

高分子材料与工程专业培养方案

Undergraduate Program of the Major of Polymer Materials and Engineering

I.专业介绍 Introduction

高分子材料与工程是研究高分子材料的设计、合成、制备以及组成、结构、性能和加工应用的，充满活力的材料类新兴学科，具有覆盖面广、应用领域多、发展前景好等特点，其工业和研究体系已经成为国民经济发展的重要支柱产业。西南交通大学高分子材料与工程专业立足轨道交通建设，面向电子电器、航空航天、新能源、建筑、医疗卫生等国民经济建设和行业发展，围绕交通强国建设和“双碳”目标达成对新时代高分子材料专业人才的迫切需求出发，以化学、物理等自然科学为基础学科，高分子材料设计、制造和服役评价等为专业知识，依托雄厚的科学研究能力和多样化的实践创新平台，培养综合素质全面发展，具备高分子材料与工程的基本理论、专业知识以及实验技能的高素质人才。

Polymer Materials and Engineering is an energetic rising discipline in the material specialty, which studies the design, synthesis, preparation, composition, structure, performance, processing and application of polymer materials with the characteristics of wide coverage, multiple application fields, and good development prospects. The corresponding industrial and research system of polymer has become an important pillar industry for the development of the national economy. The major of polymer materials and engineering in Southwest Jiaotong University is based on rail transit construction, oriented to national economic construction and industry development such as electronics, aerospace, new energy, architecture, medical and health, and the major is set out to meet the urgent demand for specialist of polymer materials centred on the construction of a transportation power and the "double carbon" goal in the new era. Based on natural science such as chemistry and physics and professional knowledge in the design, manufacturing and service evaluation of polymer materials, relying on strong scientific research capabilities and diverse practical innovation platforms, we cultivate high-quality talents with comprehensive development, basic theories, professional knowledge and experimental skills in polymer materials and engineering.

专业代码：080407

Program Code: 080407

专业名称：高分子材料与工程

Program Name: Polymer Materials and Engineering

II.培养目标 Objectives

本专业方向培养面向高分子材料与工程及相关领域的综合素质全面、专业基础扎实、工作能力强并富有创新精神的全面发展的专业人才，掌握材料、机械、电气、信息等学科基础知识和聚合反应原理、成型加工工艺、聚合物结构与性能，以及材料设计与制造等专业知识，能够成为在 高分子材料的合成、改性、以及成型加工和产品设计等领域从事与高分子和化工新材料相关的科学研究、技术开发、产品应用、生产和经营管理、咨询服务、以及教学等方面工作的复合型专业技术人才。

Students are nurtured to be all-round professional talents with comprehensive quality, solid professional knowledge, strong working ability and innovative spirit in polymer materials science and engineering and related fields. They are expected to master the basic knowledge of materials, mechanical, electrics, information, etc., as well as professional knowledge of polymer synthesis principles, forming processes, polymer structures, properties and materials design and fabrication, and so on. Furthermore, they are expected to become compound professional and technical talents in the scientific research, technology development, product application, production and management, consulting service and teaching of polymer and related chemical materials in the fields of polymer synthesis, modification, forming and processing, product design, and so on.

目标 1：具备良好的综合人文素养、科学精神、职业操守和社会责任感。

Objective 1: To be of good humanistic accomplishment, scientific spirit, professional ethics and social responsibility.

目标 2：能够掌握并综合运用材料、机械、电气、信息等学科基础知识和聚合反应原理、成型加工工艺、聚合物结构与性能以及材料设计与制造等专业知识，并依此合成、改性、设计高分子材料，并调控加工工艺、结构与性能。

Objective 2: Enable to master the basic knowledge of materials, mechanic, electrics, information, and so on, as well as professional knowledge of polymer synthesis principles, forming processes, polymer structures, properties and materials design and fabrication, etc., in order that the polymer materials could be synthesized, modified and designed, and the processes, structures and properties could be tailored.

目标 3：能够在高分子材料制造领域特别是轨道交通材料制造领域从事高分子和相关化工新材料的科学研究、技术开发、产品应用、生产和经营管理、咨询服务、以及教学等方面工作。

Objective 3: Enable to be engaged in the scientific research, technology development, product application, production and management, consulting service and teaching of polymer and related

chemical materials in the fields of polymer materials manufacturing, especially rail transit materials manufacturing.

目标 4: 具有较强的工程实践能力和创新能力, 并具备随社会和科技的进步不断自主学习以适应社会和职业发展的能力。

Objective 4: Strong engineering practice ability and innovation ability, and the ability to adapt to society and professional development with the progress of society, science and technology.

III. 专业毕业要求 Graduation Requirements

本专业方向学生主要学习高分子化学、高分子物理、高分子成型加工技术、复合材料、功能高分子材料等基础知识, 掌握高分子材料合成制备、成型加工、结构表征、性能测试等实验操作技能, 了解高分子材料学科及相关领域的最新发展动态, 从而具备对高分子材料相关产品设计、工艺开发以及质量控制、技术分析和咨询管理的基本能力。

Students are matured to study the basic knowledge of polymer chemistry, polymer physics, polymer forming and processing technology, polymer composite, functional polymer materials, to master the experimental operation skills of polymer synthesis, forming and processing, structure characterization, performance testing, and to further understand the recent developments in the subject of polymer materials and related fields, in order that they are capable of related product design, process development, quality control, technical analysis and consulting management.

1. 知识结构要求——包含自然科学知识、人文及管理科学知识、专业技术基础知识、专业知识以及工具性知识。能够将以上知识用于解决相关领域的复杂工程问题。

Requirements of knowledge structure - including natural science knowledge, humanities and management science knowledge, basic professional technology knowledge, professional knowledge and instrumental knowledge. The above knowledge can be used to solve complex engineering problems in related fields.

毕业要求 1: 具备自然科学基础知识、人文社科及咨询管理基础知识。

Graduation Requirement 1: Possess basic natural scientific knowledge, humanities and social sciences knowledge, and basic management knowledge.

1.1 掌握数学、物理、化学等自然科学知识, 并能够将其应用于解决材料科学与工程、聚合物合成工艺、成型设备、加工工艺调控、改性制备等复杂工程问题的建模、分析和求解。

Master natural science knowledge such as mathematics, physics, chemistry, etc., and apply it to the modeling, analysis and solution of complex engineering problems in the fields of materials science and engineering, polymer synthesis technology, forming equipment, process controlling and modification

preparation.

1.2 具备政治、语言及文学等人文社科基础知识，具有良好的人文素养与科学精神。能够准确表达展示自己的观点、成果，能够就相关专业问题与他人沟通。

Possess basic knowledge of humanities and social sciences such as politics, language and literature as well as good humanistic accomplishment and scientific spirit. Enable to express and display their own opinions and achievements, and to communicate with others on relevant professional issues.

1.3 具有良好的个人品质、具备基本的法律知识，拥有良好的身体素质及心理素质。

Possess good personal qualities, basic legal knowledge, good physical and psychological qualities.

毕业要求 2：掌握具备从事高分子材料生产所需的材料科学与工程基础知识、高分子材料专业技术知识，熟悉和掌握典型高分子材料的合成及改性方法，了解新兴合成和改性技术，并能利用相关知识解决以上工程领域复杂问题。

Graduation Requirement 2: Possess basic theoretical knowledge in materials science engineering and polymer materials, and master the professional knowledge of polymer synthesis and modification, learn the novel synthesis and modification technology, and use the relevant knowledge to solve complex problems in the above engineering fields.

2.1 掌握材料科学与工程的基础知识，具备材料结构理论知识。

2.1 Master basic knowledge of materials science and engineering, and possess the basic theoretical knowledge in material structures.

2.2 掌握高分子材料的结构与性能相关基础知识，掌握高分子合成、加工、改性、成型原理及方法，掌握高分子材料结构、性能、工艺等表征与测试方法，并能利用所学知识解决复杂工程领域中相关检测、分析及质量评价问题。

2.2 Master basic knowledge of the structure and properties of polymer materials, and master the principles and methods in polymer synthesis, processing, modification and forming, and master the characterization and testing methods for the structure, properties and process of polymer materials, and use the knowledge learned to solve the problems of detection, analysis and quality evaluation in complex engineering fields.

2.3 掌握高分子新兴合成与改性技术及其发展趋势，掌握其信息获取方法，具备继续学习的能力，并能利用相关知识参与设计、合成以及改性制备新型高分子材料。

2.3 Master the novel synthesis and modification technology of polymer and its development trend, and master its information acquisition methods, and possess the ability to continue learning, and use relevant

knowledge to participate in the design, synthesis and modification of new polymer materials.

2.4 掌握信息、电工、电子技术、机械制造以及化工原理与过程装备等基础知识，并用以解决高分子合成、加工、成型等过程中的相关问题。

2.4 Master basic knowledge in the fields of information, electrical engineering, electronic technology, equipment control, machine manufacturing, chemical principles and process equipment, etc., and use it to solve related problems in polymer synthesis, processing, forming, and so on.

2. 能力结构要求——包含问题分析、设计/开发解决方案、进行专业领域研究、使用现代工具、有效沟通及终身学习等能力。

Requirements of ability structure - including problem analysis, design/development solutions, professional field research, modern tools application, effective communication and life-long learning.

毕业要求 3：问题分析能力——能够应用自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析高分子材料合成、加工成型工艺以及改性制备中的复杂工程问题，以获得有效结论。

Graduation Requirement 3: Problem analysis abilities - ability to apply the basic principles of natural sciences and engineering sciences to identify, express, and analyze complex engineering problems in polymer synthesis, process and forming and modification manufacturing to obtain valid conclusions.

3.1 掌握信息检索工具使用方法，了解高分子相关领域重要资料来源及获取方法，掌握具备收集、分析、判断、选择国内外相关技术信息的能力，并能结合相关问题分析并掌握复杂工程问题中所需的信息；能够撰写相关科技报告以及文献报告。

3.1 Master the use of information retrieval tools to learn the the sources and acquisition methods of important data in polymer-related fields, and master the ability to collect, analyze, judge and select relevant technical information at home and abroad, and possess the ability to analyze and master the information required in complex engineering problems in conjunction with related issues, and enable to write relevant scientific and technological reports.

3.2 能够运用数学、物理、化学等自然科学的基本原理，分析和判断高分子合成、加工以及成型过程中的化工过程、结构转变以及力学等相关原理；能够利用学到的数学、物理、模型，讨论加工过程中的温度、应力场变化等基本问题；能够利用学到的物理、化学原理，处理高分子合成、加工与成型过程中分子结构转变以及相应的物化相态转变等基本问题。

3.2 Ability to apply the basic principles of natural sciences such as mathematics, physics and chemistry to analysis and judge the related principles of chemical process, structural transformation and mechanics in polymer synthesis, processing and forming; Ability to apply the acquired mathematics, physics and

related models to discuss the temperature and stress field change in processing; Ability to apply the acquired physical or chemical principle to master molecular structure transition and corresponding physicochemical phase transition in the process of polymer synthesis, processing and forming.

3.3 能够运用高分子材料科学专业基础知识, 以及机械、电气控制、工程力学等专业知识, 针对本领域涉及的合成工艺优化、组分配方设计、工艺控制方案、成型工艺调控和产品质量检测与评估、评价方案、材料结构设计等复杂工程问题进行科学描述, 提出表达该工程问题的数学、物理模型或相应的化学合成机制。

3.3 Ability to apply the basic knowledge of polymer material science, mechanical engineering, electrical controlling, engineering mechanics, etc., to describe the complex engineering problems in this field, such as the optimization of synthesis process, formulation design, process controlling scheme, forming process control, product quality, detection evaluation plan and material structure design, etc, and put forward the mathematical, physical model or corresponding chemical synthesis mechanism to express the engineering problems.

毕业要求 4: 设计/开发解决方案能力—针对高分子材料制造行业特别是轨道交通用高分子材料中涉及的合成、改性、加工与成型等领域复杂工程问题, 设计满足特定需求的单元(部件)或工艺流程, 并能够在设计环节中体现创新意识, 融合社会、健康、安全、法律、文化以及环境等因素。

Graduation Requirement 4: Design/Development Solution Ability – Enable to design units (components) or process flow to meet specific needs, and embody innovative consciousness in the design process for complex engineering problems in polymer manufacturing industry, especially in synthesis, processing and moulding of high polymer materials for rail transportation, and embody innovative consciousness in the design process, taking into account social, health, safety, legal, cultural and environmental factors.

4.1 针对高分子材料制造行业特别是轨道交通领域中涉及的高分子材料合成、改性、加工、成型等领域复杂工程问题, 根据特定需求, 设计相关配方与工艺, 并综合考虑社会、健康、安全、环境及法律等现实约束条件, 论证技术方案的可行性。

4.1 Aiming at the complex engineering problems such as synthesis, processing and forming of polymer materials, in polymer manufacturing industry, especially in the field of rail transportation, according to specific requirements, enable to design relevant formulations and processes and demonstrate the feasibility of the technical scheme by considering the realistic constraints of society, health, safety, environment and law.

4.2 综合运用自然基础知识、材料科学知识以及高分子材料专业知识, 通过实验、模拟或理论计算分析, 设计/开发该领域复杂工程问题的解决方案; 并能在其中体现创新意识。

4.2 By using the basic knowledge of nature, material science and polymer materials, and through experiment, simulation or theoretical calculation and analysis, enable to design and develop the solutions of complex engineering problems in this field, to embody the innovative consciousness in the solutions.

毕业要求 5：专业领域研究能力—能够基于科学原理并采用科学方法对复杂工程问题进行研究，包括设计实验、分析与解释数据、并通过信息处理得到合理有效的结论。

Graduation Requirement 5: Research in professional fields ability—ability to conduct research on engineering issues in materials, processes, and electrical control based on scientific principles and scientific methods, including designing experiments, analyzing and interpreting data, and obtaining reasonable and effective conclusions through information synthesis.

5.1 具备基于科学原理，采用科学方法开展实验和实验数据分析的能力。

5.1 Ability to conduct experimental and experimental data analysis using scientific methods based on scientific principles.

5.2 能够根据文献及市场调研等信息，设计实验方案并获取实验数据。

5.2 Ability to design experimental program and conduct experimental research based on the information of literature and market research.

5.3 能够分析、处理并解释所获得的数据，并通过多方面信息综合分析，与相关研究结果进行对比，提取有效信息，并获得合理有效的结论。

5.3 Ability to analyze, process and interpret experimental data, and compare it with relevant research through information retrieval and analysis to extract effective information and to obtain valid conclusions.

毕业要求 6：使用现代工具能力—能够针对高分子材料制造行业中涉及的材料合成、改性、加工与成型等领域复杂工程问题，开发、选择和使用恰当的技术、资源、以及现代工程工具和信息技术工具，实现对工程问题的预测、模拟和分析，并能够理解其局限性。

Graduation Requirement 6: Use modern tools abilities – ability to develop, select and use appropriate technologies, resources, modern engineering tools and information technology tools for complex engineering issues including polymer synthesis, process, and forming etc involved in polymer materials manufacturing, including predictions and simulations of engineering problems, and able to understand its limitations.

6.1 掌握主要网络及信息检索工具的使用方法，了解本专业重要资料来源及获取方法，具备根据工程问题收集相关技术信息的能力。

6.1 Master the use of major network and information retrieval tools, learn the important sources and acquisition methods of this major, and possess the ability to collect relevant technical information based on engineering issues.

6.2 掌握高分子材料制造领域主要工程工具以及设备的使用方法, 了解相关软硬件的开发来源及获取方法, 并能够用于解决实际工程问题。

6.2 Master the methods of main engineering tools and equipments in polymer manufacturing field, and understand the development sources and acquisition methods of relevant software and hardware, and enable to solve practical engineering problems by using these tools.

6.3 理解所使用技术、资源及工具在解决复杂工程问题中的局限性。

6.3 Understand the limitations of the technologies, resources, and tools used in solving complex engineering problems.

毕业要求 7: 工程与社会—能够基于工程相关背景知识进行合理分析, 评价高分子材料制造领域中工程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。

Graduation Requirement 7: Engineering and Society – ability to conduct a reasonable analysis based on the relevant background knowledge of the project, evaluate the impact of complex engineering problem solutions in the construction of railway transportation equipment and railway engineering on social, health, safety, law and culture, and understand the responsibility should be taken.

7.1 掌握高分子材料制造领域中与之相关的历史、环境、社会、健康、安全、法律以及文化等基础知识。

7.1 Master the basic knowledge of history, environment, society, health, safety, law and culture related to polymer manufacturing.

7.2 能够基于高分子材料专业背景知识, 分析、评价并综合考虑高分子材料领域中相关工程问题以及工程项目建设与运行对社会、健康、安全、法律以及文化造成的影响。

7.2 Based on the professional background knowledge of polymer materials, enable to analyze, evaluate and synthetically consider the related engineering problems in the field of polymer manufacturing and the impact of project construction and operation on society, health, safety, law and culture.

7.3 理解工程技术人员在复杂工程问题解决方案的制定和工程项目建设及运行中应承担的责任。

7.3 Understand the responsibility of engineers and technicians should be taken in the formulation of complex engineering problem solutions and the construction and operation of engineering projects.

毕业要求 8：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。

Graduation Requirement 8: Individuals and Teams – Ability to assume the roles of individuals, team members, and responsible individuals in a multidisciplinary team.

8.1 理解个人与团队的关系以及团队合作的重要性，具备良好的团队合作意识和能力。

8.1 Understand the relationship between individuals and teams and the importance of teamwork, with a good sense of teamwork and ability.

8.2 理解团队中不同角色的作用，在多学科背景的团队中能够主动与其他成员沟通、合作、开展工作，能够承担个体、团队成员或团队负责人等角色。

8.2 Understand the influence of different roles in the team, and be able to actively communicate, collaborate, and work with other members in a multi-disciplinary team, and be able to assume roles such as individuals, team members, or team leaders.

毕业要求 9：沟通—能够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。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。

Graduation Requirement 9: Communication—ability to communicate effectively with industry peers and the public on complex engineering issues, including writing reports and design contributions, presenting statements, articulating or responding to instructions. Possess a certain international perspective and can communication a cross-cultural environment.

9.1 具备良好的表达、沟通和人际交往能力，能够通过口头和书面方式就高分子材料制造领域的相关复杂工程问题与同行及社会公众进行有效沟通和交流。

9.1 Possess good presentation, communication and interpersonal skills, be able to effectively communicate and communicate with peers and the public through verbal and written methods on complex engineering issues in the field of polymer materials manufacturing.

9.2 具备正确、熟练、规范地运用汉语撰写技术报告、设计方案、陈述发言或回复质询等能力。

9.2 Possess the ability to use correct, proficient and standardized use of Chinese to write technical reports, design contributions, state statements or respond to instructions.

9.3 掌握一门外语，能熟练阅读和翻译高分子材料制造领域相关的技术资料 and 文献，具备一定的口语交流和书面表达能力，能够在跨文化背景下进行沟通和交流。

9.3 Master a foreign language, skilled in reading and translating technical materials and documents related to the field of polymer materials manufacturing, possess the ability of oral and written communication, and be able to communicate in cross-cultural context.

毕业要求 10: 项目管理—理解并掌握工程管理原理, 并能在材料、化工、纳米科技、轨道交通等多学科环境中应用。

Graduation Requirement 10: Project Management—Understand and master the basic principles of engineering management and be able to apply in a multi-disciplinary environment including the materials, chemical industry, nanotechnology, rail transportation, etc.

10.1 了解工程管理原理和经济原理在工程项目中的作用, 掌握工程管理的基本原理和基本方法。
10.1 Understand the role of engineering management and economic principles in the implementation of engineering projects, master the basic principles and basic methods of project management, and master basic economic analysis methods and decision-making methods.

10.2 初步具备在高分子材料制造行业中涉及材料、化工、纳米技术、轨道交通等相关学科环境中运用相关专业知识进行工程项目中工程管理方法。

10.2 Preliminary possession of engineering project management methods using relevant professional knowledge in the environment of polymer manufacturing related materials, chemical industry, nanotechnology, rail transportation and other related disciplines.

毕业要求 11: 终身学习—具有自主学习的能力和终身学习的意识, 有不断学习和适应社会和职业发展的能力。

Graduation Requirement 11: Life-long Learning – Possess the ability to learn independently and the sense of life-long learning, possess the ability to continuously learn and adapt to social and professional development.

11.1 正确认识自我探索和学习的必要性和重要性, 具有自主学习和终身学习的意识。

11.1 Correctly understand the necessity and importance of self-exploration and learning, and possess the awareness of independent learning and lifelong learning.

11.2 能够运用科学的学习方法, 拓展知识和能力, 具备通过自主学习不断提高以适应高分子材料制造及其相关轨道交通、化工、成型机械以及过程控制等工程领域科技发展的能力。

11.2 Ability to use scientific learning methods to expand knowledge and abilities, and to improve the ability to adapt to the development of science and technology in the polymer manufacturing and related engineering fields such as rail transit, chemical industry, forming machinery and process control through self-learning.

3. 素质结构要求——具备思想道德素质、文化素质、专业素质和身心素质。

Quality structure requirements - possess ideological and moral quality, cultural quality, professional quality and physical and mental quality.

毕业要求 12: 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。

Graduation Requirement 12: Professional Norms—Possess a humanities and social science literacy and a sense of social responsibility, be able to understand and abide by engineering professional ethics and norms in the engineering practice of equipment manufacturing and railway engineering construction, and fulfill their responsibilities.

12.1 热爱祖国，了解国情，具有人文社会科学素养，具有推动民族复兴和社会进步的责任感。

12.1 Love the motherland, understand the national conditions, with humanities and Social Sciences literacy, with a sense of responsibility to promote national rejuvenation and social progress.

12.2 理解并严格遵守高分子材料制造相关工程项目职业道德和操作规程，具有刻苦与奉献的敬业精神和科学严谨、求真务实的工作作风。

12.2 Understand and strictly abide by the professional ethics and operating norms of polymer materials manufacturing related engineering projects, with a dedicated spirit of hard work and dedication, scientific rigorous, realistic and pragmatic style of work.

毕业要求 13：环境和可持续发展——能够理解和评价针对复杂工程问题的工程实践对环境、社会可持续发展的影响。

Graduation Requirement 13: Environment and Sustainable Development - Ability to understand and evaluate the impact of engineering practices on environmental and social sustainable development for complex engineering problems.

13.1 了解与高分子材料制造相关领域的环境保护与可持续发展等方面的历史文化背景、方针、政策、法律、法规。

13.1 Understand the historical and cultural background, principles, policies, laws and regulations of environmental protection and sustainable development in the fields related to the manufacture of polymer materials.

13.2 能够采用科学的评价方法，针对该工程领域工程实践对环境和社会可持续发展的影响进行评价。

13.2 ability to use scientific evaluation methods to evaluate the impact of engineering practice on environmental and social sustainability in this engineering field.

IV.学制与学位 Duration and Degree

学制： 4 年 Duration: 4 years

学位： 工学学士 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：材料科学与工程

Main Subject: Materials Science and Engineering

专业核心课程：高分子化学、高分子物理、聚合物成型加工原理、聚合物共混与复合改性原理、功能高分子材料、聚合物研究方法、聚合物合成工艺学、轨道交通用高分子材料等。

Specialized Core Course: Polymer Chemistry, Polymer Physics, Principle of Polymer Forming and Processing, Principles of Polymer Blending and Compounding Modification, Polymer Composites, Functional Polymer Materials, Polymer Research Methodology, Polymer Synthesis Technology, Rail Transit Materials and Processing Technology, etc.

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						小计 Subtotal
		必修 Compulsory		限修 Distributional Electives		选修 Free Electives		
		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							
	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	16						16
	物理类 Physics Courses	8	2					10
	计算机基础类 Basic Computer Courses	2	1					3
	化学类 Chemistry Courses	11	3.5					14.5
	专业基础课 Specialty Foundational Courses	15	2					17
专业教育课程 Specialized Courses	专业核心课 Specialized Core Course	26.5	6					32.5
	专业限修课 Specialized Restricted Courses			8				8
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		14					14

	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				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				0
总 计 Total							160

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	1.3/4.1/12.2	
	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	1.3/4.1/7.2/12.1	
	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	1.2/10.1/10.2/13.2	
	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	10.1/10.2/12.1/12.2	
	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	10.1/10.2/12.1/12.2	
	形势与政策 I Situation and Policy I	必修 Compulsory	0	0	第 1 学期 Semester 1	马克思主义学院 School of Marxism	1.2/1.3/12.1	
	形势与政策 II Situation and Policy II	必修 Compulsory	0	0	第 2 学期 Semester 2	马克思主义学院 School of Marxism	1.2/1.3/12.1	
	形势与政策 III Situation and Policy III	必修 Compulsory	0	0	第 3 学期 Semester 3	马克思主义学院 School of Marxism	1.2/1.3/12.1	
	形势与政策 IV Situation and Policy IV	必修 Compulsory	0	0	第 4 学期 Semester 4	马克思主义学院 School of Marxism	1.2/1.3/12.1	
	形势与政策 V Situation and Policy V	必修 Compulsory	0	0	第 5 学期 Semester 5	马克思主义学院 School of Marxism	1.2/1.3/12.1	
	形势与政策 VI Situation and Policy VI	必修 Compulsory	0	0	第 6 学期 Semester 6	马克思主义学院 School of Marxism	1.2/1.3/12.1	

	形势与政策Ⅶ Situation and Policy Ⅶ	必修 Compulsory	0	0	第 7 学期 Semester 7	马克思主义学院 School of Marxism	1.2/1.3/12.1	
	形势与政策Ⅷ Situation and Policy Ⅷ	必修 Compulsory	2	0	第 8 学期 Semester 8	马克思主义学院 School of Marxism	1.2/1.3/12.1	
军事类 Military Courses	军事理论 Military Theories	必修 Compulsory	2	0	第 1 学期 Semester 1	武装部 Security Office	1.2/8.1/8.2	
	军事技能 Military Skills	必修 Compulsory	2	2	短 1 学期 Short Semester 1	武装部 Security Office	1.2/8.1/8.2	
外语类 Foreign Language Courses	英语 I College English I	必修 Compulsory	2	0	第 1 学期 Semester 1	外国语学院 School of Foreign languages	1.2/8.2/9.1/9.3	
	英语 II College English II	必修 Compulsory	2	0	第 2 学期 Semester 2	外国语学院 School of Foreign languages	1.2/8.2/9.1/9.3	
	通用学术英语 English for General Academic Purposes	必修 Compulsory	2	0	第 3 学期 Semester 3	外国语学院 School of Foreign languages	1.2/8.2/9.1/9.3	
	职场英语 Workplace English	限修 Distribution al Elective	2	0	第 4 学期 Semester 4	外国语学院 School of Foreign languages	1.2/8.2/9.1/9.3	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	1.3	
	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	1.3	
	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	1.3	
	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	1.3	
	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	1.3/12.1	
	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	1.3/12.1	

通识与多元化课程 General Education and Diversified Courses 共 10 学分，其中必修 4 学分，限修 0 学分，选修 6 学分 A total credits of 10, including 4 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
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)	选修 Free Electives	6	0	2-8 学期 Semester 2-8	全校 The whole school	4.1/6.3/7.1/8.2	
	学生成长与发展规划课程 Student Growth and Development Planning Courses						11.1/11.2/12.1	
	国际课程 International Courses						1.2/3.1/9.3	
	大学生心理健康教育课程 University Student Psychological Health Courses						1.3	
	多元化课程 Diversified Courses						3.3/4.1/8.2/10.2/	
	劳动教育课程 Labor Education Courses	必修 Compulsory	2	0	2-8 学期 Semester 2-8	全校 The whole school	1.2/1.3/8.1/8.2/12.1	
	公共艺术课程 Public Art Courses	必修 Compulsory	2	0	2-8 学期 Semester 2-8	全校 The whole school	1.2/1.3/8.1/8.2/12.1	
学科与专业基础课程 Discipline and Specialty foundational Courses 共 60.5 学分，其中必修 60.5 学分，限修 0 学分，选修 0 学分 A total credits of 60.5, including 60.5 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
数学类 Mathematics Courses	高等数学 I Advanced Mathematics I	必修 Compulsory	5	0	第 1 学期 Semester 1	数学 School of Mathematics	1.1/3.2/4.2/5.1/5.3/11.2	
	高等数学 II Advanced Mathematics II	必修 Compulsory	5	0	第 2 学期 Semester 2	数学 School of Mathematics	1.1/3.2/4.2/5.1/5.3/11.2	
	线性代数 B Linear Algebra B	必修 Compulsory	3	0	第 1 学期 Semester 1	数学 School of Mathematics	1.1/3.2/4.2/5.1/5.3/11.2	
	概率论与数理统计 Probability Theory and Mathematical Statistics	必修 Compulsory	3	0	第 3 学期 Semester 3	数学 School of Mathematics	1.1/3.2/4.2/5.1/5.3/11.2	
物理类 Physics Courses	大学物理 AI College Physics AI	必修 Compulsory	4	0	第 2 学期 Semester 2	物理 School of Physical Science and Technology	1.1/3.2/4.2/5.1/5.3/11.2	

	大学物理 AII College Physics AII	必修 Compulsory	4	0	第 3 学期 Semester 3	物理 School of Physical Science and Technology	1.1/3.2/4.2/5.1/5.3/11.2	
	大学物理实验 I College Physics Experiments I	必修 Compulsory	1	1	第 2 学期 Semester 2	物理 School of Physical Science and Technology	1.1/3.2/4.2/5.1/5.3/11.2	
	大学物理实验 II College Physics Experiments II	必修 Compulsory	1	1	第 3 学期 Semester 3	物理 School of Physical Science and Technology	1.1/3.2/4.2/5.1/5.3/11.2	
计算机基础类 Basic Computer Courses	计算机程序设计基础 Computer Programming Foundation A	必修 Compulsory	3	1	第 2 学期 Semester 2	计算机 School of Computing and Artificial Intelligence	6.2	
化学类 Chemistry Courses	无机及分析化学 A Inorganic and Analytical Chemistry A	必修 Compulsory	4	0	第 1 学期 Semester 1	化学 School of Chemistry	1.1/3.2/4.2	
	无机及分析化学实验 A Inorganic and Analytical Chemistry Experiments A	必修 Compulsory	1	1	第 1 学期 Semester 1	化学 School of Chemistry	1.1/3.2/4.2/8.1	
	物理化学 A Physical Chemistry A	必修 Compulsory	3	0	第 2 学期 Semester 2	化学 School of Chemistry	1.1/3.2/4.2	
	物理化学实验 A Physical Chemistry Experiments A	必修 Compulsory	1	1	第 2 学期 Semester 2	化学 School of Chemistry	1.1/3.2/4.2/8.1	
	有机化学 A Organic Chemistry A	必修 Compulsory	4	0	第 3 学期 Semester 3	化学 School of Chemistry	1.1/3.2/4.2	
	有机化学实验 A Organic Chemistry Experiments A	必修 Compulsory	1.5	1.5	第 3 学期 Semester 3	化学 School of Chemistry	1.1/3.2/4.2/8.1	
专业基础课 Professional Foundational Courses	机械制图 A Mechanical Drawing A	必修 Compulsory	4	0.5	第 1 学期 Semester 1	机械 School of Mechanical Engineering	2.4/3.3/6.2	
	机械制造技术基础 Mechanical Manufacturing Technology Basics	必修 Compulsory	2	0	第 2 学期 Semester 2	机械 School of Mechanical Engineering	2.4/3.3/6.2	
	电工与电子技术基础 Fundamentals of Electronic and Electric Technology	必修 Compulsory	4	0.5	第 4 学期 Semester 4	电气 School of Electrical Engineering	2.4/3.3/6.2	
	工程力学 C Engineering Mechanics C	必修 Compulsory	3	0	第 4 学期 Semester 4	力学 School of Mechanics and Engineering	2.4/3.3/4.2/6.2	
	材料科学基础 Materials Science Basics	必修 Compulsory	3	0	第 4 学期 Semester 4	化学 School of Chemistry	1.1/2.1/3.2	

	材料科学基础实验方法 D Materials Science Basics Experimental Methods D	必修 Compulsory	1	1	第 4 学期 Semester 4	材料 School of Materials Science and Engineering	2.2/4.2/5.1	
专业教育课程 Specialized Courses 共 40.5 学分，其中必修 32.5 学分，限修 8 学分，选修 0 学分 A total credits of 40.5, including 32.5 for compulsory courses, 8 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	实验室安全与规范 Lab Safety and Standards	必修 Compulsory	1	0.5	第 3 学期 Semester 3	化学 School of Chemistry	6.3/7.1/7.2/12.2	
	高分子化学 Polymer Chemistry	必修 Compulsory	4	0	第 4 学期 Semester 4	医学 School of Medicine	2.2/2.3/3.2/3.3/4 .1/12.2	
	高分子科学实验 I Polymer Science Experiments I	必修 Compulsory	1	1	第 4 学期 Semester 4	化学 School of Chemistry	2.2/3.2/5.1/5.3/7 .1/8.1/9.2	
	化工原理 B Principles of Chemical Engineering B	必修 Compulsory	3	0	第 5 学期 Semester 5	化学 School of Chemistry	2.4/3.2/10.1/11. 2	
	高分子物理 Polymer Physics	必修 Compulsory	4	0	第 5 学期 Semester 5	化学 School of Chemistry	2.2/2.3/3.2/3.3/4 .1/12.2	
	高分子科学实验 II Polymer Science Experiments II	必修 Compulsory	1	1	第 5 学期 Semester 5	化学 School of Chemistry	2.2/3.2/5.1/5.3/7 .1/8.1/9.2	
	聚合物表面与界面 Polymer Surface and Interface	必修 Compulsory	2	0	第 5 学期 Semester 5	化学 School of Chemistry	1.1/2.3/3.1	
	聚合物合成工艺学 Polymer Synthesis Technology	必修 Compulsory	2	0	第 5 学期 Semester 5	化学 School of Chemistry	3.3/4.1/6.2/7.3	
	聚合物研究方法 Polymer Research Methodology	必修 Distribution al Elective	2	1	第 5 学期 Semester 5	化学 School of Chemistry	1.2/2.2/7.1/8.1	
	高分子工程实验 Polymer Engineering Experiment	必修 Compulsory	1.5	1.5	第 6 学期 Semester 6	化学 School of Chemistry	2.2/3.2/5.1/5.3/6 .2/9.2/12.2	
	聚合物共混与复合改性原理 Principles of Polymer Blending and Compounding Modification	必修 Compulsory	2	0	第 6 学期 Semester 6	化学 School of Chemistry	2.2/3.2/4.1/4.2/6 .2	
	功能高分子材料 Functional Polymers	必修 Compulsory	2	0	第 6 学期 Semester 6	化学 School of Chemistry	2.3/3.1/4.1/5.3/9 .2/11.1	
	复合材料 Composites	必修 Compulsory	2	0	第 6 学期 Semester 6	化学 School of Chemistry	2.2/3.3/4.1/4.2	
	高分子分析测试 Polymer analysis and characterization	必修 Compulsory	2	1	第 6 学期 Semester 6	化学 School of Chemistry	2.2/3.2/5.1/5.3/1 3.2	

	聚合物成型加工原理 Principles of Polymer Forming and Processing	必修 Compulsory	3	0	第 6 学期 Semester 6	化学 School of Chemistry	2.2/3.2/3.3/4.1/1.2	
专业限修课 Specialized Restricted Courses	高分子材料的可持续发展 Sustainable Development of Polymer	限修 Distributional Elective	2	0	第 7 学期 Semester 7	化学 School of Chemistry	4.1/7.2/13.1/13.2	6 选 4, 限修 8 学分 (Limited to 4 Courses, 8 credits)
	纳米材料和纳米技术 Nanomaterials and Nanotechnology	限修 Distributional Elective	2	0	第 7 学期 Semester 7	化学 School of Chemistry	6.1/9.2/10.2	
	天然高分子改性材料及应用 (双语) Natural Polymer Modified Materials and Application (Bilingual)	限修 Distributional Elective	2	0	第 7 学期 Semester 7	化学 School of Chemistry	1.2/2.1/3.1/3.3/9.3	
	生物医用高分子材料 Biomedical Polymer Materials	限修 Distributional Elective	2	0	第 7 学期 Semester 7	化学 School of Chemistry	2.3/3.1/4.2/7.2/11.1	
	高分子材料前沿 (双语) Frontier of Polymer Materials (Bilingual)	限修 Distributional Elective	2	0	第 7 学期 Semester 7	化学 School of Chemistry	2.3/3.1/6.1/9.1	
	轨道交通用高分子材料 Polymer Materials for Rail Transit	限修 Distributional Elective	2	0	第 7 学期 Semester 7	化学 School of Chemistry	4.1/6.1/11.2	
实践教学环节 Practice Courses 共 16 学分, 其中必修 14 学分, 限修 2 学分, 选修 0 学分 A total credits of 16, including 14 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
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	工程训练 B Engineering Training B	必修 Compulsory	1.5	1.5	短 1 学期 Short Semester 1	工业中心 Engineering Training Center	2.4/3.3/4.2/8.1/13.1	
	电子实习 Electronic Practice	必修 Compulsory	0.5	0.5	短 2 学期 Short Semester 2	电气 School of Electrical Engineering	2.4/3.3	
	认识实习 Cognitive Practice	必修 Compulsory	0.5	0.5	短 2 学期 Short Semester 2	化学 School of Chemistry	2.2/2.3/5.1/5.2/5.3	
	专业实习 Specialty Practice	必修 Compulsory	1.5	1.5	短 3 学期 Short Semester 3	化学 School of Chemistry	4.1/6.3/5.1/5.2/5.3/8.1	
	高分子材料工程设计 Engineering Design of Polymer Materials	必修 Compulsory	2	2	第 7 学期 Semester 7	化学 School of Chemistry	4.1/5.1/5.3/6.2/8.1/9.2	
	毕业设计 (论文) Graduation Design (papers)	必修 Compulsory	8	8	第 8 学期 Semester 8	化学 School of Chemistry	3.3/4.2/5.1/5.2/6.1/7.2/12.2/13.1	

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	创新创业训练计划项目 (Innovation and Entrepreneurship Training Program)	限修 Distributional Elective	2	2	第 3-7 学期 Semester 3-7	化学 School of Chemistry	3.3/4.1/4.2/5.3/8.2/10.2/11.2	主持或参与结题至少 1 项 (Leading or Participating at least one project conclusion)
	个性化实验 (Individual Experiment)							主持或参与结题至少 1 项 (Leading or Participating at least one project conclusion)
	重点实验室向本科生开放工程实践项目 (Engineering Practice Projects of Key laboratories Opening to Undergraduates)							主持或参与结题至少 1 项 (Leading or Participating at least one project conclusion)
	学科竞赛 (中国国际“互联网+”大学生创新创业大赛, 国家级/省级大学生化学实验邀请赛, 全国大学生节能减排社会实践与科技竞赛, 全国大学生化工设计大赛, 四川省材料设计大赛) (Subject Competition, China College Students "Internet+" Innovation and Entrepreneurship Competition, National/Provincial Undergraduate Chemical Experiment invitational competition, National Undergraduate Energy Conservation and Emission Reduction Social Practice and Technology Competition, Undergraduate Chemical Engineering Design Competition, SiChuan Material Design Competition)							竞赛三等奖以上 (Winning the third Prize at the level or above)

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	0	1-8 学期 Semester 1-8	校团委 Communist Youth League Committee	1.3/8.1/8.2/12.1	
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	0	1-8 学期 Semester 1-8	校团委 Communist Youth League Committee	1.3/12.1/12.2	
	学生体质达标测评 Assessment of Students' Physical Fitness	必修 Compulsory	0	0	秋季学期 Fall semester	体育学院 School of Physical Education	1.3/12.1/12.2	
学分总计 Total Credits			160					

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
化学学院		高分子材料与工程		23, 24, 25, 26 级		240 人
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
电工与电子技术基础	暂无	4	必修	第 4 学期	将“电工与电子技术基础”课程名称更改为“电工与电子技术基础 B”	高分子材料与工程专业 23 版培养方案新增设了一门 4 学分的电工与电子技术基础课程，但目前电气学院开设同名称课程学分为 2 学分，经与电气学院、学校教务对接商议后需将课程名更改为电工与电子技术基础 B，以示区别并便于新增课程代码。
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： 年 月 日		教授委员会意见： 经 2023 年 10 月 30 日教授委员会讨论，与会委员表决情况如下： 全票通过 教授委员会主任签名： 年 月 日			学院/中心 意见：  院长/主任 签名： 年 月 日 学院/中心 (盖章)： 年 月 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： 年 月 日						