巴黎卓越工程师学院机械（085500）2023 级全日制硕士研究生培养方案
SPEIT 2023 Full-time Master Program for Mechanical Engineering

一、基本信息 Basic Information

院系名称 School	上海交通大学巴黎卓越工程师学院		适用年级 Grade	2023 级 Class
适用专业 Major	机械		标准学制 Duration	2.5 年 Years
学习形式 Study Mode	全日制 Full time			
项目类型 Program Type	专业型 Professional			
培养层次 Program Level	硕士生 Master Student			
最低学分 Min Credit	55	最低 GPA 学分 Min GPA Credit	25	最低 GPA Min GPA	2.7

二、专业领域简介 Introduction

为了响应国家"卓越工程师教育培养计划"重大改革项目的号召，引进法国先进的工程师培养理念，为社会发展储备未来的精英工程师，上海交通大学于 2012 年与法国巴黎高科技工程师学校集团合作创办成立"上海交大-巴黎高科卓越工程师学院"。学院机械专业领域依托学校机械工程一级学科 (A+)的发展优势与雄厚的教学资源，与巴黎国立高等电信学校（Telecom Paris)、巴黎高科国立高等矿业学校（Mines Paris）、巴黎综合理工学校(Ecole Polytechnique)与巴黎国立高等先进技术学校 （ENSTA Paris），强强联合，共同设立并合作建设。

该专业面向智能先进制造、新型材料、航空航天、交通运输等工业需求，开设包括机械设计制造及其自动化、材料成型及控制工程、工业设计、先进表征技术、过程装备与控制工程、机械工程及自动化、车辆工程、机械电子工程、汽车服务工程、制造自动化与测控工程、微机电系统工程、制造工程等领域，集前沿科学研究与工业应用为一体，是 21 世纪机械科技领域的主力专业。本专业课程由上海交通大学与法国合作学校的资深教授领衔的团队教授。

上海交通大学的机械工程专业归属国家重点一级学科机械工程，建有全国首批博士、硕士学位授予点，首批博士后流动站。目前本专业的毕业生已在多个重点领域就业，核心竞争力不断提高，就业优势明显，中外合作办学的优势逐步体现。

In 2012, in order to respond to the call of the major reform project of the national "excellent engineer education and training plan", to introduce the advanced French engineer training concept and to educate elite engineers for the social development, Shanghai Jiao Tong University (SJTU), in cooperation with ParisTech Group, established the STU-ParisTech Elite Institute of Technology. Relying on the development advantages and abundant teaching resources of Mechanical Engineering of SJTU, this major is set jointly by SJTU and Telecom Paris, Mines Paris, Ecole Polytechnique and ENSTA Paris.

This major is oriented to the industrial needs of intelligent advanced manufacturing, new materials, aerospace, transportation and other industries, including mechanical design and manufacturing and

automation, material forming and Control engineering, industrial design, advanced characterization technology, process equipment and Control engineering, mechanical engineering and automation, vehicle engineering, mechanical Electronic engineering, automotive service engineering, manufacturing automation and measurement and control engineering, Microelectromechanical System Engineering and other fields, integrating cutting-edge scientific research and industrial applications, are the main majors in the field of mechanical technology in the 21st century. The major courses are taught by a team led by senior professors from Shanghai Jiao Tong University and a cooperative school in France.

The mechanical engineering major of Shanghai Jiao Tong University belongs to the national key first level discipline of mechanical engineering, and has established the first batch of doctoral and master's degree awarding points in the country, as well as the first batch of doctoral mobile stations. At present, graduates of this major have been employed in multiple key fields, and their core competitiveness is constantly improving. Their employment advantages are obvious, and the advantages of Sino foreign cooperative education are gradually being reflected.

三、培养目标 Program Objective

基础教育阶段：扎实的数理化基础； 工程师阶段，学习初期着重能源动力专业知识，培养能力和素质。课程包括机械、控制、材料、管理等多学科，着眼于培养学生：

1. 掌握丰富而扎实的机械工程领域基础理论；

2. 在此基础上通过设置大量实践与实习课程，重在培养和提高学生对专业知识的运用能力；

3. 通过与法国顶尖工程师学校联合开设的国际化教育课程，学生得以深入了解该领域的国际前沿技术及未来发展新动向。

4. 在专业课程之外，配合经管类与人文类课程、英语与法语等语言类课程，以及提供国外交流与企业实习机会等，多方位培养学生扎实专业创新能力、国际化视野与优秀沟通管理能力，使学生成为未来的卓越工程精英。

Basic Educational stage: solid mathematical, physical and chemical foundation; In the engineering stage, the initial focus of learning is on energy and power professional knowledge, cultivating abilities and qualities. The course includes multiple disciplines such as machinery, control, materials, and management, with a focus on cultivating students:

1. Master rich and solid basic theories in the field of mechanical engineering;

2. On this basis, by setting up a large number of practical and internship courses, the focus is on cultivating and improving students' ability to apply professional knowledge;

3. Through the international education courses jointly offered with top engineering schools in France, students can gain a deep understanding of the international cutting-edge technologies and future development trends in this field.

4. In addition to professional courses, in cooperation with economic management and humanities courses, English and French and other language courses, as well as providing opportunities for foreign exchanges and enterprise internships, students should be trained in various ways to have a solid professional innovation ability, an international vision and excellent Communications management ability, so that students can become outstanding engineering elites in the future.

四、培养方式及学习年限 Training Mode and Study Duration

本项目在依托中法双方优势学科以及双方师资力量的基础上，融合创新双方对人才培养的要求，采用全日制学习，学习年限为 2.5 年，最长不超过 3.5 年。

Based on the advantages of both SJTU and French partner schools in teaching team as well as the disciplines, this program integrates the requirements of both sides on talent cultivation and adopts full-time learning. The study period is 2.5 years, but no longer than 3.5 years.

五、课程学习要求 Course Requirement

须修读完成不少于 55 学分，其中 GPA 学分不少于 25，GPA 不低于 2.7。各类课程具体要求如下：

课程类别 Course Type	学分要求 Min Credits	门数要求 Min Courses	GPA 学分要求 Min GPA Credit	备注 Note
公共基础课 General Courses	15		7	
专业基础课 Program Core Courses	40		18	其中数学至少选4学分计入GPA；允许跨学院选修2门导师推荐的课程。
专业前沿课 Program Frontier Courses				
专业选修课 Program Elective Courses				
任意选修课 Elective Courses				非必需

六、培养过程要求 Training Requirement

1. 第 1-3 学期学生基本完成课程学习；

2. 第 3 学期末进行开题报告；

3. 第 4 学期末进行中期检查；

4. 第 5 学期末进行论文答辩；

5. 第 5 学期学生需要在企业或科研机构内完成一个 24 周的全职工程师实习，提交实习报告，完成汇报答辩，对应 24 个学分。

1. From semester 1-3, course study will be finished;

2. By the end of semester 3, thesis proposal will be organized;

3. By the end of semester 4, mid-term evaluation will be made;

4. By the end of semester 5, thesis defense will be taken;

5. During semester 5, students need to do a 24-week full- time engineer internship in companies or research institute, submit an internship report and pass the presentation, which is corresponding to 24 credits.

七、学术成果要求 Requirement on Academic Achievements

学生应积极参加校内外导师承担的科研项目，结合硕士学位论文工作或工程师实习要求，选择有重要应用价值的课题进行科学技术研究或承担专门技术工作的综合训练，全面培养创新能力、研究能力、实践能力以及学术研究素养。在项目执行过程中，鼓励学生积极探索并形成一定的研究成果，在申请学位论文之前，须完成 1 篇或 1 项论文发表、专利授权、软件著作权登记或技术报告等。详细要求请参考学院相关管理规定。

In order to improve ones' overall ability on innovation, research, practice and academics, students are encouraged to take part in research projects under supervision of SJTU and industry tutors. It is recommendated that students choose to conduct scientific and technological research with some important application values or to undertake comprehensive training on specialized technical work . During this research, students are encouraged to make active exploration and obtain some research achievements. At least one of the following requirements needs to be accomplished before being eligible for master thesis: 1 academic paper, 1 patent granted, 1 software copyright registration or 1 technical report. Please refer to the relevant regulations of SPEIT for detailed requirements.

八、学位论文 Thesis/dissertation work

学院鼓励学生在企业结合实习研究项目完成学位论文，学位论文选题应具有一定的与专业相关的工程背景与理论研究深度，拟解决的问题要有一定的创新性、技术难度与实际应用价值，最终论文能反映工作成果的实用性与创新性。

学位论文根据其研究成果的内容，可以为先进技术与方法、产品研发、工程设计、应用研究、工程/项目管理等，此外论文研究成果以及内容必须遵守学术道德与诚信原则，撰写格式要符合上海交通大学硕士学位论文撰写规范。

学生通过论文中期检查，完成论文并通过导师审核，在第 5 学期第 15 周前提交终稿并进行论文评审；通过评审，可参加论文答辩，答辩分为小组答辩与大组答辩两轮，小组答辩时间一般在第 5 学期第 17-18 周进行，大组答辩为下个春季学期开学初。

The institute encourages students to complete their master thesis in combination with research projects of engineer internship in enterprises. The topics of thesis should have certain engineering background and theoretical research depth related to the major. The problems to be solved need to have certain innovation, technical difficulty and practical application value. The final thesis shall reflect the practicability and innovation of the work achievements.

According to the contents of the research, the thesis is acceptable in several types, varying from advanced technology and method, product research and development, engineering design, application research to engineering / project management etc. ; in addition, the research achievements and contents of the thesis must comply with the principles of academic ethics and integrity, and the writing format shall conform to the master's thesis writing standard of Shanghai Jiao Tong University.

After students pass the mid-term evaluation, complete the thesis and get the permission by supervisors, usually their final thesis shall be reviewed before the 15th week of semester 5. Upon the pass of the review, students are permitted to attend the defense. The process consists of small group defense and big group defense. The defense time is generally 17-18 weeks of semester 5 and the beginning of the spring semester followed respectively.

九、课程设置 Courses

详见下页 Please refer to the next page.

撰稿人签字：   日 期：

校稿人签字：   日 期：

审核人签字：   日 期：

主管院长签字：   院系公章   日期：

说明：

1. 培养方案制定完成并经院系学位委员会审核通过后，全日制请将本表格电子版(word)发送至 SherryLi327@sjtu.edu.cn，非全日制请将本表格电子版(word)发送至 jshen@sjtu.edu.cn；

2. 请在新研究生教育管理信息系统完成新培养方案的申请，并在审核通过后将本表格的纸质版（签字盖章）送交研究生院存档。

课程类别 Category	课程代码 Course Code	课程名称 Course Name		学分 Credit	授课语言 Language*	开课学期 Semester	可以计 算 GPA	必须计 算 GPA	备注 Note
		中文 Chinese	English 英文						
公共基础课 General Courses Credit：15	MARX6001	新时代中国特色社会主义理论与实践	Theory and Practice of Socialism with Chinese Characteristics in the New Era	2.0	中文 in Chinese	春秋 Spring/Fall	是 Yes	是 Yes	必修 Compulsory
	MARX6003	自然辩证法概论	Dialectics of Nature	1.0	中文 in Chinese	春秋 Spring/Fall	是 Yes	是 Yes	必修 Compulsory
	FL6701P	第二外语	Second Language	2.0	其它语言 Other Language	春秋 Spring/Fall	否 No	否 No	必修 Compulsory
	FL7802P	高级综合法语	Advanced Comprehensive French	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	必修 Compulsory
	FL6001	学术英语	English for Academic Purposes	2.0	英文 in English	春秋 Spring/Fall	是 Yes	是 Yes	必修 Compulsory
	GE6604P	工业与信息设计	Industrial and Information Design	2.0	中文 in Chinese	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
	GE6606P	人力资源管理与中法跨文化管理	Human Resource Management and Multicultural Management (France-China)	1.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
	GE6611P	文化市场与营销管理	Cultural Marketing Management	2.0	中文 in Chinese	秋 Fall	是 Yes	否 No	选修 Selective
	GE6612P	商业模式创新	Business Model Innovation	2.0	中文 in Chinese	春 Spring	是 Yes	否 No	选修 Selective
	GE6613P	经济决策与核算	Economic decision and calculation	1.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective
	GE6614P	重大工程管理与工业软件	Major Project Management and Industrial Software	2.0	中文 in Chinese	秋 Fall	是 Yes	否 No	选修 Selective 工业软件方向必修
	GE6609P	风险管理	Introduction to Risk Management	1.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective

	GE6610P	国际商法与合规	International Trade Law and Compliance	1.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
专业基础课 Program Core Courses 数学模块至少选 4 学分计入 GPA	MATH6303P	随机方法	Stochastic Methods	2.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective 工业软件方向必修
	MATH6304P	最优化和数值分析	Optimization and Numerical Analysis	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective 工业软件方向必修
	MATH6306P	统计应用	Statistics in Action	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective 工业软件方向必修
	MATH6302P	有限元方法	Finite Element Method	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
	MATH6305P	运筹学	Operational Research	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	MATH6307P	自动化与系统控制	Automation and System Control	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
	MATH6308P	队列论	Introduction to Queuing Theory	2.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective
	MATH6309P	编码原理	Coding Theory	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
	MATH6310P	深度学习	Deep Learning	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
专业选修课 Program Elective Courses	GE6615P	国之重器：工程概论	Mega Projects of China：Introduction to Engineering	2.0	中文 in Chinese	春秋 Spring/Fall	是 Yes	否 No	选修 Selective 工业软件方向必修
	ICE6418P	高性能计算、算法与应用	High Performance Computing, Algorithm and Application	2.0	中文 in Chinese	春秋 Spring/Fall	是 Yes	否 No	选修 Selective 工业软件方向必修
	ICE6410P	软件工程	Software Engineering	2.0	其它语言 Other Language	春秋季 Spring/Fall	是 Yes	否 No	选修 Selective 工业软件方向必修

	PE6901P	实践项目（1）	Application Project I	2.0	其它语言 Other Language	春秋季 Spring/Fall	否 No	否 No	选修 Selective 工业软件方向必修
	ME6302P	材料结构与计算	Structure Calculation	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6303P	流固耦合方法	Fluid-Structure Interaction	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6304P	塑性变形	Plasticity	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6305P	疲劳断裂力学	Fatigue, Fissuration, Durability	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6306P	材料稳定性	Stability	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6307P	结构动力学	Structure Dynamics	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6308P	振动与噪音	Vibration and Noise	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	PE6303P	非稳与湍流	Instability and Turbulence	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6309P	可压缩空气动力学	Compressible Aerodynamics	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6310P	复合材料与聚合物材料	Composite and Polymer Material	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ME6311P	非均匀材料力学	Heterogeneous Materials Mechanics	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	ICE6408P	电子技术	Electronics	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
	PE6308P	计算流体力学	Numerical Modelling of Fluid Mechanics	2.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective

		ME6501P	新材料与先进制造	New materials and advanced manufacturing	4.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
		ME7502P	汽车动力学	Automobile Propulsion	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
		PE7507P	发动机	Engine	2.0	英文 in English	秋 Fall	是 Yes	否 No	选修 Selective
		ICE7503P	3D 感知与建模	3D Perception and Modeling	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
		ME6402P	固体与结构数值模拟	Numerical Modeling of Solids And Structures	3.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective
		PE6309P	工程热力学	Engineering Thermodynamics	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
		PE6310P	工业传热学	Industrial Thermal Transfers	2.0	其它语言 Other Language	春秋 Spring/Fall	是 Yes	否 No	选修 Selective
		ME6901P	实践项目(2)-流体力学	Application Project II : Fluid Mechanics	2.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective
		ME6902P	实践项目(2)-固体力学	Application Project II : Solid Mechanics	2.0	其它语言 Other Language	春 Spring	是 Yes	否 No	选修 Selective
		ME6403P	智能材料	Smart Materials	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
		PE6302P	核能导论	From Nuclear Energy to Nuclear Power	2.0	其它语言 Other Language	秋 Fall	是 Yes	否 No	选修 Selective
		PE64001P	能源网络基础设施	Regulation of Network Infrastructure	2.0	其它语言 Other Language	春秋 Spring/Fall	否 No	否 No	选修 Selective
										工业软件方向跨学科选修模块，最多选 2 门

									允许跨学院选修 2 门导师推荐的课程
专业前沿课 Program Frontier Courses	GE6001	学术写作、规范和伦理	Academic Writing, Norms and Ethics	1.0	英文 in English	春秋 Spring/Fall	否 No	否 No	必修 Compulsory
	GE6011	学术报告会	Academic Lectures	1.0	其它语言 Other Language	春秋 Spring/Fall	否 No	否 No	必修 Compulsory
	GE6003	实验室安全教育	Laboratory Safety Education	0.5	其它语言 Other Language	春秋 Spring/Fall	否 No	否 No	进实验室必修 工业软件方向必修
	GE7901P	工业软件综合实践项目	Industrial Software Comprehensive Practice Project	8.0	中文 in Chinese	秋 Fall	否 No	否 No	工业软件方向必修
	ME7901P	机械前沿项目 1	Advanced ME Project 1	4.0	其它语言 Other Language	秋 Fall	否 No	否 No	非工业软件方向 3 选 2，Select 2 from 3
	ME7902P	机械前沿项目 2	Advanced ME Project 2	4.0	其它语言 Other Language	秋 Fall	否 No	否 No	
	ME7903P	机械前沿项目 3	Advanced ME Project 3	4.0	其它语言 Other Language	秋 Fall	否 No	否 No	