

飞行器设计与工程专业培养方案

Undergraduate Program of Aircraft Design and Engineering Specialty

I. 专业介绍 Introduction to the Specialty

飞行器设计与工程专业创建于 2016 年，是西南交通大学为构建大交通蓝图新开设的新专业之一；依托的力学学科于 1981 年获批“固体力学”博士学位授予权、1988 年设立了“力学博士后流动站”、2005 年获得力学一级学科博士学位授予权；2006 年建成国家级力学实验教学示范中心；2022 年飞行器设计与工程专业入选四川省一流专业，目前每年招生 60 人。

Aircraft design and engineering, founded in 2016, is one of the new majors offered by Southwest Jiaotong University for constructing the blueprint of big transportation. In 1981, its subordinate mechanics discipline was granted the right to confer doctoral degree in “solid mechanics”. In 1988, it established the “post-doctoral research station in mechanics”. In 2005, it was granted the right to confer doctoral degree in first-level discipline of mechanics. In 2022, Aircraft design and engineering specialty selected as the first-class major of Scichuan, it currently enrolls 60 students each year.

目前有专任教师 28 人，拥有博士学位占比 93%，高级职称占比 66%，出国经历 3 个月以上者占比 66%，50 岁以下教师占比 74%。入选国家级教学名师 1 人、四川省教学名师 2 名和全国徐芝纶力学优秀教师 10 名，获全国青年教师讲课比赛二等奖 3 人次，各类高水平人才不断涌现。近年来获国家级教学成果二等奖 6 项、省级教学成果奖 10 项；承担国家级和省级教改项目 22 项；入选国家级精品课程 3 门，首批上线 3 门国家级精品资源共享课程和 3 门国家级力学 MOOC 课程，3 门力学课程被认定为国家级精品在线开放课程建设；出版国家级规划教材 12 本。

At present, there are 28 full-time teachers, 89 % of them hold doctoral degrees, 74 % of them have senior professional titles, 75 % of them have been abroad for more than three months, and 72 % of them are under the age of 50. Including one national teaching master, two teaching master of Sichuan province and 8 national Xu Zhilun excellent teachers of mechanics, and won the second prize of the national young teachers' lecture competition for 3 times. At recent years, it has won 6 second-class national teaching achievement awards and 10 provincial teaching achievement awards.

It undertakes 22 national and provincial education reform projects; Three courses have been selected as national excellent courses. Three national excellent resource sharing courses and 3 national mechanics MOOC courses have been put online firstly, and 3 mechanics courses have been identified as the construction of national excellent open online courses. 12 nationally planned textbooks have been published.

经过 60 余年的办学实践,秉承我校“严谨治学、严格要求”的百年双严传统,以国家级教学名师、长江学者领衔的国家级教学团队为主力,以国家级教学资源为保障,以国家级和省部级平台为依托,形成了以学生的学习和发展为中心的办学特色和优势,着力培养“强基础、重实践”的复合型人才。

After more than 60 years of educational practice, we have been adhering to the century old traditions of “Rigorous scholarship, Stringent requirements” of our school, a national teaching team led by the national teaching masters and Cheung Kong scholars was as the main force, the national teaching resources were as the guarantee, based on national and provincial platforms, school running characteristic and advantage centering on students’ learning and developing has been formed. Focuses are put on the cultivation of inter-disciplinary talents with “enhanced foundation, strengthened practice”.

毕业生可选择继续深造学习,也可选择直接就业。专业完全对口的国家大型央企单位较多,如北京有 10 家单位、西安有 8 家单位、上海有 6 家单位、深圳 6 家单位、成都有 7 家单位、杭州有 3 家单位、南京有 2 家单位、合肥有 2 家单位等。目前,大多数毕业生可在航空公司、飞机制造公司、卫星发射中心、空间技术研究所、软件开发公司、高新技术开发部门、高等院校等就业,就业前景良好。

Graduates can choose to pursue further education or direct employment. There are a large number of national large central enterprises that specialize in the same field, such as 10 enterprises in Beijing, 8 enterprises in Xi’an, 6 enterprises in Shanghai, 6 enterprises in Shenzhen, 7 enterprises in Chengdu, 3 enterprises in Hangzhou, 2 enterprises in Nanjing and 2 enterprises in Hefei. At present, most graduates will employ in aviation companies, aircraft manufacturing companies, satellite launch centers, space technology research institutes, software development companies, high-tech development departments and colleges and universities, with good employment prospects.

专业代码: 082002

Program Code: 082002

专业名称: 飞行器设计与工程

Program Name: Aircraft Design and Engineering

II.培养目标 Objectives

本专业培养德智体美劳全面发展,具有扎实的数学、力学基础和飞行器设计、气动设计、结构与强度分析、实验技术等专业知识,掌握飞行器关键系统设计及应用的基本理论知识,具备从事飞行器科学研究和工程设计等基本能力,既能继续深造从事飞行器设计与工程的相关研究,又能适应相关领域需要的复合型、创新型高素质人才。

The major cultivates compound and innovative high-quality talents with the comprehensive development of moral, intellectual, physical, aesthetics and labor, and they should have a solid foundation of mathematics, mechanics and aircraft design, pneumatic design, structure and strength analysis, experimental technology and other professional knowledges, master basic theory knowledge of key system design and application of aircrafts, have basic abilities to engage in scientific research and engineering design of aircrafts, not only can continue their education in researches of aircraft design and engineering, but also can match the demand of related fields.

飞行器设计与工程专业培养目标可分别为(毕业五年后达到的职业和专业成就):

Training objectives of aircraft design and engineering specialty can be decomposed into five parts: (Career preparation upon graduation, career and professional achievements that can be achieved five years after graduation)

培养目标 1: 工作能力

能够在独立工作中有效运用自然科学、数学、工程基础知识、专业技术以及相关法律法规知识,解决复杂工程问题,能取得相应岗位的资质和职称。

Training Objective 1: Work Capability

The graduates can effectively use natural science, mathematics, basic knowledge of engineering, professional technologies, as well as related knowledge of laws and regulations in independent work, to solve complex engineering problems, and can obtain the corresponding position qualifications and titles.

培养目标 2: 团队协作能力

具备厚实的专业基础和丰富的工程经验,具有从事新技术、新工艺的研究、开发与应用能力,具有一定的创新能力和创业潜力,能从力学视角提出解决复杂问题的独立见解。

Training Objective 2: Teamwork Ability

The graduates have a solid professional foundation and rich engineering experience, have the ability in the new technology research and design, development

and application, with a certain degree of innovation ability and entrepreneurial potential, and can independently solve complex problems from a professional insight.

培养目标 3：项目领导能力

具备复杂工程项目的统筹实施能力，能够组织、管理项目工作团队，能够在团队环境中协调组织制定工作计划并有效实施。

Training Objective 3: Project Leadership

The graduates can coordinate the implementation of complex engineering projects, and are able to organize and manage the project work team, and coordinate the organization's work plan and effectively implement it in a team environment.

培养目标 4：社会责任感

具有良好的人文社会科学素养、协作精神、工程职业道德和社会责任感。

Training Objective 4: Social Responsibility

The graduates have good humanities and social science literacy, collaborative spirit, engineering ethics and social responsibility.

培养目标 5：引领发展潜力

具备专业和国际视野，熟悉行业发展历史和前沿领域，能够应对发展中面临的各种挑战，持续学习与自我改进，成长为单位和行业的中坚力量。

Training Objective 5: Leading Development Potential

The graduates have a professional and international perspective, which are familiar with the industry's developed history and front field, can meet development challenges, continuous learning and self-improvement, can contribute to the development of the unit or become a backbone of it.

III.专业毕业要求 Graduation Requirements

本专业的学生应掌握数学和力学基础，掌握飞行器设计的基本理论、基本知识；了解飞行器设计的理论前沿、应用前景和发展动态；掌握飞行器设计的分析方法和实验方法；熟悉飞行器设计的有关规范和设计手册等；掌握英语，能熟练阅读本专业外文资料，具有一定的听说能力和跨文化的交流与合作能力。具体要求如下：

The graduates should master the basics of mathematics and mechanics, and master the basic theory and knowledge of aircraft design; Understand the theoretical frontier, application prospect and development trend of aircraft design; Master the analytical and experimental methods of aircraft design; Be familiar with relevant specifications and design manuals of aircraft design; Master English language, be able to read professional

English materials, have certain listening and speaking ability and cross-cultural communication and cooperation ability. Specific requirements are as follows:

1. 工程知识 (Engineering Knowledge)

通过专业基础课、专业课及相关实验课和专业的科研训练，获得从事飞行器设计与工程专业工作的专业能力以及航空航天相关专业的专业能力。

Through professional basic courses, professional courses, relevant experimental courses and professional scientific research training, graduates have the professional ability to engage work in aircraft design and engineering specialty and the basic ability of aerospace related majors.

1.1 具备对复杂工程问题的表达、抽象能力。

1.1 Possess the ability to express and abstract complex engineering problems.

1.2 具备运用相关知识和力学理论对复杂工程问题进行建模并求解。

1.2 Possess the ability to use relevant knowledges and mechanics theories to model and solve complex engineering problems.

1.3 具有分析和解决飞行器设计与工程问题的基本思想、基本方法，以基本的逻辑思维能力培养为主，能够运用这些基础知识进行拓展学习和实践。

1.3 Possess basic ideas and methods of analyzing and solving aircraft design and engineering problems, and mainly cultivate basic logical thinking abilities, can use these basic knowledges to expand learning and practice.

1.4 能运用飞行器设计与工程相关知识，通过力学建模的比较和分析，优选技术方案，完成优化设计。

1.4 Be able to apply relevant aircraft design and engineering knowledges, through the comparison and analysis of mechanical modeling, optimize the technical solutions and complete the optimal design.

2. 问题分析(Problem Analysis)

能够应用数学、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复杂工程问题，以获得并表达出有效的结论。

Be able to apply the basic principles of mathematics, natural science and engineering science to identify, express and analyze complex engineering problems through literature research to achieve and express effective conclusions.

2.1. 能对复杂工程问题进行合理简化，判断关键环节和参数

2.1. Be able to reasonably simplify complex engineering problems, judge key links and parameters.

2.2 具备采用计算机语言进行编程的基本能力，熟悉工程科学的研究方法，

熟悉进行实验的基本技能，具有较强的应用工程软件进行飞行器结构设计和仿真的能力。

2.2 Possess the basic ability to program with computer language, be familiar with research methods of engineering science, be familiar with the basic skills of conducting experiments and have a strong ability to use engineering software to design and simulate aircraft structures.

2.3 能够认识到解决问题有多种方案可选择，会通过文献研究寻求可代替的解决方案。

2.3 Recognize that there are multiple options for solving problems and that alternative solutions are sought through literature research.

2.4 能运用飞行器设计基本原理，借助文献和网络资源研究，分析过程的影响因素，证实解决方案的合理性。

2.4 Be able to use the basic aircraft design principles, with the help of literature research and web sources, analyze the influence factors of the process and confirm the rationality of the solution.

3. 设计/开发解决方案(Design/Development Solutions)

能够设计针对复杂飞行器设计与工程问题的解决方案，设计满足特定需求的系统、单元（部件）或实施流程，并能够在解决方案中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。

With the ability to design solutions for complex aircraft design and engineering problems, design systems, units (components) or implementation processes that meet specific needs, and reflect a sense of innovation in the development solution, considering social, health, safety, legal, cultural and environmental factors.

3.1 能够根据用户需求建立飞行器结构的力学模型、编写计算程序。

3.1 Be able to build mechanical model of aircraft structures and program according to user requirement.

3.2 能够在安全、环境、法律等现实约束条件下，通过技术经济评价对设计方案的可行性进行研究。

3.2 The feasibility of the design scheme can be studied through technical and economic evaluation under the conditions of safety, environment, law and other practical constraints.

3.3 能够设计针对复杂飞行器设计与工程问题的解决方案，完成系统的设计、仿真、实验和优化。

3.3 Be able to design solutions to complex aircraft design and engineering

problems, complete system design, simulation, experiment and optimization.

3.4 能够对设计方案进行优化，体现创新意识。

3.4 Be able to optimize the design solutions, reflect the sense of innovation.

4. 研究(Research)

能够基于飞行器设计原理并采用力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、并通过信息综合得到合理有效的结论。

Be able to conduct research on complex engineering problems based on aircraft design principles and methods, including designing experiments, analyzing and interpreting data, and obtaining reasonable and effective conclusions through information synthesis.

4.1 能够根据复杂飞行器设计与工程中的力学问题需求选择适当的实验方法。

4.1 Be able to select the appropriate experimental method according to the requirements of mechanics problems in complex aircraft design and engineering.

4.2 能够基于飞行器设计与工程专业理论，根据结构服役条件，选择研究路线，设计可行的实验方案。

4.2 Be able to choose the research rout based on aircraft design and engineering professional theory, and design feasible experimental program according to the service conditions of structures.

4.3 能够借助现有条件搭建试验装置，采用科学的实验方法，安全地开展试验。

4.3 Be able to build a test device based on the existing conditions, using scientific experimental methods, safely carry out the test.

4.4 能够正确采集、整理实验数据，对实验结果进行建模、回归、分析和误差评估，获取合理有效的结论。

4.4 Be able to collect and arrange experimental data correctly, conduct modeling, regression, analysis and error evaluation of experimental results, and obtain reasonable and effective conclusions.

5. 使用现代工具(Use of Modern Tools)

能够针对飞行器设计与工程中的复杂问题，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程，包括对飞行器设计与工程复杂问题的预测与模拟，并能够理解其局限性。

The ability to develop, select and use appropriate technologies, resources, modern engineering tools and information technology engineering for complex problems in aircraft design and engineering, including prediction and simulation of complex

problems in aircraft design and engineering and to understand their limitations.

5.1 能熟练运用信息资源、文献检索工具，了解工程领域前沿发展趋势。

5.1 Be able to use information resources and literature retrieval tools to understand the leading trends in the field of engineering.

5.2 能够针对飞行器设计与工程领域复杂问题，选择和使用恰当的实验技术和资源。

5.2 Be able to select and use appropriate experimental technologies and sources for complex problems in aircraft design and engineering field.

5.3 能够选择和使用恰当的计算、仿真工具，进行预测与模拟，并能够理解与实际工程的差异，理解其局限性。

5.3 Be able to select and use appropriate computation and simulation tools for mechanical problems in complex engineering, to make predictions and simulations, and to understand the differences with actual engineering and to understand its limitations.

6. 工程与社会(Engineering and Society)

能够基于工程相关背景知识进行合理分析，评价工程实践和复杂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。

Be able to conduct reasonable analysis based on engineering background knowledges, evaluate the social, health, safety, legal and cultural impact of engineering practices and complex engineering solutions, and understand the responsibilities.

6.1 熟悉飞行器设计与工程专业领域相关的技术标准、知识产权、产业政策和法律法规，理解本领域相关企业管理体系。

6.1 Be familiar with the relevant technical standards, intellectual property rights, industrial policies and laws and regulations in the field of aircraft design and engineering, and understand the relevant enterprise management system in this field.

6.2 能识别和分析飞行器设计与工程相关领域的新技术、新工艺的开发和应用对社会、健康、安全、法律以及文化的潜在影响。

6.2 To identify and analyze the potential impact of new technologies, new processes and applications in aircraft design and engineering relevant fields on society, health, safety, law and culture.

6.3 能客观评价工程项目的实施对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。

6.3 To objectively assess the social, health, safety, legal and cultural impact of the implementation of engineering projects and to understand the responsibilities to be assumed.

7. 环境和可持续发展(Environment and Sustainable Development)

能够理解和评价对复杂飞行器设计与工程问题的实践对环境、社会可持续发展的影响。

Be able to understand and evaluate the impact of engineering practices on complex aircraft design and engineering problems on the sustainable development of environmental.

7.1 能理解环境保护和社会可持续发展的必要性和现实意义，熟悉环境保护的法律法规。

7.1 Understand the need and practical significance of environmental protection and sustainable social development, familiar with the laws and regulations of environmental protection.

7.2 能理解复杂飞行器设计与工程问题解决方案对环境和社会可持续发展的影响。

7.2 Be able to understand the impact of complex aircraft design and engineering solutions on environmental and social sustainability.

7.3 能根据环境和社会可持续发展原则评价正确评价复杂飞行器设计与工程问题。

7.3 Possess the ability to evaluate complex aircraft design and engineering problems correctly according to the principles of environmental and social sustainable development.

7.4 能够正确评价工程实践中可能对人类和环境造成的损害和隐患。

7.4 The damage and hazards that may be caused to human beings and the environment in engineering practice can be correctly evaluated.

8. 职业规范(Professional Norms)

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。

With humanities and social science literacy, social responsibility, can understand and abide by the engineering professional ethics and norms in engineering practice, fulfill their responsibilities.

8.1 有正确的社会主义核心价值观，了解中国国情，理解个人与社会的关系。

8.1 Possess correct the core values of socialism, understand China's national conditions, understand the relationship between individuals and society.

8.2 清楚身心健康对于自身职业发展的重要性，能够拥有健康的体质、良好的心理素质和社会责任感，具有人文修养。

8.2 Clearly the importance of physical and mental health for their own career development, can have a healthy physique, good psychological quality and social responsibility, with human cultivation.

8.3 理解诚实公正，诚信守则的工程职业道德和规范，并能在工程实践中自觉遵守。

8.3 Understand the integrity and fairness, integrity code of professional ethics and norms, and can consciously abide by in the practice of engineering.

8.4 理解工程实践与公众的安全、健康和利益关系，能够在工程实践中自觉履行责任。

8.4 Understand the relationship between engineering practice and public safety, health and interests, and be able to consciously fulfill the responsibility in engineering practice.

9. 个人和团队(Individuals and Teams)

能够在多学科背景下的团队中承担个体、团队成员以及责任人的角色。

Be able to assume the role of individuals, team members, and responsible persons in a multidisciplinary team.

9.1 能够主动与其他学科的成员共享信息，合作共事。

9.1 Be able to actively share information and work together with members of other disciplines.

9.2 能倾听他人意见，寻求有效合作的切入点。

9.2 Be able to listen to the opinions of others and seek effective cooperation.

9.3 能在团队中独立和合作开展工作。

9.3 Be able to work independently and cooperatively within the team.

9.4 积极参与组织、协调和指挥团队开展工作，有组织和领导能力。

9.4 Actively participate in the organization, coordination and command team, have organization and leadership skills.

10. 沟通(Communication)

能够就复杂飞行器设计与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。

Possess the ability to communicate effectively with industry peers and the public on complex aircraft design and engineering problems, including writing reports and design documents, making statements, making clear statements or responding to instructions, and having a certain international perspective to communicate and

communicate in a cross-cultural context.

10.1 能够就复杂飞行器设计与工程问题以口头、文稿和图表等形式准确表达自己的观点和工作成果，回应质疑，理解与业界同行和社会工作交流的差异性。

10.1 Be able to express views and work results accurately for aircraft design and engineering problems in the form of oral, document and chart symbiotic issues, respond to questions, and understand the differences in communication with industry peers and social work.

10.2 关注全球性问题，理解和尊重世界不同文化的差异性和多样性，理解飞行器设计与工程领域的国际发展趋势和研究热点。

10.2 Focus on global issues, understand and respect the differences and diversity of different cultures in the world, and understand international trends and research hotspots in the field of aircraft design and engineering.

10.3 具备跨文化交流的语言和书面表达能力；能就专业问题在跨文化背景下进行沟通和交流。

10.3 Possess the language and written ability to communicate across cultural exchanges, and be able to communicate and communicate in a cross-cultural context on professional issues.

11. 项目管理(Project Management)

理解并掌握工程项目管理原理与经济决策方法，并能在多学科环境中应用。

Understand and master the principles of engineering project management and economic decision-making methods, and can be applied in a multidisciplinary environment.

11.1 能够理解工程相关企业的管理架构、原理和经济决策方法，掌握航空工程经济学方面的基本知识和经济决策方法。

11.1 Be able to understand the management structure, principles and economic decision-making methods of engineering mechanics-related enterprises, master the basic knowledge of aerospace engineering economics and economic decision-making methods.

11.2 能够在多学科环境中根据复杂工程项目特征选择恰当的项目管理方法和经济决策方法。

11.2 Be able to select appropriate project management methods and economic decision-making methods based on the characteristics of complex engineering projects in a multidisciplinary environment.

11.3 能够选择恰当的工程项目管理工具、工程模型并进行实践。

11.3 Be able to select appropriate engineering project management tools, engineering models and practice.

12. 终身学习(Lifelong Learning)

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。

A sense of self-learning and lifelong learning, the ability to continuously learn and adapt to development.

12.1 理解工程技术环境的多样化，以及技术进步对于知识和能力的影响和要求，掌握必要的学习方法。

12.1 Understand the diversity of the engineering technology environment and the impact and requirements of technological advances on knowledge and capacity, master the necessary study methods.

12.2 具有跟踪和识别工程领域知识发展和飞行器设计与工程领域新的研究方向能力。

12.2 Be able to track and identify knowledge development and new research directions in the field of aircraft design and engineering.

12.3 具有批判性思维，能理性分析、判断、归纳和提出问题。

12.3 With critical thinking, be able to rational analysis, judgment, and induction and ask questions.

12.4 能进行自我评价，并以此作为追踪个人发展需要和成就的主要手段。

12.4 Self-evaluation can be carried out as a primary means of tracking individual development needs and achievements.

培养目标和毕业要求的关联度矩阵如下表所示：

The correlation matrix of training objectives and graduation requirements is shown in the following table:

培 养 目 标 Objectives	目标 1：工作 能力 Training Objective 1: Work Capability	目标 2：团队协 作能力 Training Objective 2: Teamwork Ability	目标 3：项目 领导能力 Training Objective 3: Project Leadership	目标 4：社会责 任感 Training Objective 4: Social Responsibility	目标 5：引领 发展潜力 Training Objective 5: Leading Development Potential
毕业要求 Graduation requirements					
毕业要求 1：工程知识 Graduation Requirements 1: Engineering Knowledge	√				
毕业要求 2：问题分析 Graduation Requirements 2: Problem Analysis			√	√	

毕业要求 3: 设计/开发 解决方案 Graduation Requirements 3: Design/Development Solutions	√	√			
毕业要求 4: 研究 Graduation Requirements 4: Research	√	√			√
毕业要求 5: 使用现代 工具 Graduation Requirements 5: Use of Modern Tools	√				
毕业要求 6: 工程与社 会 Graduation Requirements 6: Engineering and Society				√	
毕业要求 7: 环境与可 持续发展 Graduation Requirements 7: Environment and Sustainable Development				√	
毕业要求 8: 职业规范 Graduation Requirements 8: Professional Norms			√	√	
毕业要求 9: 个人与团 队 Graduation Requirements 9: Individuals and Teams		√	√	√	
毕业要求 10: 沟通 Graduation Requirements 10: Communication		√	√		
毕业要求 11: 项目管理 Graduation Requirements 11: Project Management			√	√	
毕业要求 12: 终身学习 Graduation Requirements 12: Lifelong Learning					√

IV.学制与学位 Duration and Degree

学制: 4 年

Duration: four years

学位: 工学学士

Degree: Bachelor of Engineering

V.主干学科与主干课程 Main Subject and Main Courses

主干学科: 航空宇航科学与技术; 力学

Main Subjects: Aerospace science and technology; Mechanics

主干课程: 飞行器总体设计与系统工程、飞行器结构设计、飞行器结构可靠性分析、飞行器系统仿真技术、飞行器气动优化设计、飞行器姿态动力学与控制、气动弹性力学、计算流体力学、疲劳与断裂力学等。

Main courses: Aircraft Overall Design and System Engineering, Structure Design of Aircraft, Structural Reliability Analysis of Aircraft, Aerodynamic Optimization Design of Aircraft, Attitude Dynamics and Control of Aircraft, Aeroelasticity, Computational Fluid Dynamics, Experimental Aerodynamics, Flight Control and Simulation, Fatigue and Fracture Mechanics, 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						
		必修 Compulsory		限修 Distributional Electives		选修 Free Electives		小计
		理论 Theory	实践 Practice	理论 Theory	实践 Practice	理论 Theory	实践 Practice	Subtotal
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					4		4
	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
	新生研讨课 Freshman seminar	1	1					2

学科与专业基础课程 Discipline and Specialty Foundational Courses	数学类 Mathematics Courses	21	1					22
	物理类 Physics Courses	6	2					8
	计算机基础类 Basic Computer Courses	2	1					3
	机械类 Mechanical Courses	3						3
	电路和电子类 Circuit and Electronic Courses	2	1					3
专业教育课程 Specialized Courses	专业基础课 Specialized Foundational Courses	31	6					37
	专业核心课 Specialized Core Course	17	2					19
	专业限选课 Specialized Restricted Courses			1	1			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		17					17
	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								159

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	6.2, 6.3 8.1, 8.2 8.3	
	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	8.1, 12.3	
	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	8.1, 12.3 12.4	
	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	8.1, 12.3 12.4	
	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	8.1, 12.3 12.4	
	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	8.1, 12.3	
	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	8.1, 12.3	
	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	8.1, 12.3	
	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	8.1, 12.3	

	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	8.1, 12.3	
	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	8.1, 12.3	
	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	8.1, 12.3	
	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	8.1, 12.3	
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	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	8.2, 9.3 9.4	
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	10.3	
	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	10.3	
	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	5.1, 10.3	
	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	10.1, 10.2 10.3	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	8.2, 9.2 9.3, 9.4	
	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	8.2, 9.2 9.3, 9.4	
	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	8.2, 9.2 9.3, 9.4	
	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	8.2, 9.2 9.3, 9.4	
	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	8.2, 12.4	

	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	8.2, 12.4	
通识与多元化课程 General Education and Diversified Courses 共 10 学分, 其中必修 6 学分, 限修 0 学分, 选修 4 学分 Total credits of 10, including 6 for compulsory courses, 0 for distributional electives and 4 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 electives	2		第 2-8 学 期 Semester 2-8	全校 The whole school	6.1, 6.2, 6.3 7.1, 7.3, 8.3, 8.4, 10.2, 12.3, 12.4	选修 2 门 课, 4 学 分 Free electives 2 courses, 4 credits
多元化课程 Diversified Courses	应用写作 Practical writing		2			力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.3, 3.5	
	大学生力学竞赛课程 Mechanics Competition Courses of College Students		2			力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.3, 3.5	
国际课程 International Courses	国际课程 International Courses		2			全校 The whole school	6.1, 6.2, 6.3 7.1, 7.3, 8.3, 8.4, 10.2, 12.3, 12.4	
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		2			全校 The whole school	6.1, 6.2, 6.3 7.1, 7.3, 8.3, 8.4, 10.2, 12.3, 12.4	
学生成长与发展规 划课程 Student Growth and Development Pla nning Courses	学生成长与发展规划课程 Student Growth and Develo pment Planning Courses		2			全校 The whole school	6.1, 6.2, 6.3 7.1, 7.3, 8.3, 8.4, 10.2, 12.3, 12.4	
劳动教育课程 Labor Education Courses	劳动教育课程 Labor Education Courses	必修 Compulsory	2	2	第 2-8 学 期 Semester 2-8	全校 The whole school	6.1, 6.2, 6.3 7.1, 7.3, 8.3, 8.4, 10.2, 12.3, 12.4	
公共艺术课程 Public Art Courses	公共艺术课程 Public Art Courses	必修 Compulsory	2	2	第 2-8 学 期 Semester 2-8	全校 The whole school	6.1, 6.2, 6.3 7.1, 7.3, 8.3, 8.4, 10.2, 12.3, 12.4	

新生研讨课 Freshman seminar	航空概论 Introduction to Aviation	必修 Compulsory	2	1	第 1 学期 Semester 1	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.4, 5.1 9.1, 9.2 9.3, 9.4 10.2, 12.1 12.2	
学科与专业基础课程 Discipline and Specialty foundational Courses 共 39 学分，其中必修 39 学分，限修 0 学分，选修 0 学分 Total credits of 39, including 39 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		第 1 学期 Semester 1	数学学院 School of Mathematics	1.2, 1.3	
	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	1.2, 1.3	
	高等数学 II Advanced Mathematics II	必修 Compulsory	5		第 2 学期 Semester	数学学院 School of Mathematics	1.2, 1.3	
	概率论与数理统计 Probability and Mathematical Statistics	必修 Compulsory	3		第 3 学期 Semester 3	数学学院 School of Mathematics	1.2, 1.3	
	数学物理方法 B Methods of Mathematical Physics B	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	1.2, 1.3	
	工程数值分析及实验 Numerical Analysis and Experiment in Engineering	必修 Compulsory	3	1	第 4 学期 Semester 4	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.2, 1.3, 2.2	
物理类 Physics Courses	大学物理 BI University Physics BI	必修 Compulsory	3		第 2 学期 Semester 2	物理科学与 技术学院 School of Physics	1.1, 1.3	
	大学物理实验 BI Experiment of University Physics I	必修 Compulsory	1	1	第 2 学期 Semester 2	物理科学与 技术学院 School of Physics	4.1, 4.2, 4.3	
	大学物理 BII University Physics BII	必修 Compulsory	3		第 3 学期 Semester 3	物理科学与 技术学院 School of Physics	1.1, 1.3	
	大学物理实验 II Experiment of University Physics II	必修 Compulsory	1	1	第 3 学期 Semester 3	物理科学与 技术学院 School of Physics	4.1, 4.2, 4.3	

计算机基础类 Basic Computer Courses	计算机程序设计基础 Fundamental of Computer Program Design	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	1.1, 1.2, 1.3	
机械类 Mechanical Courses	机械制图 B Mechanical Drafting B	必修 Compulsory	3		第 1 学期 Semester 1	机械工程学院 School of Mechanical Engineering	1.1	
电路和电子类 Circuit and Electronic Courses	电路和电子技术基础 Fundamentals of Circuit and Electronic Technology	必修 Compulsory	3	1	第 4 学期 Semester 4	电气工程学院 School of Electrical Engineering	1.1, 3.1	
专业教育课程 Specialized Courses 共 58 学分，其中必修 56 学分，限修 2 学分，选修 0 学分 Total credits of 58, including 56 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
专业基础课 Specialized Foundational Courses	理论力学 AI Theoretical Mechanics AI	必修 Compulsory	3	1	第 2 学期 Semester 2	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4	
	理论力学 AII Theoretical Mechanics AII	必修 Compulsory	3	1	第 3 学期 Semester 3	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4	
	材料力学 AI Mechanics of Materials AI	必修 Compulsory	3	1	第 3 学期 Semester 3	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4	
	机械制造工艺学 Mechanical Manufacture Technology	必修 Compulsory	3		第 3 学期 Semester 3	机械工程学院 School of Mechanical Engineering	5.1, 5.2, 5.3	
	机械设计基础 C Fundamentals of Mechanical Design C	必修 Compulsory	3		第 4 学期 Semester 4	机械工程学院 School of Mechanical Engineering	1.1, 1.2, 1.3, 2.1	

专业基础课 Specialized Foundational Courses	材料力学 AII Mechanics of Materials AII	必修 Compulsory	3	1	第 4 学期 Semester 4	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4	
	流体力学 B Fluid Mechanics B	必修 Compulsory	3		第 4 学期 Semester 4	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4	
	振动力学 A Vibration Mechanics A	必修 Compulsory	3		第 4 学期 Semester 4	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4	
	流体传动与控制 Hydrostatic Transmission and Control	必修 Compulsory	3		第 5 学期 Semester 5	机械工程学 院 School of Mechanical Engineering	1.1, 1.2, 1.3, 2.3	
	专业英语 Specialty English	必修 Compulsory	2	1	第 5 学期 Semester 5	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	5.1, 10.1, 10.2, 10.3	
	控制论基础 Foundation of Control Theory	必修 Compulsory	2		第 5 学期 Semester 5	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.1, 1.2, 1.3, 2.1	
	弹性力学 B Elasticity B	必修 Compulsory	3		第 5 学期 Semester 5	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4	
	计算力学 A Computational Mechanics A	必修 Compulsory	3	1	第 6 学期 Semester 6	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	3.3, 3.4, 5.3	

专业核心课 Specialized Core Course	飞行器结构力学 Structural Mechanics of Aircraft	必修 Compulsory	3		第 5 学期 Semester 5	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	
	飞行器总体设计与系统工程 Overall Design and System Engineering of Aircraft	必修 Compulsory	3		第 5 学期 Semester 5	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	
	空气动力学 Aerodynamics	必修 Compulsory	2	1	第 5 学期 Semester 5	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	
	复合材料力学 Mechanics of Composites	必修 Compulsory	2		第 6 学期 Semester 6	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4	
	飞行器结构设计 Structural Design of Aircraft	必修 Compulsory	3	1	第 6 学期 Semester 6	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	飞行器结构设计方向 Research interests on Structural Design of Aircraft
	航空工程材料 Aeronautical Engineering Materials	必修 Compulsory	2		第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	1.1, 2.1	
	结构分析软件 Structural Analysis Software	必修 Compulsory	2	1	第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	3.1, 3.2, 3.3, 3.4, 5.3	
	疲劳与断裂力学 B Fatigue and Fracture Mechanics B	必修 Compulsory	2		第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	

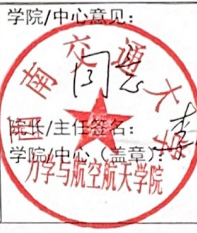
专业核心课 Specialized Core Course	计算流体力学 Computational Fluid Dynamics	必修 Compulsory	3		第 6 学期 Semester 6	力学与航空航天学院 School of Mechanics and Aerospace Engineering	1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4	飞行器气动设计方向 Research interests on Aerodynamic Design of Aircraft
	飞行器气动优化设计 Pneumatic Optimization Design of Aircraft	必修 Compulsory	2		第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	
	飞行力学与控制 Flight Dynamics and Control	必修 Compulsory	2		第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	
	流体计算软件及实验 Fluid Computational Software and Experiments	必修 Compulsory	2	1	第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	3.1, 3.2, 3.3, 3.4, 5.3	
专业限修课程 Specialized Restricted Courses	飞行器结构可靠性分析 Probability Analysis for Aircraft Structures	限修 Distributional Elective	2	1	第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	3.1, 3.2, 3.3, 3.4, 5.3	飞行器结构设计方向 Research interests on Structural Design of Aircraft
	飞行器结构实验技术基础 Experimental Technique Foundation of Aircraft Structures				第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	
	气动弹性力学 Aeroelasticity	限修 Distributional Elective	2	1	第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	飞行器气动设计方向 Research interests on Aerodynamic Design of Aircraft
	飞行器姿态动力学与控制 Attitude Dynamics and Control of Aircraft				第 7 学期 (1-8 周) Semester 7(1-8 weeks)	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.2, 3.3, 3.4, 4.1	

实践教学环节 Practice Courses 共 19 学分，其中必修 17 学分，限修 2 学分，选修 0 学分 Total credits of 19, including 17 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 A Engineering Training A	必修 Compulsory	2	2	短 1 学期 Short Semester 1	工程训练中心 Engineering Training Center	2.1, 6.1, 8.1, 8.2, 8.3, 8.4, 9.1, 9.2, 9.3, 11.3, 12.1,	
	计算机辅助设计 Computer Aided Design	必修 Compulsory	1	1	短 1 学期 Short Semester 1	力学与航空航天学院 School of Mechanics and Aerospace Engineering	3.1, 3.2, 3.3, 3.4, 5.1, 5.2, 5.3	
	专业前沿专题讲座 Special Lecture of Professional Frontier	必修 Compulsory	1	1	短 1 学期 Short Semester 1	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4	
	工程实习 Engineering Practice	必修 Compulsory	1	1	短 2 学期 Short Semester 2	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 6.1, 9.1, 9.2, 9.3, 11.3, 12.1	
	创新训练课 Course of Innovation Training	必修 Compulsory	1	1	短 2 学期 Short Semester 2	力学与航空航天学院 School of Mechanics and Aerospace Engineering	4.3, 4.4	
	飞行器先进测控技术创新实验 Innovative Experiment of Advanced Measurement and Control Technology of Aircraft	必修 Compulsory	1	1	第 5 学期 Semester 5	力学与航空航天学院 School of Mechanics and Aerospace Engineering	4.3, 4.4	
	生产实习 Production Practice	必修 Compulsory	1	1	短 3 学期 Short Semester 3	力学与航空航天学院 School of Mechanics and Aerospace Engineering	5.2, 7.1, 8.2, 9.1, 9.2, 9.3, 9.4, 10.2, 12.4	
	科技活动 Scientific and Technological Activities	必修 Compulsory	1	1	短 3 学期 Short Semester 3	力学与航空航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 7.1, 7.2, 7.3, 7.4, 8.1, 8.2, 8.3, 8.4	

	毕业设计(论文) Undergraduate Design (Thesis)	必修 Compulsory	8	8	第 8 学期 Semester 8	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 3.4, 4.3, 4.4, 5.1, 6.3, 7.3, 10.1, 11.2, 11.3, 12.3	
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、 个性化实验、重点实验室 开放课题、学科竞赛、创 新讲座 Innovation and Entrepreneurship Practice: Innovation and Entrepreneurship Training Program, Personalized Experiments, Key laboratory open project, Subject Competition, Innovation Lectures	限修 Distribution al Elective	2	2	第 3-7 学 期 3-7 Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	9.1, 9.2, 9.3, 9.4, 11.1, 11.2, 11.3	限修 2 学 分 Distributio nal Elective 2 Credits 项目主持 或参与结 题至少 1 项 Leading or participatio n in projects at least one project conclusion ; 学科竞赛 获校级一 等奖或省 部级及以 上竞赛三 等奖及以 上 In competitio n, winning the first prize at this university or the third prize at the provincial level or above; 创新讲座 听全校至 少 10 个科 技讲座, 本院不少 于 5 个, 提交科技 报告 1 份 Listening to at least 10 innovation lecture lectures of science and at least 5 in this school, submitting a report of science and technology

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	第 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	0	第 1-8 学期 Semester 1-8	校团委 Communist Youth League Committee	8.1, 8.2, 12.3, 12.4	
	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	8.2	
学分总计 Total Credits			159					

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
力学与航空航天学院		飞行器设计与工程		2023		61
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
计算流体力学	MECH002912	3	必修	6	更名：计算流体力学 II	与工力专业内容不同
空气动力学		2	必修	5	更名：空气动力学 B	与 2022 级培养方案命名规则一致
本专业专家论证意见（可另附表）：						
专业负责人意见： 同意 专业负责人签名：杨继仁 2023 年 10 月 8 日		教授委员会意见： 经 2023 年 10 月 18 日教授委员会讨论，与会委员表决情况如下： 7 位教授全票通过 教授委员会主任签名：杨继仁 2023 年 10 月 18 日			学院/中心意见：   学院/中心主任签名：李学军 学院/中心（盖章并签字）：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： 年 月 日						
教务处意见： 年 月 日						

注：此表一式三份，一份存学院，一份存教学研究科，一份存排课考试中心。