

安全工程专业培养方案

Undergraduate Program of the Major of Safety Engineering

I. 专业介绍 Introduction

安全工程专业是在 90 年代初成立的人机工程研究所基础上筹建并设立的，1994 年，招收了第一届安全工程专业的本科生。1998 年 8 月，安全工程被列入我校“211 工程”重点建设学科。近年来，先后入选国家“卓越工程师”培养试点专业、四川省特色专业、国家级一流本科专业建设点，现已成为我国交通运输安全领域高水平人才培养和承担国家重大科研任务的重要基地。目前，安全工程专业拥有尖端的研究和教学设施，依托于综合交通智能化国家地方联合工程实验室和综合交通大数据应用技术国家工程实验室两个国家级科研平台，以及交通运输国家实验教学示范中心、交通运输国家虚拟仿真实验教学中心等两个国家级教学平台开展教学工作、鼓励卓越教育。相关人才培养质量保障体系完善，培养以轨道交通和道路交通为特色的、德才兼备的创新型和复合型安全工程人才。

The undergraduate safety engineering program was initiated on the base of the Institute of Ergonomics, which was founded in 1990s. In 1994, the first undergraduate major in safety engineering was enrolled. In August 1998, safety engineering was included into the “211 Project” of Southwest Jiaotong University. In recent years, it has been selected as a national "Excellent Engineer" training major, a national first-class undergraduate major, and a characteristic major in Sichuan Province. The major has now become an important base for the training of high-level students in China and for undertaking major national scientific research tasks. At present, the major of safety engineering has a reputation for having cutting-edge facilities in research and teaching, benefiting from support from the National United Engineering Laboratory of Integrated Traffic and Transportation, as well as the National Engineering Laboratory of Integrated Transportation Big Data Application Technology. Its educational platform laboratory was labeled as National Experimental Teaching Demonstration Center for Transportation, and National Transportation Virtual Simulation Experimental Teaching Center. With these advanced research platforms and high-level experimental teaching platforms, as well as the profound education quality assurance system, the safety engineering talents with transportation characteristics are cultivated.

专业代码：082901

Program Code: 082901

专业名称：安全工程

Program Name: Safety Engineering

II.培养目标 Objectives

坚持立德树人，培养适应新时代社会主义现代化建设和交通运输安全发展需要，德、智、体、美、劳全面发展，具有突出的科学文化素养和创新意识，健全的人格和健康身心，良好的社会责任感、职业道德素质和人文素养，较高的系统安全思想和广阔的国际化视野，较强的沟通能力、文化包容能力、团队合作和终身学习能力，掌握扎实的自然科学和工程知识，具备安全科学理论与原理、安全管理、安全技术等方面的专业知识和基本技能，能够在交通运输领域从事安全监察与管理、安全健康检测与监测、安全设计、安全教育与培训、安全评价与咨询、安全科学研究等工作的创新性复合人才，毕业后 5 年能够成为所在岗位或团队的技术、管理骨干，具备胜任工程师或相应职称的能力。

Adhere to the strengthening morality and ethics education, the program is developed to equip students graduated from the major of safety engineering with the ability of all around development of moral, intellectual, physical, aesthetics and labor education. The students should be able to adapt to the needs of the socialist modernization construction and the safe development of transportation in the new era. They should be graduated with outstanding scientific and cultural accomplishments and innovative consciousness, sound personality and healthy mind and body. Students are furnished with good social responsibility, professional ethics and humanities, high system security thinking and broad international vision, strong communication skills, cultural tolerance, teamwork and lifelong learning skills, solid natural science and engineering knowledge, professional knowledge and basic skills in safety science theory and principles, safety management, safety technology, etc. The students can be engaged in safety supervision and management, safety and health detection and monitoring, safety design, safety education and training, safety evaluation in the transportation field. The students should become innovative compound talents who are able to perform consulting, safety science research and similar works. They can become the technical and management backbone of the position or team after 5 years of graduation, and have the ability to be competent engineers or corresponding titles.

III.专业毕业要求 Graduation Requirements

本专业学生主要通过安全学原理、安全系统工程、可靠性工程、人机工程、安全心理学、安全技术等基础知识的系统学习和实践，掌握交通运输安全管理与技术、安全规划、安全法规、应急救援与管理、交通运输环境等专业知识，培养在交通运输领域从事安全工程规划、设计、管理、评价、咨询等工作的创新性复合专业人才。

Students in this major are mainly engaged in systematic learning and practice of basic knowledge such as safety science principles, safety system engineering, reliability engineering, ergonomics, safety psychology, safety technology, etc. Students should

master transportation safety management and technology, safety planning, safety regulations, and be able to expertise in emergency rescue and management, transportation environment, etc. They should be able to engage in safety engineering planning, design, management, evaluation, and consulting in the transportation field.

毕业生应获得以下几方面的知识和能力:

Graduates should have the following knowledge and abilities:

(1) 政治思想: 热爱祖国, 充分理解马克思主义毛泽东思想, 习近平新时代中国特色社会主义思想, 坚持社会主义核心价值观, 具有科学的世界观、坚定的政治立场, 具备为国家富强、行业发展而奋斗的志向和社会责任感, 具有良好的社会公德和法律意识, 适应新时代社会主义现代化建设和交通运输行业安全发展需求。

(1) Political thought: love the motherland, fully understand Marxist Mao Zedong Thought, Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, adhere to the core values of socialism, have a scientific world outlook, a firm political stance, and have the ambition to fight for the country's prosperity and industry development. A sense of social responsibility, with good social morality and legal awareness, and actively adapt to the needs of the new era of socialist modernization and the safe development of the transportation industry.

(2) 工程知识: 掌握扎实的数学、物理、化学等自然科学基础理论, 以及安全科学与工程学科专业知识, 能够应用于解决交通运输领域的复杂安全问题。

(2) Engineering knowledge: grasp the basic theories of natural science, such as Math, Physics, Chemistry, and so on; master the professional knowledge of the discipline of safety science and engineering; be able to apply the aforementioned knowledge to address complex safety issues in the field of transportation.

(3) 问题分析: 掌握科学的思维方法, 具备一定的创新能力, 能够应用自然科学和安全工程的基本原理, 识别交通运输安全领域的复杂问题, 分析问题产生的原因, 形成科学规范的报告。

(3) Problem analysis: master the scientific thinking method; have a certain innovation ability; be able to use the fundamental rationale of natural science and safety engineering to identify those complex issues in the field of transportation, uncover the reasons for those complex issues, and form the scientific and normative reports.

(4) 设计/开发解决方案: 能够针对交通运输系统中的具体安全问题, 考虑社会、健康、安全、法律、文化以及环境等因素, 运用新技术、新方法, 提出能够提升系统安全性的策略, 设计具有创新性的解决方案。

(4) Design and develop solution schemes: be able to aim to the specific safety problems in transportation system, consider society, health, safety, legislation, culture, and environmental factors, employ new technologies and methods to propose the strategies of improving system safety and design innovative solutions schemes.

(5) 研究：能够基于安全科学基础知识和系统安全工程原理，针对交通运输安全领域复杂工程问题，设计实验，采集数据，利用科学的方法分析与解释数据，通过信息综合得到合理有效的结论。

(5) Research: Aiming at solving the sophisticated problems in the field of traffic and transportation safety engineering, based on the basic knowledge of safety science and the principles of system safety engineering, be able to design experiments, collect data, analyze and explain data using scientific methods and aggregate information to draw reasonable and valuable conclusions.

(6) 使用现代工具：掌握计算机方面的相关知识，具有一定的计算机操作、编程和实际工程应用的能力；具备使用先进的制图、计算、实验、测试、模拟工具的能力；具有运用现代信息技术获取知识的能力。

(6) Using Modern Tools: master in the knowledge related to computer, be able to operate compute, write programs and have the ability to apply computer skill in practical engineering.

(7) 工程与社会：能够基于交通运输安全工程相关背景知识分析、评价交通运输安全领域的工程实践对社会、职业健康、法律及安全文化的影响，并理解应承担的责任。

(7) Engineering and Society: based on the background knowledge of traffic and transportation safety engineering, analyze and evaluate the impacts of engineering practice in the field of traffic and transportation safety to society, occupational health, law and safety culture, and understand the responsibility to be undertaken.

(8) 环境和可持续发展：掌握一定的人文社会科学知识，具有人文社会科学素养、社会责任感；能够理解和评价针对交通运输安全领域复杂问题的工程实践对环境、社会可持续发展的影响。

(8) Environment and sustainable development: master a certain knowledge of humanity and social science; have the literacy of humanity and social science and social responsibility; be able to understand and assess the influences on environment and sustainable development of engineering practices aimed at those complex safety problems in the field of transportation.

(9) 职业规范：掌握交通运输安全相关的方针、政策和法律、法规，掌握职业安全卫生管理体系方面的相关知识。具有正确的世界观、人生观和价值观，热爱祖国，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) Professional norm: grasp the transportation safety relevant principles, policies, laws, and regulations; master the relevant knowledge of occupational safety and health management system; have positive outlook, philosophy, and value views; love the motherland; be able to understand and comply with the engineering professional ethics and norms, and do their duties in the engineering practices.

(10) 个人和团队：具有团队精神，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) Individuals and teams: have the team spirit; be able to act as an individual, a team member, or the leader to a team under the multidisciplinary background.

(11) 沟通: 具备沟通协作能力, 能就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。掌握外语方面的相关知识, 具备一门外语的听、说、读、写的基本能力, 能够较流利地阅读本专业的外文资料, 具有国际化视野, 具备跨文化交流、竞争与合作的能力。

(11) Communication: be able to communicate and cooperate, have the ability to communicate with the horizontal peers and public society efficiently, including writing reports and designing presentations, making statements, clear express and response to the instructions. Master in the knowledge related to foreign languages, have the basic abilities to listen, speak, read and write using a foreign language, be able to read the materials written by foreign language in this major, with international vision, have the abilities to cross-cultural communicate, compete and cooperate.

(12) 项目管理: 掌握工程经济和管理等多学科知识, 树立现代安全经济理念和科学意识, 控制安全成本, 并进行企业安全生产管理。

(12) Project Management: Master in the multi-disciplinary knowledge of engineering, economics and management, establish the concepts of modern safety economics, and scientific consciousness, be able to control the safety cost and to do enterprise safety producing management.

(13) 终身学习: 具备文献检索、资料查询的基本技能, 了解安全科学与工程的最新动态和发展趋势; 具有自主学习和终身学习的意识。

(13) Lifelong Learning: have the fundamental skills of searching literature and technical materials, to understand the latest news and development trends in safety science; with the awareness of self-learning and lifelong learning.

IV. 学制与学位 Duration and Degree

学制: 四年

Duration: 4 years

学位: 工学

Degree: Bachelor of Engineering

V. 主干学科与专业核心课程 Main Subject and Specialized Core Course

主干学科: 安全科学与工程

Main Subject: Safety Science and Engineering

专业核心课程: 概率论与数理统计、人机工程、可靠性工程、智慧交通运输安全技术、交通运输系统安全工程、安全心理学、通用安全技术与职业健康、消

防工程学、交通运输环境工程、安全工程专业外语、危险货物运输组织与管理、事故调查与应急管理、公路运输设备、交通安全规划、交通管理与控制、交通运输法规、轨道运输设备、通信与信号、行车组织。

Specialized Core Course: Probability and Statistics, Man-machine Engineering, Reliability Engineering, Intelligent Transportation Safety Technology, Transportation System Safety Engineering, Safety Psychology, General Safety Technology and Occupational Health, Fire Protection Engineering, Transportation environmental engineering, Specialized English for Safety Engineering, Transport and Management of Dangerous Goods, Accident Investigation and Emergency Management, Road Transport Equipment, Traffic Safety Planning, Transportation Management and Control, Transportation Laws, Rail Transport Equipment , Transportation Communication and Signal, Organization of Train.

VI.毕业学分基本要求 Basic Requirements of Credits for Graduation

课程体系 Curriculum System		学分要求 Credits Requirements						
		必修 Compulsory		限修 Distributional Electives		选修 Free Electives		小计 Subtotal
理论 Theory	实践 Practice	理论 Theory	实践 Practice	理论 Theory	实践 Practice			
公共基础 课程 Public Basic Courses	思政类 Ideological Politics Courses	15	2					17
	军事类 Military Courses	2	2					4
	外语类 Foreign Language Courses	6		2				8
	体育类 Physical Education Courses		4					4

通识与多元化课程 General Education and Diversified Courses	“交通天下”通识教育课程（含跨学科课程） Core General Education Courses (Interdisciplinary Courses)							
	多元化课程 Diversified Courses							
	国际课程 International Courses					6		6
	大学生心理健康教育课程 University Student Psychological Health Courses							
	学生成长与发展规划课程 Student Growth and Development Planning Courses							
	核心通识课 Core General Education	2						2
	劳动教育课程 Labor Education Courses	2						2
	公共艺术课程 Public Art Courses	2						2
学科与专业基础课程 Discipline and Specialty Foundational Courses	数学类 Mathematics Courses	20	1					21
	物理类 Physics Courses	15	2					17
	计算机基础类 Basic Computer Courses	5.5	1.5					7
	化学类 Chemistry Courses	1.5	0.5					2
	专业基础课 Specialty Foundational Courses	9	3					12
专业教育课程 Specialized Courses	专业核心课 Specialized Core Course	34	3					I 方向*37
		34.5	2.5					II 方向*37
	专业限修课 Specialized Restricted Courses			2				2
实践教学环节 Practice Courses	集中性实践教学环节：基本技能训练、工程实践、综合课程设计、社会与文化素质与实践、毕业实习与毕业设计 Centralized Practical Teaching Process: Basic Skills Training, Practical Training, Integrated Curriculum Design, Social and Cultural Quality Practice, Graduation Internship and Graduation Design		17.5					17.5

	创新创业实践：创新创业训练计划项目、个性化实验、学科竞赛、创新讲座等 Innovation and Entrepreneurship Practice: Innovation and Entrepreneurship Training Program, Personalized Experiments, Subject Competition, Innovation Lectures, etc		2					2
必修环节 A Compulsory Part	“第二课堂”项目：思想政治与道德素养类项目、学术科技与创新创业类项目、艺术体验与审美修养类项目、文化沟通与交往能力类项目、心理素质与身体素质类项目、社会工作与领导能力类项目、社会实践与志愿服务类项目 "The Second Lesson" Project: Ideological and Political Education and Moral Literacy Projects, Academic and Technological Innovation and Entrepreneurship Projects, Art Experience and Aesthetic Education Projects, Cultural Communication and Interpersonal Skills Projects, Psychological and Physical Health Projects, Social Work and Leadership Development Projects, Social Practice and Volunteering Projects							0
	大学生综合素质提升、学生体质达标测评 Comprehensive Quality Improvement Courses for College Students, Assessment of Students' Physical Fitness							0
总 计 Total								162.5

VII.课程设置细化表 Course Programs Table

公共基础课程 Public Basic Courses 共 33 学分，其中必修 31 学分，限修 2 学分，选修 0 学分 A total credits of 33, including 31 for compulsory courses, 2 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
思政类 Ideological Politics Courses	思想道德与法治 Ideological and Moral Education and the Rule of Law	必修 Compulsory	3	0.4	第 1 学期 Semester 1	马克思主义学院 School of Marxism	1、4、7、9	
	中国近现代史纲要 Conspectus of Chinese Modern History	必修 Compulsory	3	0.4	第 2 学期 Semester 2	马克思主义学院 School of Marxism	1、8、9	
	马克思主义基本原理 The Basic Principles of Marxism	必修 Compulsory	3	0.4	第 3 学期 Semester 3	马克思主义学院 School of Marxism	1、8、9	
	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 Theoretical System of Socialism with Chinese Characteristics	必修 Compulsory	3	0.4	第 4 学期 Semester 4	马克思主义学院 School of Marxism	1、8、9	
	习近平新时代中国特色社会主义思想概论 Outline of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	必修 Compulsory	3	0.4	第 6 学期 Semester 6	马克思主义学院 School of Marxism	1-13	
	形势与政策 I Situation and Policy I	必修 Compulsory	0		第 1 学期 Semester 1	马克思主义学院 School of Marxism	1、8、9	
	形势与政策 II Situation and Policy II	必修 Compulsory	0		第 2 学期 Semester 2	马克思主义学院 School of Marxism	1、8、9	
	形势与政策 III Situation and Policy III	必修 Compulsory	0		第 3 学期 Semester 3	马克思主义学院 School of Marxism	1、8、9	
	形势与政策 IV Situation and Policy IV	必修 Compulsory	0		第 4 学期 Semester 4	马克思主义学院 School of Marxism	1、8、9	
	形势与政策 V Situation and Policy V	必修 Compulsory	0		第 5 学期 Semester 5	马克思主义学院 School of Marxism	1、8、9	
	形势与政策 VI Situation and Policy VI	必修 Compulsory	0		第 6 学期 Semester 6	马克思主义学院 School of Marxism	1、8、9	

	形势与政策Ⅶ Situation and Policy Ⅶ	必修 Compulsory	0		第 7 学期 Semester 7	马克思主义学院 School of Marxism	1、8、9	
	形势与政策Ⅷ Situation and Policy Ⅷ	必修 Compulsory	2		第 8 学期 Semester 8	马克思主义学院 School of Marxism	1、8、9	
军事类 Military Courses	军事理论 Military Theories	必修 Compulsory	2		第 1 学期 Semester 1	武装部 Security Office	8、9、10	
	军事技能 Military Skills	必修 Compulsory	2	2	短 1 学期 Short Semester 1	武装部 Security Office	8、9、10	
外语类 Foreign Language Courses	英语 I College English I	必修 Compulsory	2		第 1 学期 Semester 1	外国语学院 School of Foreign languages	8、11	
	英语 II College English II	必修 Compulsory	2		第 2 学期 Semester 2	外国语学院 School of Foreign languages	8、11	
	通用学术英语 English for General Academic Purposes	必修 Compulsory	2		第 3 学期 Semester 3	外国语学院 School of Foreign languages	8、11	
	职场英语 Workplace English	限修 Distribution al Elective	2		第 4 学期 Semester 4	外国语学院 School of Foreign languages	8、11	限修 1 门， 2 学分 Limited to 1 course, 2 credits
	交际与文化视听说 Viewing, Listening & Speaking in English -- Communication & Culture							
	语言、文化与翻译 Language, Culture and Translation							
	英语公共演讲 Public Speaking in English							
体育类 Physical Education Courses	体育 I Physical Education I	必修 Compulsory	1	1	第 1 学期 Semester 1	体育学院 School of Physical Education	10、13	
	体育 II Physical Education II	必修 Compulsory	1	1	第 2 学期 Semester 2	体育学院 School of Physical Education	10、13	
	体育 III Physical Education III	必修 Compulsory	0.5	0.5	第 3 学期 Semester 3	体育学院 School of Physical Education	10、13	
	体育 IV Physical Education IV	必修 Compulsory	0.5	0.5	第 4 学期 Semester 4	体育学院 School of Physical Education	10、13	
	体育健康课程 I Diversified Physical Education Courses I	必修 Compulsory	0.5	0.5	第 5 学期 Semester 5	体育学院 School of Physical Education	10、13	
	体育健康课程 II Diversified Physical Education Courses II	必修 Compulsory	0.5	0.5	第 6 学期 Semester 6	体育学院 School of Physical Education	10、13	

通识与多元化课程 General Education and Diversified Courses 共 12 学分，其中必修 6 学分，限修 0 学分，选修 6 学分 A total credits of 12, including 6 for compulsory courses, 0 for distributional electives and 6 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
“交通天下”通识教育课程（含跨学科课程） Core General Education Courses (Interdisciplinary Courses)	“交通天下”通识教育课程（含跨学科课程） Core General Education Courses (Interdisciplinary Courses)	选修 Free Elective	6		2-8 学期 Semester 2-8	全校 The whole school	7、8	按照《西南交通大学通识与多元化课程修读手册》（学生成长与发展规划课程）执行 By Credit the "Southwest Jiaotong University General and Diversified Curriculum Reading Manual" (Student Growth and Development Planning Course)
多元化课程 Diversified Courses	多元化课程 Diversified Courses						7、8	
国际课程 International Courses	国际课程 International Courses						10、11	
大学生心理健康教育课程 University Student Psychological Health Courses	大学生心理健康教育课程 University Student Psychological Health Courses						8、9	
学生成长与发展规划课程 Student Growth and Development Planning Courses	学生成长与发展规划课程 Student Growth and Development Planning Courses						13	
核心通识课 Core General Education	工程伦理学 Engineering Ethics	必修 Compulsory	2		第 7 学期 Semester 7	人文学院 School of Humanities	7、8、12	
劳动教育课程 Labor Education Courses	劳动教育课程 Labor Education Courses	必修 Compulsory	2		2-8 学期 Semester 2-8	全校 The whole school	8	
公共艺术课程 Public Art Courses	公共艺术课程 Public Art Courses	必修 Compulsory	2		2-8 学期 Semester 2-8	全校 The whole school	8	

学科与专业基础课程 Discipline and Specialty foundational Courses 共 59 学分，其中必修 59 学分，限修 0 学分，选修 0 学分 A total credits of 59, including 59 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
数学类 Mathematics Courses	高等数学 I Calculus I	必修 Compulsory	5		第 1 学期 Semester 1	数学学院 School of Mathematics	2、3	
	高等数学 II Calculus II	必修 Compulsory	5		第 2 学期 Semester 2	数学学院 School of Mathematics	2、3	
	线性代数 B Linear Algebra B	必修 Compulsory	3		第 1 学期 Semester 1	数学学院 School of Mathematics	2、3	
	概率论与数理统计 Probability and Statistics	必修 Compulsory	3		第 3 学期 Semester 3	数学学院 School of Mathematics	2、3	
	运筹学 Operational Research	必修 Compulsory	4		第 4 学期 Semester 4	交通运输与物流学院 School of Transportation and Logistics	2、3、5	
	运筹学实验 A Operational Research Experiments A	必修 Compulsory	1	1	第 4 学期 Semester 4	交通运输与物流学院 School of Transportation and Logistics	4、5、6	
物理类 Physics Courses	大学物理 AI University Physics AI	必修 Compulsory	4		第 2 学期 Semester 2	物理科学与技术学院 School of Physical Science and Technology	2、3	
	大学物理实验 I Fundamentals of Physics I	必修 Compulsory	1	1	第 2 学期 Semester 2	物理科学与技术学院 School of Physical Science and Technology	2、5	
	大学物理 AII College Physics Experiments AII	必修 Compulsory	4		第 3 学期 Semester 3	物理科学与技术学院 School of Physical Science and Technology	2、3	
	大学物理实验 II College Physics Experiments II	必修 Compulsory	1	1	第 3 学期 Semester 3	物理科学与技术学院 School of Physical Science and Technology	2、5	

	工程力学 C Engineering Mechanics C	必修 Compulsory	3		第 3 学期 Semester 3	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2、3	
	流体力学 Fluid Mechanics	必修 Compulsory	2		第 4 学期 Semester 4	交通运输与物流学院 School of Transportation and Logistics	2、3	
	热力学基础 Fundamental of Thermal Dynamics	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	2、3	
计算机基础类 Basic Computer Courses	计算机程序设计基础 Basics of Computer Programming	必修 Compulsory	3	1	第 1 学期 Semester 1	计算机与人工智能学院 School of Computing and Artificial Intelligence	2、6	
	数据库与数据分析 Database and Data Analysis	必修 Compulsory	2		第 2 学期 Semester 2	交通运输与物流学院 School of Transportation and Logistics	2、6	
	计算机模拟 Computer Simulation	必修 Compulsory	2	0.5	第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	2、6	
化学类 Chemistry Courses	工程化学 C Engineering Chemistry C	必修 Compulsory	2	0.5	第 1 学期 Semester 1	化学学院 School of Chemistry	2、3、5	
专业基础类 Professional Foundational Courses	工程测量 I Engineering Measurement I	必修 Compulsory	2	1	第 3 学期 Semester 3	地球科学与环境工程学院 Faculty of Geosciences and Environmental Engineering	2、6	
	工程测量 II Engineering Measurement II	必修 Compulsory	2	1	第 4 学期 Semester 4	地球科学与环境工程学院 Faculty of Geosciences and Environmental Engineering	2、6	
	电路与电子技术基础 Circuit and Electronic Technology Basis	必修 Compulsory	3	1	第 4 学期 Semester 4	电气工程学院 School of Electrical Engineering	2、3	

	画法几何及工程制图 A Descriptive geometry and Mechanical drawing A	必修 Compulsory	3		第 3 学期 Semester 3	土木工程学院 School of Civil Engineering	2、6	
	工程项目管理 Engineering Project Management	必修 Compulsory	2		第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	8、9、12	
专业教育课程 Specialized Courses 共 39 学分，其中必修 37 学分，限修 2 学分，选修 0 学分 A total credits of 39, including 37 for compulsory courses, 2 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求指标点 Indicators which Support Graduation Requirements	备注 Notes
专业核心课 Specialized Core Course	人机工程 Man-machine Engineering	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	2、3	
	可靠性工程 Reliability Engineering	必修 Compulsory	2		第 4 学期 Semester 4	交通运输与物流学院 School of Transportation and Logistics	2、3	
	智慧交通运输安全技术 Intelligent Transportation Safety Technology	必修 Compulsory	3		第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	2、4	
	交通运输系统安全工程 Transportation System Safety Engineering	必修 Compulsory	3		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	2、4、5	
	安全心理学 Safety Psychology	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	2、3、11	
	通用安全技术与职业健康 General Safety Technology and Occupational Health	必修 Compulsory	2		第 7 学期 Semester 7	交通运输与物流学院 School of Transportation and Logistics	4、7、8	
	消防工程学 Fire Protection Engineering	必修 Compulsory	2	0.5	第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	2、4、6	
	交通运输环境工程 Transportation environmental engineering	必修 Compulsory	2		第 7 学期 Semester 7	交通运输与物流学院 School of Transportation and Logistics	2、3、8	

专业核心课 Specialized Core Course	安全工程专业外语 Specialized English for Safety Engineering	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	11、13	
	危险货物运输组织与管理 Transport and Management of Dangerous Goods	必修 Compulsory	2		第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	2、3、8、9	
	事故调查与应急管理 Accident Investigation and Emergency Management	必修 Compulsory	3	0.5	第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	2、3、5、7	
	公路运输设备 Road Transport Equipment	必修 Compulsory	3	0.5	第 3 学期 Semester 3	交通运输与物流学院 School of Transportation and Logistics	2、3	I 方向* (在完成其中一个方向的全部课程后, 另外一个方向的课程可以认定为限修课程)
	交通安全规划 Traffic Safety Planning	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	3、4、7、8	
	交通管理与控制 B Transportation Management and Control B	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	4、6、7	
	交通管理与控制实验 B Experiments of Transportation Management and Control B	必修 Compulsory	1	1	第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	6、10、11	
	交通运输法规 Transportation Laws	必修 Compulsory	2		第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	7、9	
	交通工程学导论 Introduction to Transportation Engineering	必修 Compulsory	2	0.5	第 4 学期 Semester 4	交通运输与物流学院 School of Transportation and Logistics	2、3、4、5	

专业核心课 Specialized Core Course	轨道运输设备 Rail Transport Equipment	必修 Compulsory	3	0.5	第 3 学期 Semester 3	交通运输与物流学院 School of Transportation and Logistics	2、3	II 方向* (在完成其中一个方向的全部课程后, 另外一个方向的课程可以认定为限修课程)
	行车组织 B Organization of Train B	必修 Compulsory	2		第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	4、6、7	
	行车组织课程设计 B Course Design of Train Organization B	必修 Compulsory	1	1	第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	6、10、11	
	旅客运输组织 B Customer Transport Organization B	必修 Compulsory	2		第 6 学期 Semester 6	交通运输与物流学院 School of Transportation and Logistics	2、3、4、5	
	通信与信号 Transportation Communication and Signal	必修 Compulsory	2		第 4 学期 Semester 4	交通运输与物流学院 School of Transportation and Logistics	4、6、7	
	铁路规章 Technical Regulations of Railway Operation	必修 Compulsory	2		第 7 学期 Semester 7	交通运输与物流学院 School of Transportation and Logistics	7、9	

*注: 学生可根据未来发展方向选择 I 方向或 II 方向的课程。修完其中任意一个方向课程即可达到毕业条件, 无需全部修完两个方向的课程。

专业限选课 Specialized Restricted Courses	综合运输工程 Integration Transportation Engineering	限修 Distributional Electives	2		第 7 学期 Semester 7	交通运输与物流学院 School of Transportation and Logistics	3、5	
	预测方法与技术 Forecasting Methods and Techniques		2		第 8 学期 Semester 8	交通运输与物流学院 School of Transportation and Logistics	3、5、8	
	应用统计 Applied Statistics		3		第 7 学期 Semester 7	数学学院 School of Mathematics	5、6	

实践教学环节 Practice Courses 共 19.5 学分，其中必修 19.5 学分，限修 0 学分，选修 0 学分 A total credits of 19.5, including 19.5 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
集中性实践教学环节：基本技能训练、工程实践、综合课程设计、社会与文化素质和实践、毕业实习与毕业设计 Centralized Practical Teaching Process: Basic Skills Training, Practical Training, Integrated Curriculum Design, Social and Cultural Quality Practice, Graduation Internship and Graduation Design	安全心理学实验 Safety Psychology Experiments	必修 Compulsory	1	1	第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	4、5、6	
	人机工程实验 Man-machine Engineering Experiments	必修 Compulsory	1	1	第 5 学期 Semester 5	交通运输与物流学院 School of Transportation and Logistics	4、5、6	
	课程综合设计 Comprehensive course design	必修 Compulsory	3	3	第 7 学期 Semester 7	交通运输与物流学院 School of Transportation and Logistics	3、4、5、6	
	专业软件应用 Professional Software Application in Practice	必修 Compulsory	0.5	0.5	短 1 学期 Short Semester 1	交通运输与物流学院 School of Transportation and Logistics	4、6	
	交通运输安全社会调查 Social Survey on Transportation Safety	必修 Compulsory	0.5	0.5	短 1 学期 Short Semester 1	交通运输与物流学院 School of Transportation and Logistics	4	
	认识实习（安全） Cognition Practice (safety)	必修 Compulsory	1.5	1.5	短 2 学期 Short Semester 2	交通运输与物流学院 School of Transportation and Logistics	2、3、10、11	
	生产实习（安全） Specialized Production Practice (safety)	必修 Compulsory	2	2	短 3 学期 Short Semester 3	交通运输与物流学院 School of Transportation and Logistics	2、4、5、10、11	
	毕业设计（论文） Graduation Dissertation	必修 Compulsory	8	8	第 8 学期 Semester 8	交通运输与物流学院 School of Transportation and Logistics	2、3、4、5、6、7、8、9、11、13	

创新创业实践： 创新创业训练计划项目、个性化实验、学科竞赛、创新讲座等 Innovation and Entrepreneurship Practice: Innovation and Entrepreneurship Training Program, Personalized Experiments, Subject Competition, Innovation Lectures, etc	创新创业实践 Innovation and Entrepreneurship Training Program	必修 Compulsory	2	2	3-7 学期 Semester 3-7	交通运输与物流学院 School of Transportation and Logistics	3、4、5、6、10、11	按照《西南交通大学创新实践学分认定与管理办法》规定执行 By Credit Recognition and Management of Innovative Practice in Southwest Jiaotong University
必修环节 A compulsory part 共 0 学分，其中必修 0 学分，限修 0 学分，选修 0 学分 A total credits of 0, including 0 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求指标点 Indicators which Support Graduation Requirements	备注 Notes
“第二课堂”项目：思想政治与道德素养类项目、学术科技与创新创业类项目、艺术体验与审美修养类项目、文化沟通与交往能力类项目、心理素质与身体素质类项目、社会工作与领导能力类项目、社会实践与志愿服务类项目 "The Second Lesson" Project: Ideological and Political Education and Moral Literacy Projects, Academic and Technological Innovation and Entrepreneurship Projects, Art Experience and Aesthetic Education Projects, Cultural Communication and Interpersonal Skills Projects, Psychological and Physical Health Projects, Social Work and Leadership Development Projects, Social Practice and Volunteering Projects	“第二课堂”项目 "The Second Lesson" Project	必修 Compulsory	0		1-8 学期 Semester 1-8	校团委 Communist Youth League Committee		

大学生综合素质提升、学生体质达标测评 Comprehensive Quality Improvement Courses for College Students Assessment of Students' Physical Fitness	大学生综合素质提升 Comprehensive Quality Improvement Courses for College Students	必修 Compulsory	0		1-8 学期 Semester 1-8	校团委 Communist Youth League Committee	13	
	学生体质达标测评 Assessment of Students' Physical Fitness	必修 Compulsory	0		秋季学期 Fall semester	体育学院 School of Physical Education	13	
学分总计 Total Credits			162.5					

备注：总学分 162.5，含实习实践类学分 38.5（I 方向）、38（II 方向）。

西南交通大学培养方案变更申请表

申请单位		专业（方向）			涉及年级	涉及学生人数
交通运输与物流学院		安全工程			2023 级	0
课程名称	课程编码	课程学分	选修性质	开课学期	变更内容	变更原因
事故调查与应急管理		3	必修	6	课程名称变更为“事故调查与应急管理 A”	学分较上一版培养方案有增加，与既有教务系统中课程名称重复，在数据库中有冲突，需做区分
认识实习（安全）		1.5	必修	短 2	课程名称变更为“认识实习（安全）B”	学分较上一版培养方案有压缩，与既有教务系统中课程名称重复，在数据库中有冲突，需做区分
生产实习（安全）		2	必修	短 3	课程名称变更为“生产实习（安全）B”	学分较上一版培养方案有压缩，与既有教务系统中课程名称重复，在数据库中有冲突，需做区分
本专业专家论证意见（可另附表）：						
专业负责人意见： 专业负责人签名：		教授委员会意见： 经***年*月*日教授委员会讨论，与会委员表决情况如下： 教授委员会主任签名：			学院/中心 意见： 院长/主任 签名： 学院/中心（盖章）：	
2022年 10月18 日		2023年 10月 18日			2023年 10月 18日	
开课学院/中心 意见：（如变更课程非本单位需要填写本栏）						
开课单位教学负责人 签名：						
2023年 10月 18 日						