

飞行器设计与工程专业辅修培养方案

Minor Undergraduate Program of Aircraft Design and Engineering Specialty

一、培养目标 Objectives

设置辅修飞行器设计与工程专业的课程模块，为其它专业的学生“跨专业深造”或“跨专业就业”提供有效支撑，加强交叉学科人才培养。完成辅修专业的毕业生，应具有扎实的数学、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，能够从事航空航天工程等领域的设计、科研与技术管理等方面工作。

The course module of Aircraft Design and Engineering Specialty as a minor is set up to provide effective support for students of other majors to pursue further study or obtain employment across majors”, and to strengthen the training of talents of cross-disciplines. Graduates of minor majors should have a solid foundation of mathematics, mechanics, aircraft design, aerodynamic design, structure and strength analysis, experimental technology and other professional knowledges, and be able to engage in aerospace engineering and other fields of design, scientific research and technical management.

二、培养要求 Requirements

本专业的学生应掌握力学基础理论、计算分析方法、飞行器总体设计、飞行器结构设计、空气动力学、振动与控制理论、飞行器制造工艺、实验等方面的基本理论和专业知识，毕业生应获得以下几方面的素质、知识和能力：

Graduates of minor specialty should master basic theories and professional knowledges, including a solid foundation of mechanics, computational analysis method, overall design of aircraft, aircraft structure design, aerodynamics, vibration and control theory, aircraft manufacturing technology, experiments of basic theory and professional knowledge, they should obtain the following aspects of quality, knowledge and ability:

1. 较系统地掌握力学专业的基础理论知识，了解本专业的前沿发展现状和趋势。

1. Graduates of minor specialty should Systematically master the basic theoretical knowledge of mechanics major, and understand the current situation and trend of the frontier development of this major.

2. 具有一定的力学专业知识和工程结构数值分析能力、设计能力及实验技能。

2. Graduates of minor specialty should have certain mechanical professional knowledge, engineering structure numerical analysis ability, design ability and experimental skills.

3. 具有一定的飞行器设计与结构分析能力，能参与本专业技术领域的应用研究、技术开发及经营管理等相关工作。

3. Graduates of minor specialty should have a certain capacity of aircraft design and structural analysis, and can participate in the applied research, technical development, business management and other related work in the professional technical field.

4. 具备一定的工程意识和实践能力，熟练的计算机应用能力，具有综合运用力学理论知识、技术手段和工程方法解决工程实际问题的能力。

4. Graduates of minor specialty should have certain engineering consciousness and practical ability, skilled computer application ability, have comprehensive use of mechanical theory knowledge, technical means and engineering methods to solve practical engineering problems.

5. 掌握与工程力学相关的基本创新方法，具有追求创新的态度和意识；具有较强的自学能力、较高的综合素质，对交叉学科的学习有正确认识，具有不断学习和适应发展的能力。

5. Graduates of minor specialty should master the basic innovation methods related to aircraft design and engineering, have the attitude and consciousness of pursuing innovation; Have strong self-learning ability, high comprehensive quality, have a correct understanding of interdisciplinary learning, have the ability to continue to learn and adapt to development.

三、学分要求 Credits Requirements

该辅修专业学分要求不低于 41 分。选本专业为辅修专业的学生应修满学分要求，并符合《西南交通大学本科生辅修与双学位管理办法》规定者，方可颁发本专业辅修证书。

The minor major requires at least 41 credits. Students who choose this major as a minor major should complete the requirements for credits and meet 《the regulations of Southwest Jiaotong University on the management of undergraduate minor and double degree》, only then can the minor certificate of this major be issued.

四、课程设置 Course Programs

课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	学分 Credits	开课学期 Semester	开课学院 School	备注 Notes
专业基础课 Professional Foundational Courses	计算力学 A Computational Mechanics A	必修 Compulsory	3	春季学期 Spring Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	航空工程材料 Aeronautical Engineering Materials	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	控制论基础 Foundation of Control Theory	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
专业核心课程 Specialized Core Course	航空概论 (新生研讨课) Introduction to Aviation (Freshman Seminar)	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	理论力学 AI Theoretical Mechanics AI	必修 Compulsory	3	春季学期 Spring Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	理论力学 AII Theoretical Mechanics AII	必修 Compulsory	3	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	材料力学 AI Mechanics of Materials AI	必修 Compulsory	3	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	材料力学 AII Mechanics of Materials AII	必修 Compulsory	3	春季学期 Spring Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	空气动力学 B Aerodynamics B	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	

专业核心课程 Specialized Core Course	飞行器结构力学 Structural Mechanics of Aircraft	必修 Compulsory	3	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	飞行器总体设计与系 统工程 Overall Design and System Engineering of Aircraft	必修 Compulsory	3	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	飞行器结构设计 Structural Design of Aircraft	必修 Compulsory	3	春季学期 Spring Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	计算流体力学 II Computational Fluid Dynamics II	必修 Compulsory	3	春季学期 Spring Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	飞行器气动优化设计 Pneumatic Optimization Design of Aircraft	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	结构分析软件 Structural Analysis Software	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
	飞行力学与控制 Flight Dynamics and Control	必修 Compulsory	2	秋季学期 Fall Semester	力学与航空 航天学院 School of Mechanics and Aerospace Engineering	
总学分 Total Credits			41			