

# 交通运输

## Transportation

专业代码: 081801

学 制: 4 年

Program Code: 081801

Duration: 4 years

### 培养目标:

本专业侧重道路交通运输管理,适当兼顾城市轨道交通方式;在培养学生学习交通运输规划、运输组织与调度、交通运输经济、道路工程、运输行业管理等知识的基础上,强调学生基础知识的掌握和动手能力的培养;立足广东省经济和交通运输发展的实际需要和条件,培养能从事交通运输政策研究、规划设计、运营管理等方面工作的懂技术的高级管理人才。目标是使学生掌握扎实的专业基本原理和技术方法,具备将所学基础知识应用到交通运输管理实践中去的能力,具有团队精神和领导能力、终身学习和创新能力、国际化视野和新环境适应能力;毕业后5年左右,学生大部分能成为交通运输管理领域的技术骨干、专业科研人员、中高级管理人才、行业精英和领导者。

### Educational Objectives:

This major mainly focuses on the development of highway transportation management while taking urban rail transport into account. Based on development of students' basic knowledge including transportation planning, transportation organization and scheduling, transportation economics, road engineering and transportation industry management, the focus should be on the grasp of basic knowledge and the training of practice ability. In the background of the development of economic and transportation in Guangdong province, the well-trained professionals can be dedicated into the fields of transport and transportation, including transportation policies study, plan and management, operation management, etc. The objective of this major is to enable students to steadily master the professional basic principle and technical methods, and put them into practical use on traffic engineering. Moreover, all graduates also have team spirit and leadership ability, life-long learning and innovation ability, international vision and the ability to adapt new environment. Five years later, most graduates can become professional R&D experts, senior managers, industry elites and leaders.

### 毕业要求:

№1.工程知识:掌握扎实的基础知识、专业基本原理、方法和手段,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复杂工程问题,并接触和掌握交通运输行业部分营运知识,为解决交通运输工程实际复杂问题打下知识基础。

№2.问题分析:能够应用数学、自然科学、本专业基本原理、方法和手段和交通运输行业营运知识,识别、表达、并通过文献研究分析交通运输工程中的复杂问题,以获得有效结论。

№3.设计/开发解决方案:能够设计针对交通运输工程复杂问题的解决方案,设计满足特定需求

的运输系统，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。

№4.研究：能够基于科学原理并采用科学方法对交通运输工程复杂问题进行研究，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。

№5.使用现代工具：能够针对交通运输工程复杂问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具，包括对交通运输工程复杂问题的预测与模拟，并能够理解其局限性。

№6.工程与社会：能够基于交通运输工程相关背景知识进行合理分析，评价交通运输工程实践和交通运输工程复杂问题解决方案对社会、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交通运输工程复杂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：能够就交通运输复杂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: An ability to apply knowledge of mathematics, science, transportation engineering fundamentals and engineering specialization to the solution of complex transportation engineering problems.

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

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

№4.Research: An ability to conduct investigations of complex transportation engineering problems 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 transportation engineering and IT tools, including prediction and modelling, to complex transportation engineering activities, with an understanding of the limitations.

№6.Engineering and Society: An ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional transportation engineering practice.

№7.Environment and Sustainable Development: An ability to understand and evaluate the impact of professional engineering solutions in environmental and societal contexts and demonstrate knowledge of and need for sustainable development.

№8.Professional Standards: An understanding of humanity science and social responsibility, being able to understand and abide by professional ethics and standards responsibly in transportation 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 transportation 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 transportation engineering management principles and methods of economic decision-making, 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：**

交通运输专业属于自然科学-工程科学领域，隶属于交通运输工程系。为改善我国、特别是广东省交通运输行业规划和管理人才需求旺盛，而目高端人才供应不足的现实情况，本专业于 2009 年开始招生。本专业目前拥有国内领先的办学环境和条件，已为全国、特别是珠三角地区输送了大批优秀的人才，具有良好的业界口碑，目前本专业正朝着国际一流的发展目标快速前进。

在我国交通运输行业快速发展的大背景下，本专业近年来承担了多项国家、省部重大科研课题，完成了多项示范性工程项目，为交通运输相关行业提供了高端规划和管理人才，较好地服务了地方交通运输业，促进了地方经济发展。本专业教师 80%以上具有博士学位，其中部分教师具有海外学习、工作经历。

本专业依托广东省智能交通信息与控制工程技术研究中心，已具备交通大数据实验室、交通监控实验室、ITS 信息平台实验室、交通运输工程虚拟仿真实验教学中心等实验室及相配套的软硬件设施，拥有完备的图书资料，并依托多家行业著名企事业单位建立了多个校外实习基地。近几年本专业还建立了良好的国际合作办学、学术交流渠道，有多名学生赴美国、英国、澳大利亚等国家著名高校联合培养或攻读学位。

## **Program Profile:**

The major of transportation from the department of transportation engineering in our faculty education belongs to the interdisciplinary subject of natural science and engineering, and was successfully declared in 2007 and opened its doors in 2009 for redressing the imbalance between the enormous demand for transportation planning and management talents and the short supply of well-trained professionals all over the country, particularly in Guangdong province. This major has the leading college educational infrastructures and conditions. Our group has cultivated lots of talents especially for the Pearl River Delta region, thus having a high reputation.

In the recent years, our group not only supplies the transportation industry with well-trained professionals, but has undertaken number of major scientific research projects from central and local governments and built up many demonstration effects in the industry of transport and transportation. Especially, over 80% percent of faculties of the Department of Transportation have Ph.D. Degree, some of them have oversea education or research experience.

With the support of Guangdong Intelligent Transportation Information and Control Engineering Tech Research Center, the transportation engineering group has established many professional labs and owned related facilities of software and hardware, Transportation Big Data Lab, Traffic Surveillance Lab, ITS Information Platform Lab Traffic Simulation Lab etc. Moreover, we have also reached cooperative agreements with many well-known enterprises and institutions to construct off-campus internship or practical bases. Recently, our group has built international cooperation and collaboration in education and academic exchange with some famous universities in USA, UK, and Australia and so on.

## **专业特色:**

本专业以道路交通为主要对象，兼顾轨道交通等多种方式；以运输组织调度、运输行业管理、运输经济分析为特色；强调学生动手能力，培养能从事交通运输政策研究、规划设计、运营管理等方面工作的高级技术人才。

## **Program Features:**

This major mainly focuses on the development of highway transportation, and takes other transportation modes such as rail transport into account. Particularly, the subjects of transportation organization and scheduling, transportation industry management and transportation economic analysis are recognized as characteristic specialty. Students can be trained into high-level technical professionals who take up job positions in the fields of policy study, planning and designing and operation management while focusing on the practice ability.

**授予学位:** 工学学士学位

**Degree Conferred:** Bachelor of Engineering

## **主干课程：**

运筹学、交通运输经济学、交通规划、旅客运输组织与调度、货物运输组织与调度、交通港站与枢纽设计、轨道交通系统运营与组织。

## **Core Courses:**

Operational Research, Transportation Economy Analysis, Urban Transportation Planning, Passenger Transportation Organization and Scheduling, Cargo Transportation Organization and Schedule, Traffic Harbor and Hub Design, Transportation Safety Analysis, Transport Policy and Laws, Automotive Structure, Train Performance Calculation and Design, Operations and Management for Urban Rail Transit.

## **特色课程：**

全英语教学课程：交通规划

双语教学课程：交通工程、交通系统仿真、国内外综合交通运输技术

研究型课程：旅客运输组织与调度、货物运输组织与调度、列车运行计算与设计

新生研讨课：交通运输学科学学习规划

专题研讨课：交通安全与法规、交通运输导论、国内外综合交通运输技术

创新实践课程：综合实验、认识实习、毕业实习、交通港站与枢纽设计课程设计、旅客运输组织与调度课程设计（一），旅客运输组织与调度课程设计（二），货物运输组织与调度课程设计，交通规划课程设计，轨道交通规划与设计课程设计，毕业实习，综合交通运输系列讲座，交通设计课程设计，交通控制与管理课程设计，交通数据库设计课程设计

创业教育课程：交通运输产业模式与创业、运输企业财务分析、运输市场学

## **Featured Courses:**

Courses Taught in English: Urban Transportation Planning

Bilingual Courses: Traffic Engineering, Traffic System Simulation, Abroad Transportation Technology

Research Courses: Passenger Transportation Organization and Scheduling, Cargo Transportation Organization and Schedule, Train Performance Calculation and Design

Freshmen Seminars: Planning for Study on Transportation Engineering

Special Topics: Traffic Safety and Traffic Regulations, Introduction to Transportation, Abroad Transportation Technology

Special Designs: Traffic Design

Contest-Teaching Integrated Courses:

Innovation Practice: Comprehensive Experiment, Recognizing Practice, Graduation Field Work, Course Exercise of Transportation Planning, Course Exercise of Traffic Harbor and Hub Design, Course Exercise of Passenger Transportation Organization and Scheduling (1), Course Exercise of Passenger Transportation Organization and Scheduling (2), Course Exercise of Cargo Transportation Organization and Schedule,

Course Exercise of Transportation Planning, Course Exercise of Planning and Design for Rail Traffic, Graduation Field Work, Lecture Series of comprehensive transportation system, Course Exercise for Traffic Engineering, Course Exercise for Traffic Control and Traffic Management, Curriculum Design of Traffic Database Design

Entrepreneurship Courses: Industry Model and Pioneering Work, Financial Analysis of Transportation Enterprise, Transportation Marketing

## 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	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	A	B	B	B	18	2														20				
二	3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	M	M	B	B	16	2									2				20					
	4	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E	E	E	B	B	15	2			3										20					
三	5	A	A	A	A	A	A	A	A	A	A	A	A	A	A	E	E	E	B	B	15	2			3										20					
	6	A	A	A	A	A	A	A	A	A	A	A	A	A	A	I	E	E	B	B	15	2			2			1							20					
四	7	A	A	A	A	A	A	A	A	A	A	A	A	A	M	K	K	B	B	15	2								2	1				20						
	8	L	L	L	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	P											3		15	1		19				
合 计 (周)																		108	13	1	3	9	0	0	0	1	0	2	3	3	0	15	0	2	0	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	65.0	1020	
	通识 General Education	10.0	160	
学科基础课 Disciplinary Basic Courses	必修 Compulsory	28.5	456	
	选修 Elective	16.0	256	
专业领域课 Specialty- related Courses	必修 Compulsory	9.5	168	
	选修 Elective	14.0	224	
合 计 Total		143.0	2284	
集中实践教学环节 (周) Practice Training (Weeks)	必修 Compulsory	35.0	35 周	
毕业学分要求 Credits Required for Graduation	143.0+35.0=178.0			

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						
总学时数 Total	其中 Include		其中 Include		总学分数 Total	其中 Include		其中 Include			其中 Include
	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		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
2284	1644	640	1972	312	178	138	40	35	133	10	23



### 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-aided 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 课 C	(40) (36)				2.5	1	№8、12
	143091	中国近现代史纲要 Skeleton of Chinese Modern History		(32) 24				2.0	2	№8、12
	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、12
	143090	马克思主义基本原理 Fundamentals of Marxism Principle		(40) 36				2.5	4	№8、12
	143094	形势与政策 Analysis of the Situation & Policy		(128)				2.0	1-8	№8、12
	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
	145223	大学计算机基础 Foundations of Computer		32				2.0	1	№5
	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	№7、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
	140197	线性代数与解析几何 Linear Algebra & Analytic Geometry		48				3.0	1	№1
	140019	概率论与数理统计 Probability & Mathematical Statistics		48				3.0	2	№1
	140099	数学实验 Mathematical Experiments		48	32			2.0	2	№1
	130139	工程制图(一) Engineering Drawing(1)		48				3.0	1	№2
	130140	工程制图(二) Engineering Drawing(2)		32				2.0	2	№2
	145268	C++程序设计基础 C++ Programming Foundations		48				3.0	2	№5
	141005	大学物理Ⅲ(一) General Physics (1)		64				4.0	2	№1
	141006	大学物理Ⅲ(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	№1
	141008	大学物理实验（二） Physics Experiment(2)		32		32		1.0	3	№1
		人文科学领域 Humanities	通识课 E	96				6.0		№8
		社会科学领域 Social Science		64				4.0		№8
	<b>合 计 Total</b>			1180	32	64	128	75.0		

### 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	133408	交通运输导论 Introduction to Transportation	必 C	16				1	2	№4、12
	142062	运筹学 Operational Research	必 C	48	8			3.0	3	№4
	133409	旅客运输组织与调度（一） Passenger Transportation and Organization and Scheduling (1)	必 C	40				2.5	4	№4、6
	133410	旅客运输组织与调度（二） Passenger Transportation and Organization and Scheduling (2)	必 C	40				2.5	5	№4、6
	133411	货物运输组织与调度 Cargo Transportation Organization and Schedule	必 C	48				3.0	6	№4、6
	133201	交通工程 Traffic Engineering	必 C	48		8		3.0	3	№4
	133216	交通规划 Transportation Planning	必 C	48	8			3.0	4	№4、6
	133333	应用数理统计学 Application Mathematical Statistics	必 C	40	8			2.5	3	№4、5
	133460	交通运输经济学 Transportation Economics	必 C	40				2.5	3	№4
	133357	交通港站与枢纽设计 Traffic Harbor and Hub Design	必 C	40				2.5	5	№4、6
	133250	交通设计 Traffic Design	必 C	48	8			3.0	5	№4、6
	133332	汽车构造 Automotive structure	选 E	48	8			3.0	4	№4
	133370	道路工程 Highway Engineering	选 E	48				3.0	3	№4
	133213	交通安全与法规 Traffic Safety and Traffic Regulations	选 E	32				2.0	5	№4、6

	133231	预测与决策技术 Forecasting and Decision-Making	选 E	40				2.5	4	№4、6
	133265	交通控制与管理 Traffic Control and Management	选 E	48		8		3.0	6	№4、6
	133240	轨道交通概论 Introduction of Rail Transit	选 E	16				1.0	3	№4
	133375	交通运输学科学学习规划 Planning for Study on Transportation Engineering	选 E	16				1.0	1	№12
	133368	交通调查与分析 Traffic Survey and Analysis	选 E	32				2.0	4	№4、6
	133148	交通数据库设计 Traffic Database Design	选 E	32	8			2.0	4	№4
	133484	城市规划原理 Fundamentals of City Planning	选 E	32				2.0	3	№2、4
	133371	道路勘测 Road Survey	选 E	48				3.0	4	№4
	<b>合 计</b> <b>Total</b>		必 C	456	40	8		28.5		№4
			选 E	选修课修读最低要求 16.0 学分 minimum elective course credits required:16						
专业领域课 Specialty-related Courses	133362	轨道交通系统运营与组织 Operations and Management for Urban Rail Transit	必 C	40				2.5	6	№4
	133124	综合实验（交通运输） Comprehensive Experiment (Transportation)	必 C	32		32		1.0	6	№4
	133414	交通运输产业模式与创业 Transportation Industry Model and Pioneering Work	必 C	16				1.0	7	№4
	133345	轨道交通规划与设计 Planning and Design for Rail Traffic	必 C	32				2.0	5	№4
	133421	运输企业财务分析 Financial Analysis of Transportation Enterprise	必 C	32				2.0	6	№3、11
	133217	科技文献检索 Sci-tech Literature Retrieval	必 C	16	8			1.0	4	№3
	133355	列车运行计算与设计 Train Performance Calculation and Design	选 E	48				3.0	5	№4
	133179	运输行业管理 Management of Transportation Industry	选 E	32				2.0	6	№4
	133343	运输技术经济学 Transportation Technological Economics	选 E	32				2.0	5	№4

133177	智能交通系统 Intelligent Transportation	选 E	32				2.0	7	№4
133344	汽车运用工程 Automotive Operation Engineering	选 E	32				2.0	5	№4
133417	汽车服务工程 Automotive After-marketing Engineering	选 E	32				2.0	6	
133485	交通系统仿真 Traffic System Simulation	选 E	32		20		1.0	4	№4、6
133419	运输企业管理 Transportation Enterprise Management	选 E	32				2.0	5	№3、11
133420	物流系统分析与设计 Logistics System Analysis and Designing	选 E	32				2.0	7	№3
133252	国内外综合交通运输技术 Transportation Technology at home and abroad	选 E	32				2.0	6	№6、7
133363	运输市场学 Transportation Marketing	选 E	32				2.0	5	№3、11
133375	物流与供应链管理 Logistics and Supply Chain Management	选 E	32				2.0	6	№4
133376	工程项目管理 Engineering Project Management	选 E	32				2.0	6	№11
120003	创新研究训练 Innovation Research Training	选 E	32				2.0		№12
120004	创新研究实践 I Innovation Research Practice I	选 E	32				2.0		№12
120005	创新研究实践 II Innovation Research Practice II	选 E	32				2.0		№12
120006	创业实践 Entrepreneurial Practice	选 E	32				2.0		№12
<b>合 计 Total</b>		必 C  选 E	168	8	32		9.5		
			选修课修读最低要求 14.0 学分 minimum elective course credits required:14						

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
133358	交通港站与枢纽设计课程设计 Course Exercise of Traffic Harbor and Hub Design	必 C	1 周		1.0	5	№3, 4,5, 6
133423	旅客运输组织与调度课程设计（一） Course Exercise of Passenger Transportation Organization and Scheduling (1)	必 C	1 周		1.0	4	№3, 4,5, 6
133424	旅客运输组织与调度课程设计（二） Course Exercise of Passenger Transportation Organization and Scheduling (2)	必 C	1 周		1.0	5	№3, 4,5, 6
133425	货物运输组织与调度课程设计 Course Exercise of Cargo Transportation Organization and Schedule	必 C	1 周		1.0	6	№3, 4,5, 6
133313	交通规划课程设计 Course Exercise of Transportation Planning	必 C	1 周		1.0	4	№3, 4,5, 6
133356	轨道交通规划与设计课程设计 Course Exercise of Planning and Design for Rail Traffic	必 C	1 周		1.0	5	№3, 4,5, 6
133269	认识实习 Recognizing Practice	必 C	2 周		2.0	3	№1, 2,3
133220	生产实习 Production Practice	必 C	2 周		2.0	7	№1, 2,3
133257	毕业实习 Graduation Field Work (Transportation)	必 C	3 周		3.0	8	№1,2,3,5,6
133274	毕业设计（论文） Graduation Project (Transportation)	必 C	15 周		15.0	8	№1,2,3,5,6
133486	综合交通运输系列讲座 Lecture Series of Comprehensive Transportation System	必 C	1 周		1.0	7	№1, 2,3
133253	交通设计课程设计 Course Exercise for Traffic Engineering	必 C	1 周		1.0	5	№3, 4,5, 6
133314	交通控制与管理课程设计 Course Exercise for Traffic Control and Traffic Management	选 E	1 周		1.0	6	№3, 4,5, 6
133313	交通数据库设计课程设计 Curriculum Design of Traffic Database Design	选 E	1 周		1.0	4	№3,5,4
<b>合 计</b> <b>Total</b>		必 C	35 周		35.0		
		选 E	选修课修读最低要求 0 学分 minimum elective course credits required:				

## 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.