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major	
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term			
通 识 课 程  Public Basic Courses	必 修 课 程  Required Courses	4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		1-6			
		4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					1-6			
		4220003110	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics	4	96			32		1-6			
		4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		1-6			
		1060003130	军事理论 Military Theory	1	32			16		2-4			
		1050001130	心理健康教育 Mental Health Education	1	16					1-2			
		4210001110	体育 1 Physical Education I	1	32					1			
		4210002110	体育 2 Physical Education II	1	32					2	体育 1		
		4210003110	体育 3 Physical Education III	1	32					3	体育 2		
		4210004110	体育 4 Physical Education IV	1	32					4	体育 3		
		4030002110	大学英语 A1 College English A 1	3	64				16	1			
		4030003110	大学英语 A2 College English A II	3	64				16	2	大学英语 A1		
		4030004110	大学英语 A3 College English A III	3	64				16	3	大学英语 A2		
		4030005110	大学英语 A4 College English A IV	3	64				16	4	大学英语 A3		
		4120017110	大学计算机基础 Foundation of Computer	2	32		12			1			
		程序设计语言课程组(三选一, 3 学分)											
			4120023110	计算机程序设计基础(C 语言) Fundamentals of Computer Program Design(C)	3	48		12			2		
	4120024110	计算机程序设计基础(FORTRAN 语言) Fundamentals of Computer Program Design(FORTRAN)	3	48		12			2				
	4120025110	计算机程序设计基础(VB 语言) Fundamentals of Computer Program Design(VB)	3	48		12			2				
	小 计 Subtotal		35	704									

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Cr	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major		
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term				
	选修课 Elective Courses	创新创业类 Innovation and Entrepreneurship Courses			全校学生要求至少取得 9 学分, 建议在每个类别中分别至少选修一门课程。 All students are required to obtain at least nine credits, and suggested to select at least one course in five categories respectively.									
		人文社科类 Arts and Social Science Courses												
		经济管理类 Economy and Management Courses												
		科学技术类 Science and Technology Courses												
		艺术体育类 Art and Physical Education Courses												
学 科 大 类 课 程  Basic Disciplinary Courses	必修课 Required Courses	4090091110	专业导论 Introduction to Materials Physics	1	16					1				
		4050063110	高等数学 A 上 Advanced Mathematics A I	5	80					1				
		4050064110	高等数学 A 下 Advanced Mathematics A II	5	80					2	高等数学 A 上			
		4080039110	工程图学 A1 Engineering Graphics A I	3.5	56					1				
		4080040110	工程图学 A2 Engineering Graphics A II	2.5	40					2	工程图学 A1			
		4050229110	线性代数 Linear Algebra	2.5	40					2				
		4050058110	概率论与数理统计 B Probability and Mathematics Statistic B	3	48					3				
		4050024110	大学物理 C Physics B	4.5	72					2				
		4050224110	物理实验 B Physics Lab. B	1	32	32				3				
		4100009110	电工与电子技术基础 A1 Fundamentals of Electrical and Electronic Technology A I	3.5	56	10				3				
		4100010110	电工与电子技术基础 A2 Fundamentals of Electrical and Electronic Technology A II	3.5	56	10				4	电工与电子技术基础 A1			
		4080062110	机械原理 Mechanism and Machine Theory	3.5	56	4				4				
		4080034110	工程材料 Engineering Materials	2.5	40	4				3				
		小 计 Subtotal				41	672	60						
			选修课 Elective Courses	4090005110	发动机 CAD/CAE Engine Computer Aided Design/Computer	2	32		10			6		
				4090063110	燃烧理论基础 Fundamentals of Combustion Theory	2	32					6		
4090003110	电机学基础 Fundamentals of Electrical Machinery			2	32	2				6				
4090125120	热能与动力机械基础 basic thermal and power equipment			2	32					6				
小 计 Subtotal				8	128	2	10							

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Crs	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
修读说明：要求至少选修 4 学分。 NOTE: Minimum subtotal credits: 4.												
专 业 课 程  Specialized Courses	必 修 课  Required Courses	4050129110	理论力学 A Theoretical Mechanics A	4.5	72					3		
		4050018110	材料力学 C Mechanics of Materials C	4	64	4				4		
		4080060110	机械设计 Mechanical Design	4	64	6				5		
		4080078110	金属工艺学 B Metallurgical Technology B	2.5	40	4				4		
		4080054110	互换性与测量技术 B Interchangeability and Measurement B	2	32	4				5		
		4090019110	流体动力学基础 A Fluid Mechanics in Thermal and Power	3	48	4				5		
		4090012110	工程热力学 B Engineering Thermodynamics B	3	48	4				5		
		4090002110	传热学 Heat Transfer	3	48	4				6	工程热力学 B	
		4090037110	汽车构造 A Automobile Construction A	4	64			4		5		
		4090008110	发动机原理 A Fundamentals of Internal Combustion	3.5	56	4				6	汽车构造 A	
		4090162130	汽车与发动机制造工艺学 Manufacturing Technology of Automobile	4.5	72			32		6	汽车构造 A	
		4090006110	发动机管理系统 Engine Management System	3	48	4				6	发动机原理 A	
		4090065110	热能与动力机械测试技术 Measurement Technology in Thermal and Power Machinery	3	48	4				7		
		4090143130	汽车发动机设计 Automobile Engine Design	5	80			48		7		
		4090066110	热能与动力机械性能实验 Performance Experiment in Thermal Energy and Power Machinery	1	32	32				7	热能与动力机械测试技术	
		小 计 Subtotal				50	816	74		84		
	选 修 课  Elective Courses	4090074110	代用燃料及内燃机新技术（双语） Advanced Engine and Alternative Fuel	1	16					7		
		4090031110	汽车动力装置匹配技术 Automobile Power Device Matching Technology	2	32					7		
		4090040110	汽车结构有限元分析 Automobile Finite Element Analysis	2	32		14			7		
		4090126120	热能与动力机械数据采集与处理 Data Acquisition and Processing in Thermal and Power Machinery	2	32					7		
4090007110		发动机优化技术 Engine Optimal Technology Control	2	32					7			
4090073110		发动机振动与噪声 Vibration and Noise of Engine	2	32					7			
4090032110		汽车发动机排放与控制 Automobile Engine Exhaust Emission and Control	2	32					7			

课程类别 Course Classification	课程性质 Course Nature	课程编号 Course Number	课程名称 Course Title	学分 Cr	学时分配 Including						先修课程 Prerequisite Course	第二专业 Second Major
					总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur	建议修读学期 Suggested Term		
		4090022110	内燃机增压技术 Internal Combustion Engine Turbocharged	2	32					7		
		4090052110	汽车新能源及其动力装置 Automotive New Energy and Power Unit	2	32					7		
		4090062110	燃料电池技术基础 Fundamentals of Fuel Cell Technology	2	32					7		
		4090129120	智能检测与控制技术 Intelligent Measurement and Control Technology	2	32					7		
		4090072110	摩托车构造与设计 Motorcycle Construction and Design	2	32					7		
		4090043110	汽车理论 B Theory of Vehicle B	2	32					7		
		小 计 Subtotal		25	400		14					
修读说明：要求至少选修 16 学分。 NOTE: Minimum subtotal credits: 16.												

### 九、集中性实践教学进程表

#### IX、Practice Training Table

##### (1) 校内集中性实践教学环节

##### (1) Practical Training Program on Campus

课程编号	实践环节名称 Practice Courses Name	周数 Weeks	学分 Cr	建议修读学期 Suggested Term
1060002110	军事训练 Military Training	3	1.5	1
4080150110	机械制造工程实训 B Practice of Technology of Metals B	4	4	3
4100069110	电工电子实习 B electrical practice B	1	1	4
4080147110	机械设计课程设计 Mechanical Design Course Design	3	3	6
4080149110	机械原理课程设计 Mechanical Principles Course Design	1.5	1.5	4
4090084110	汽车拆装实习 Automobile Construction Practice	2	2	5(分散)
小 计 Subtotal		14.5	13	

##### (2) 校外实践教学环节

##### (2) Practical Training Program Outside

课程编号	实践环节名称 Practice Courses Name	周数 Weeks	学分 Cr	建议修读学期 Suggested Term
4090080110	毕业实习 Practice of Specialty	2	2	8
4090131120	毕业设计(论文) Design for Graduation (Including 50 hr working on computer)	15	10	8
小 计 Subtotal		17	12	

## 十、其它要求

### **X Other Demands**

《形势与政策》课程，平均每学期 16 学时，一般按专题进行，在第七学期末考核，计 2 个课外学分，具体由学校学生发展指导中心负责组织落实。

*Situation & Policy*, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students' Affairs' Department in each school.