

车辆工程

Vehicle Engineering

专业代码: 080207

学 制: 4 年

Program Code: 080207

Duration: 4 years

培养目标:

本专业主要培养坚持社会主义道路, 适应经济、科技和社会发展需要, 德、智、体全面发展的从事汽车设计、制造、实验研究以及经营管理等工作、有一定创新能力的高级工程技术人才; 学生系统掌握车辆工程的基础理论、基本知识、基本技能以及所需的系统专业知识, 接受现代汽车工程师的基本训练, 初步具备综合运用所学知识分析和解决车辆工程实践中遇到的研究、运用、规划、设计制造及实验等问题的能力。毕业后可从事与车辆工程有关的研究、设计、制造、实验、管理等工作。

Educational Objectives:

The program Educational Objectives for the vehicle engineering are to educate graduates who will be ethical, productive, innovative, and contributing members of society, and adapt to the demands of economy, science and technology, and the developments of society, contributing to the automobile industry, such as vehicle design and manufacturing, experimental research and management. With the basic vehicle engineer discipline, they will systematically grasp the fundamental theory, knowledge, skills and professional foundations of vehicle engineering, and be able to solve technical and societal problems in the practice using their leaning skills. As they progress professionally after graduation, our alumni will use their engineering foundation for success in careers in research, design, manufacturing, experimental testing, and management in vehicle engineering.

毕业要求:

No1.工程知识: 掌握扎实的汽车与机械基础知识, 了解汽车产业基本运营模式, 同时能够将数学、自然科学、本专业基础知识和专业知识用于解决汽车企业复杂工程问题。

No2.问题分析: 能够应用数学、自然科学、本专业基本原理、方法和手段和汽车产业营运知识, 识别、表达、并通过文献研究分析汽车中的复杂工程问题, 以获得有效结论。

No3.设计/开发解决方案: 能够设计针对汽车生产研发过程中复杂工程问题的解决方案, 设计满足特定需求的汽车生产/开发中的系统、零部件或工艺流程, 并能够在设计环节中体现创新意识, 考虑社会、健康、安全、法律、文化以及环境等因素。

No4.研究: 能够基于科学原理并采用科学方法对汽车复杂工程问题进行研究, 包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。

No5.使用现代工具: 能够针对汽车生产或研发中的复杂工程问题, 开发、选择与使用恰当的技术

术、资源、现代工程工具和信息技术工具，包括对复杂工程问题的预测与模拟，并能够理解其局限性。

№6.工程与社会：能够基于车辆工程相关背景知识进行合理分析，评价工程实践和复杂问题解决对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。

№7.环境和可持续发展：能够理解和评价针对汽车复杂工程问题的工程实践对环境、社会可持续发展的影响。

№8.职业规范：具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和规范，履行责任。

№9.个人和团队：能够在多学科背景下的汽车生产/研发团队中承担个体、团队成员以及负责人的角色。

№10.沟通：能够就汽车生产研发的复杂工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。

№11.项目管理：理解并掌握汽车产业的工程管理原理与经济决策方法，并能在多学科环境中应用。

№12.终身学习：具有自主学习和终身学习的意识，有不断学习和适应发展的能力。

Student Outcomes:

№1.Engineering Knowledge: A solid fundamental knowledge on automotive and mechanical engineering. Good understanding on the business operations of automotive industry. An ability to apply knowledge of mathematics, science, engineering fundamentals and engineering specialization to solve complex engineering problems in automotive industry.

№2.Problem Analysis: An ability to identify, formulate and analyze complex engineering problems in automotive industry, reaching to substantiated conclusions using basic principles of mathematics, science, and engineering.

№3.Design / Development Solutions: An ability to design solutions for complex engineering problems in automotive industry and innovatively design automotive systems, components or processes that meet specific needs with societal, public health, safety, legal, cultural and environmental considerations.

№4.Research: An ability to conduct investigations of complex engineering problems in automotive industry based on scientific theories and adopting scientific methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.

№5.Applying Modern Tools: An ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities in automotive industry, with an understanding of the limitations.

№6.Engineering and Society: An ability to apply reasoning informed by contextual knowledge to assess impacts of automotive engineering practices and solutions to complex automotive engineering problems on

society, health, safety, legal and culture, and understand the consequent responsibilities to be taken.

№7.Environment and Sustainable Development: An ability to understand and evaluate the impact of automotive engineering practices on sustainable development of environment and society.

№8.Professional Standards: An understanding of humanity science and social responsibility, being able to understand and abide by professional ethics and standards responsibly in engineering practice.

№9.Individual and Teams: An ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.

№10.Communication: An ability to communicate effectively on complex automotive engineering problems with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, give and receive clear instructions, and communicate in cross-cultural contexts with international perspective.

№11.Project Management: Demonstrate knowledge and understanding of engineering management principles and methods of economic decision-making in automotive industry, to function in multidisciplinary environments.

№12.Lifelong Learning: A recognition of the need for, and an ability to engage in independent and life-long learning with the ability to learn continuously and adapt to new developments.

专业简介：

车辆工程专业从 1972 年开始招生，是国内最早涉足车辆工程人才培养和汽车科学技术研究的几所院校之一，隶属于机械工程一级学科，拥有汽车零部件技术国家地方联合工程实验室、广东省重点实验室、广东省汽车检测工程技术中心，由中国第 1 名外专千人计划、广东省珠江人才计划领军人才、新世纪优秀人才等组成的教学科研队伍使得车辆工程专业一直保持良好的发展。车辆工程培养从事车辆设计、制造、实验研究以及经营管理等工作的复合型高级专门人才，学生系统掌握车辆工程的基础理论、基本知识、基本技能以及所需的专业知识，初步具备综合运用所学知识分析和解决车辆工程实践中遇到的研究、运用、规划、设计制造及实验等问题的能力。毕业从事与车辆工程有关的研究、设计、制造、实验、管理等工作。

Program Profile:

Since 1972, there were undergraduates enrolled in Vehicle engineering in SCUT, and SCUT became one of the frontier universities providing university education in vehicle engineering and conducting researches in this field. Vehicle engineering is a branch of mechanical engineering, and there are State-province joint engineering laboratory of automobile parts technology, Key laboratory of Guangdong Province, and Guangdong Provincial Automotive Testing Engineering Technology Center. There is a strong and solid teaching and research team, including the first foreign expert of “one-thousand talent Plan” in China, the professors of “Guangdong Province, the leading talent of Pearl River Talent Program” and “the new century talents program”, which ensures the major maintaining a good development. After graduating from

the vehicle engineering, the graduates will use their engineering foundation for success in careers in engineering (design, manufacture, experimental study and management in car industry or other organizations). They should systematically possess the fundamental theory, knowledge, skills and professional foundations of vehicle engineering, and be able to solve technical and societal problems in the practice using their leaning skills, and take advantage of professional development opportunities in their disciplines, and develop new knowledge and skills and pursue new areas of expertise or careers.

专业特色:

依托广东省大学生创新创业训练基地（方程式赛车），以教促学、竞教结合，提高学生理论结合实际的能力；专业特色课程与教学实践环节有机结合，扩展学生的知识面、培养学生的动手能力和实践创新能力。培养的学生主要输送到国内大中型汽车生产厂家的研发、设计、制造部门，同时适应从事汽车及工程车辆的应用，生产管理等方面工作；也可以从事大专院校的科研、教学及管理工作。

Program Features:

Supported by the Guangdong Provincial innovating and entrepreneurship Base for Undergraduates(Formula racing), we combine the teaching and formula competition together, and promoting learning with teaching, to improve students' ability in practice of theoretical knowledge; The combination of professional courses and practical programs is helpful to expand the students' knowledge and discipline students' practical ability and innovative thinking. The graduates will be success in the careers related to R & D, design, manufacturing branches of the large or medium domestic Automobile Manufacturers, and non-technical careers in areas such as business and production management; and they can also be engaged in the related research, teaching and administration works in colleges.

授予学位: 工学学士学位

Degree Conferred: Bachelor of Engineering

主干课程:

汽车构造、测试技术、机械振动、工程热力学、微机控制技术、发动机原理、流体力学、汽车理论、汽车设计、汽车制造工程学。

Core Courses:

Automobile Structure, Measurement and Test Technique, Mechanical Vibrations, Engineering Thermodynamics, Microcomputer Control Technique, Theory of Automotive Engine, Fluid Mechanics, Theory of Automobile, Vehicle Design, Automotive Manufacturing Engineering

特色课程：

全英语教学课程：测试技术（部分学生选）

双语教学课程：汽车空气动力学及车身造型

专题研讨课：汽车新技术讲座

校企合作课：汽车制造工程学、汽车设计、汽车构造、机械振动、汽车诊断技术

竞教结合课程：汽车构造、汽车理论、汽车设计、测试技术

创业教育课程：汽车工业产业模式与创业

Featured Courses:

Courses Taught in English: Measurement and Test Technique

Bilingual Courses:

Automotive Aerodynamics and Body Styling

Special Topics:

New Automotive Technology Seminar

Cooperative Courses with Enterprises:

Automotive Manufacturing Engineering, Vehicle Design, Automobile Structure, Mechanical Vibration,

Automotive Diagnostic Technique

Contest-Teaching Integrated Courses:

Automobile Structure, Theory of Automobile, Vehicle Design, Measurement and Test Technique

Entrepreneurship Courses:

Models of Automotive Industry and Entrepreneurship

一、教学计划总体安排表 (General Teaching Schedule)

| 学 年 | 学 期 | 教 学 进 度 安 排 (周) | | | | | | | | | | | | | | | | | | | 理 论 教 学 | 考 试 | 入 学 教 育 | 军 训 | 课 程 设 计 | 大 作 业 | 工 程 训 练 | 电 子 实 习 | 综 合 实 验 | 社 会 实 践 | 生 产 实 习 | 毕 业 实 习 | 其 它 实 习 | 中 外 合 作 项 目 | 毕 业 设 计 | 就 业 安 排 | 机 动 | 假 期 | 小 计 | |
|---------|--------|-----------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|-----|----|------------------|--------|------------------|--------|------------------|-------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------------|------------------|------------------|--------|--------|--------|----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | | | | | | | | | | | | | | | | | | | | 20 |
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | | | | | | | | | | | | | | | | | | | | | |
| 一 | 1 | | C | A | A | A | A | A | A | A | A | A | A | A | A | A | B | D | D | D | 14 | 1 | 1 | 3 | | | | | | | | | | | | 19 | | | | |
| | 2 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | J | M | B | B | 16 | 2 | | | | | | | | | | | | | | 20 | | | | |
| 二 | 3 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | J | B | B | 17 | 2 | | | | | | | | | | | | | | | 20 | | | | |
| | 4 | G | G | G | G | A | A | A | A | A | A | A | A | A | A | E | E | B | B | 12 | 2 | | 2 | 4 | | | | | | | | | | | | 20 | | | | |
| 三 | 5 | A | A | A | A | A | A | A | A | A | A | A | A | A | E | E | B | B | 14 | 2 | | 2 | | 2 | | | | | | | | | | | 20 | | | | | |
| | 6 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | B | B | E | E | 16 | 2 | | 2 | | | | | | | | | | | | | 20 | | | | |
| 四 | 7 | K | K | K | A | A | A | A | A | A | A | A | A | A | A | A | B | B | 15 | 2 | | | | | | | | | | | | | | | | 20 | | | | |
| | 8 | I | M | Q | O | O | O | O | O | O | O | O | O | O | O | O | O | P | P | | | | | | | | | | | | | | | | | | 20 | | | |
| 合 计 (周) | | | | | | | | | | | | | | | | | | | 104 | 13 | 1 | 3 | 6 | | 4 | | 1 | | 3 | | 2 | | 15 | 2 | 2 | | | | 159 | |

二、各类课程学分登记表 (Registration Form of Curriculum Credits)

1. 学分统计表 (Credits Registration Form)

| 课程类别 Course Category | 课程要求 Requirement | 学分 Credits | 学时 Academic Hours | 备注 Remarks |
|---|-------------------------|---------------|----------------------|---------------|
| 公共基础课 General Basic Courses | 必修 Compulsory | 69.5 | 1084 | |
| | 通识 General Education | 10.0 | 160 | |
| 学科基础课 Disciplinary Basic Courses | 必修 Compulsory | 46.5 | 784 | |
| | 选修 Elective | 0.0 | 0 | |
| 专业领域课 Specialty- related Courses | 必修 Compulsory | 9.5 | 152 | |
| | 选修 Elective | 6.0 | 96 | |
| 合 计 Total | | 141.5 | 2276 | |
| 集中实践教学环节 (周) Practice Training (Weeks) | | 38.5 | 38.5 周 | |
| 毕业学分要求 Credits Required for Graduation | 141.5+38.5=180.0 | | | |

备注：学生在取得专业教学计划规定学分的同时，还必须取得第二课堂 2 个人文素质教育学分和 4 个创新能力培养学分。

2. 类别统计表 (Category Registration Form)

| 学时 Academic Hours | | | 学分 Credits | | | |
|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 总 | 其中 Include | 其中 Include | 总 | 其中 Include | 其中 Include | 其中 Include |
| | | | | | | |

| 学时数 Total | 必修学时 Compulsory | 选修学时 Elective | 理论教学学时 Theory Course | 实验教学学时 Lab | 学分数 Total | 必修学分 Compulsory | 选修学分 Elective | 集中实践教学环节学分 Practice-concentrated Training | 理论教学学分 Theory Course Credits | 实验教学学分 Lab | 创新创业教育学分 Innovation and Entrepreneurship Education |
|--------------|--------------------|------------------|-------------------------|---------------|--------------|--------------------|------------------|--|---------------------------------|---------------|---|
| 2276 | 2020 | 256 | 1978 | 298 | 180 | 164 | 16 | 38.5 | 132 | 9.5 | 17 |

三、专业教学计划表 (Teaching Schedule)

| 类别 Course Category | 课程 代码 Course No. | 课程名称 Course Title | 是否 必修 C/E | 学时数 Total Curriculum Hours | | | | 学分 数 Credits | 开课 学期 Semester | 毕业 要求 Student Outcomes | |
|--------------------------------|------------------------|--|-----------------|-------------------------------|---|--------------------|-------------------------|--------------------|----------------------|---------------------------------|----|
| | | | | 总学 时 Class Hours | 上机 Computer-ai ded Class Hours | 实验 Lab Hours | 实践 Practice Hours | | | | |
| 公共基础课 General Basic Courses | 143093 | 思想道德修养与法律基础 Cultivation of Thought and Morals & Fundamental of Law | 必修 C | (40) (36) | | | | 2.5 | 1 | №8 | |
| | 143091 | 中国近现代史纲要 Skeleton of Chinese Modern History | | (32) 24 | | | | 2.0 | 2 | №8 | |
| | 143106 | 毛泽东思想和中国特色社会主义理论体系概论 Thought of Mao ZeDong and Theory of Socialism with Chinese Characteristics | | (80) 48 | | | | 5.0 | 3 | №8 | |
| | 143090 | 马克思主义基本原理 Fundamentals of Marxism Principle | | (40) 36 | | | | 2.5 | 4 | №8 | |
| | 143094 | 形势与政策 Analysis of the Situation & Policy | | (128) | | | | 2.0 | 1-8 | №8 | |
| | 144001 | 大学英语 (一) College English(1) | | 64 | | | | 4.0 | 1 | №10 | |
| | 144002 | 大学英语 (二) College English(2) | | 64 | | | | 4.0 | 2 | №10 | |
| | 152001 | 体育 (一) Physical Education (1) | | 32 | | | 32 | 1.0 | 1 | №12 | |
| | 152002 | 体育 (二) Physical Education (2) | | 32 | | | 32 | 1.0 | 2 | №12 | |
| | 152003 | 体育 (三) Physical Education (3) | | 32 | | | 32 | 1.0 | 3 | №12 | |
| | 152004 | 体育 (四) Physical Education (4) | | 32 | | | 32 | 1.0 | 4 | №12 | |
| | 106001 | 军事理论 Military Principle | | (16) | | | | 1.0 | 2 | №9 | |
| | 140191 | 微积分 II (一) Calculus(1) | | 80 | | | | 5.0 | 1 | №1 | |
| | 140192 | 微积分 II (二) Calculus(2) | | 80 | | | | 5.0 | 2 | №1 | |
| | 140015 | 复变函数 I Complex Variable | | 32 | | | | 2.0 | 3 | №1 | |
| | 141005 | 大学物理 II (一) General Physics (1) | | 64 | | | | 4.0 | 2 | №1 | |
| | 141006 | 大学物理 II (二) General Physics (2) | | 64 | | | | 4.0 | 3 | №1 | |
| | 141007 | 大学物理实验 (一) Physics Experiment(1) | | 32 | | 32 | | 1.0 | 2 | №4 | |
| | 141008 | 大学物理实验 (二) Physics Experiment(2) | | 32 | | 32 | | 1.0 | 3 | №4 | |
| | 130137 | 画法几何及机械制图 (一) Descriptive Geometry & Machine Drawing (1) | | 48 | | | | 3.0 | 1 | №3 | |
| | 130138 | 画法几何及机械制图 (二) Descriptive Geometry & Machine Drawing (2) | | 64 | | | | 4.0 | 2 | №3 | |
| | 140197 | 线性代数与解析几何 Linear Algebra & Analytic Geometry | | 48 | | | | 3.0 | 1 | №2 | |
| | 140019 | 概率论与数理统计 Probability & Mathematical Statistics | | 48 | | | | 3.0 | 2 | №2 | |
| | 145223 | 大学计算机基础 College Computer Basis | | 32 | | | | 2.0 | 1 | №5 | |
| | 145268 | C++程序设计基础 C++ Program Designing Basics | | 48 | | | | 3.0 | 2 | №5 | |
| | 147045 | 大学化学 I General Chemistry | | 必 | 32 | | | | 2.0 | 1 | №1 |

| | | | | | | | | | |
|----------------------|---|------------------|------|--|----|-----|------|---|-------|
| 147036 | 大学化学实验 General Chemistry Experiment | 修 课 C | 16 | | 16 | | 0.5 | 2 | №4 |
| | 人文科学领域 (须包含 2 学分的管理类 通识课程) Humanities | 通 识 课 E | 96 | | | | 6.0 | | №8,11 |
| | 社会科学领域 Social Science | | 64 | | | | 4.0 | | №8 |
| 合 计 Total | | | 1244 | | 80 | 128 | 79.5 | | |

三、专业教学计划表 (续) (Teaching Schedule)

| 类别 Course Category | 课程 代 码 Course No. | 课程名称 Course Title | 是否 必 修 C/E | 学 时 数 Total Curriculum Hours | | | | 学 分 数 Credits | 开 课 学 期 Semester | 毕 业 要 求 Student Outcomes | |
|-------------------------------------|-------------------------------|---|---------------------|---------------------------------|-------------------------------------|--------------------|----------------|------------------------|------------------------------|---|--|
| | | | | 总学 时 Class Hours | 上机 Computer-aided Class Hours | 实验 Lab Hours | 实践 Practice | | | | |
| 学科基础课 Disciplinary Basic Courses | 133100 | 理论力学 I Theoretical Mechanics | 必 C | 64 | | | | 4.0 | 3 | №2 | |
| | 133288 | 材料力学 II Mechanics of Materials | 必 C | 72 | | 6 | | 4.5 | 4 | №2 | |
| | 135092 | 电工与电子技术 II Electrical Engineering and Electrontechnics | 必 C | 64 | | | | 4.0 | 4 | №3 | |
| | 135081 | 电工与电子技术实验 Experiment of Electrical Engineering and Electrontechnics | 必 C | 24 | | 24 | | 1.0 | 5 | №4 | |
| | 130265 | 机械原理 III Theory of Machines and Mechanism | 必 C | 56 | | | | 3.5 | 4 | №2 | |
| | 130263 | 机械设计 III Mechanical Design | 必 C | 56 | | | | 3.5 | 5 | №2 | |
| | 130070 | 互换性与技术测量 Interchangeability & Measurement Technology | 必 C | 24 | | | | 1.5 | 4 | №2 | |
| | 130078 | 机械工程材料 Materials of Mechanical Engineering | 必 C | 40 | | | | 2.5 | 4 | №1 | |
| | 130312 | 机械基础综合实验 III (分散进行) Poly-experiment of Mechanical Fundamentals | 必 C | 48 | | 48 | | 1.5 | 4、5 | №4 | |
| | 167031 | 测试技术 Testing Technology | 必 C | 32 | | | | 2.0 | 6 | №1,2,9 | |
| | 167061 | 机械振动 Mechanical Vibration | 必 C | 32 | | | | 2.0 | 5 | №1,2,12 | |
| | 130412 | 传热学 Heat Transfer | 必 C | 32 | | | | 2.0 | 3 | №1,2,4 | |
| | 130413 | 汽车制造工程学 Automotive Manufacturing Engineering | 必 C | 56 | | | | 3.5 | 6 | №1,2,9 | |
| | 167060 | 微机控制技术 The Technology Of Computer Control | 必 C | 32 | 12 | | | 1.5 | 5 | №1,3,4 | |
| | 167002 | 汽车构造 Automotive Structure | 必 C | 56 | | | | 3.5 | 5 | №1,2,3 | |
| | 167001 | 发动机原理 The Principles of Engine | 必 C | 32 | | | | 2.0 | 5 | №1,2,3 | |
| | 130414 | 流体力学 Fluid Mechanics | 必 C | 32 | | | | 2.0 | 3 | №1,2,3 | |
| | 145022 | 计算方法 Computational Method | 必 C | 32 | | | | 2.0 | 3 | №1 | |
| | 合 计 Total | | | 必 C | 784 | 12 | 78 | | 46.5 | | |

| 类别 Course Category | 课程 代码 Course No. | 课程名称 Course Title | 是否 必修 C/E | 学时数 Total Curriculum Hours | | | | 学分 数 Credits | 开课 学期 Semester | 毕业 要求 Student Outcomes |
|--|---------------------------|--|-----------------|-------------------------------|-------------------------------------|--------------------|----------------|--------------------|----------------------|---------------------------------|
| | | | | 总学 时 Class Hours | 上机 Computer-aided Class Hours | 实验 Lab Hours | 实践 Practice | | | |
| 专业领域课 Specialty- related Courses | 167003 | 汽车设计 Automotive Design | 必 C | 48 | | | | 3.0 | 6 上 | №1,2,3,7 |
| | 167004 | 汽车理论 Automotive Theories | 必 C | 48 | | | | 3.0 | 6 下 | №1,2,7,9, |
| | 167014 | 工程热力学 Engineering Thermodynamics | 必 C | 32 | | | | 2.0 | 4 | №1 №7,12 |
| | 130415 | 液压传动 Hydraulic Transmission | 必 C | 24 | | | | 1.5 | 7 | №1,2,4 |
| | 167005 | 汽车电子控制技术 The Technology of Automotive Electronic Control | 选 E | 24 | | | | 1.5 | 7 | №1,2,4 |
| | 130416 | 汽车有限元法 Automobile Finite Element Method | 选 E | 32 | 12 | | | 1.5 | 6 | №1,4,5 |
| | 167007 | 汽车诊断技术 Diagnostic Techniques In Automotive | 选 E | 24 | | | | 1.5 | 7 | №1,2,4 |
| | 167006 | 汽车新技术讲座 Lectures of New Automotive Technology | 选 E | 16 | | | | 1.0 | 1 | №1,2 |
| | 167078 | 工程车辆理论与设计 Theory and Design of Construction Vehicles | 选 E | 40 | | | | 2.5 | 7 | №1 3,5 |
| | 130366 | 汽车工业产业模式与创业 Models of Automotive Industry and Entrepreneurship | 选 E | 16 | | | | 1.0 | 7 | №11,12 |
| | 167037 | 自动控制基础 Based of Automatic Control | 选 E | 40 | | | | 2.5 | 6 | №1,3,4 |
| | 167008 | 汽车排气净化 The Purification of Automotive Exhaust | 选 E | 24 | | | | 1.5 | 7 | №6,7,12 |
| | 167034 | 汽车安全检测技术 Detection Technique for Automotive Safety | 选 E | 16 | | | | 1.0 | 7 | №3,4,6 |
| | 167016 | 汽车空气动力学与车身造型 Automotive Aerodynamics and Styling | 选 E | 24 | | | | 1.5 | 7 | №1,4,5 |
| | 167035 | 计算机控制在车辆工程中的应用 Technology of Computer Control In Vehicle Engineering | 选 E | 24 | | | | 1.5 | 7 | №2,3,5 |
| | 130322 | 汽车仿真分析基础 Primary FEM Analysis of Automobile | 选 E | 24 | 8 | | | 1.5 | 7 | №2,5,7 |
| | 167043 | 汽车营销 Automotive Marketing | 选 E | 24 | | | | 1.5 | 7 | №8,11 |
| | 167017 | 汽车法规概论 Introduction to Automotive Law and Regulations | 选 E | 24 | | | | 1.5 | 7 | №6,8 |
| | 167024 | 计算机辅助设计 Computer-aided Design | 选 E | 32 | 12 | | | 1.5 | 6 | №3,4,5 |
| Specialty- related 课 | 167071 | 汽车电器与电子设备 Electrical and Electronic Equipment of Vehicle | 选 E | 32 | | | | 2.0 | 7 | №1,2,5 |
| | 131034 | 科技文献检索 Scientific Literature Search | 选 E | 16 | | | | 1.0 | 3 | №4,5 |

| 类别 Course Category | 课程 代码 Course No. | 课程名称 Course Title | 是否 必修 C/E | 学时数 Total Curriculum Hours | | | | 学分 数 Credits | 开课 学期 Semester | 毕业 要求 Student Outcomes |
|--------------------------|---------------------------|---|-----------------|--|-------------------------------------|--------------------|----------------|--------------------|----------------------|---------------------------------|
| | | | | 总学 时 Class Hours | 上机 Computer-aided Class Hours | 实验 Lab Hours | 实践 Practice | | | |
| | 167038 | 最优化设计 Optimized Design | 选 E | 16 | | | | 1.0 | 7 | №1,3,5 |
| | 167044 | 物流技术 Logistics Technology | 选 E | 16 | | | | 1.0 | 7 | №2,3,10 |
| | 167073 | 结构力学与钢结构 Structural Mechanics & Steel | 选 E | 48 | | | | 3.0 | 7 | №3,4,5 |
| | 167042 | 可靠性理论 Reliability Theory | 选 E | 24 | | | | 1.5 | 7 | №1,5,7 |
| | 130417 | 电动汽车动力系统设计基础 Design Basis of Electric Vehicle Power System | 选 E | 24 | | | | 1.5 | 7 | №1,5,7 |
| | 130418 | 新能源汽车结构与原理 New Energy Vehicle Structure and Principle | 选 E | 24 | | | | 1.5 | 7 | №1,2,7 |
| | 120003 | 创新研究训练 Innovation Research Training | 选 E | 32 | | | | 2.0 | | №2,9,12 |
| | 120004 | 创新研究实践 I Innovation Research Practice I | 选 E | 32 | | | | 2.0 | | №2,9,12 |
| | 120005 | 创新研究实践 II Innovation Research Practice II | 选 E | 32 | | | | 2.0 | | №2,9,12 |
| | 120006 | 创业实践 Entrepreneurial Practice | 选 E | 32 | | | | 2.0 | | №8,9,11,12 |
| | 合计 Total | | 必 C | 152 | | | | 9.5 | | |
| | | | 选 E | 选修课修读最低要求 6.0 学分 minimum elective course credits required:6 | | | | | | |

备注：学生根据自己开展科研训练项目、学科竞赛、发表论文、获得专利和自主创业等情况申请折算为一定的专业选修课学分（创新研究训练、创新研究实践 I、创新研究实践 II、创业实践等创新创业课程）。每个学生累计申请为专业选修课总学分不超过 4 个学分。经学校批准认定为选修课学分的项目、竞赛等不再获得对应第二课堂的创新学分。

四、集中实践教学环节(Practice-concentrated Training)

| 课程 代码 Course No | 课程名称 Course Title | 是否 必修 C/E | 学时数 Total Curriculum Hours | | 学分 数 Credits | 开课 学期 Semester | 毕业 要求 Student Outcomes |
|-----------------------|---|-----------------|-------------------------------|------------------------|--------------------|----------------------|------------------------------|
| | | | 实践 Practice weeks | 授课 Lecture Hours | | | |
| 106002 | 军训 Military Training | 必 C | 3 周 | | 3.0 | 1 | №9 |
| 143197 | 马克思主义理论与实践 Marxism Theory and Practice | 必 C | 2 周 | | 2.0 | 假期 | №8 |
| 130357 | 工程训练 II Engineering Training | 必 C | 4 周 | | 4.0 | 4 | №3 |
| 141073 | 电子工艺实习 II Practice of Electronic | 必 C | 2 周 | | 2.0 | 5 | №3 |
| 130160 | 机械原理课程设计 Course Project of the Mechanisms and Machine Theory | 必 C | 2 周 | | 2.0 | 4 | №3 |
| 130175 | 机械设计课程设计 Course Project of Mechanical Design | 必 C | 2 周 | | 2.0 | 5 | №3 |
| 130241 | 专业课程设计 Special training of automotive design | 必 C | 2 周 | | 2.0 | 7 | №3,5,9,10 |

| | | | | | | | |
|----------------------------|---|--------|--------|--|------|---|-----------|
| 131080 | 学科基础实验 Basic experiment on automobile | 必 C | 1 周 | | 1.0 | 5 | №2,3,9,10 |
| 167123 | 学科综合实验 Discipline Comprehensive Experiments on Automobile (dispersion) | 必 C | 1.5 周 | | 1.5 | 8 | №6,7,9,10 |
| 130233 | 生产实习 Practice of Production | 必 C | 3 周 | | 3.0 | 7 | №8 |
| 167040 | 专业综合实验 Comprehensive Professional Experiments on Automobile | 必 C | 1 周 | | 1.0 | 7 | №9,10,12 |
| 167041 | 毕业设计 Graduation Design | 必 C | 15 周 | | 15.0 | 8 | №10 |
| 合 计 Total | | 必 C | 38.5 周 | | 38.5 | | |

五、第二课堂

第二课堂由人文素质教育和创新能力培养两部分组成。

1.人文素质教育基本要求

学生在取得专业教学计划规定学分的同时，还应结合自己的兴趣适当参加课外人文素质教育活动，参加活动的学分累计不少于 2 个学分。

2.创新能力培养基本要求

学生在取得本专业教学计划规定学分的同时，还必须参加国家创新创业训练计划或广东省创新创业训练计划或 SRP（学生研究计划）或百步梯攀登计划或一定时间的各类课外创新能力培养活动（如学科竞赛、学术讲座等），参加活动的学分累计不少于 4 个学分。

5. “Second Classroom” Activities

“Second Classroom” Activities are comprised of two parts, Humanities Quality Education and Innovative Ability Cultivation.

1) Basic Requirements of Humanities Quality Education

Besides gaining course credits listed in one’s subject teaching curriculum, a student is required to participate in extracurricular activities of Humanities Quality Education based on one’s interest, acquiring no less than two credits.

2) Basic Requirements of Innovative Ability Cultivation

Besides gaining course credits listed in one’s subject teaching curriculum, a student is required to participate in any one of the following activities: National Undergraduate Training Programs for Innovation and Entrepreneurship, Guangdong Undergraduate Training Programs for Innovation and Entrepreneurship, Student Research Program (SRP), One-hundred-steps Innovative Program, or any other extracurricular activities of Innovative Ability Cultivation that last a certain period of time (e.g. subject contests, academic lectures), acquiring no less than four credits.