资源与环境(085700)全日制硕士培养方案

Resources and Environmental Engineering

一、基本信息 Basic Information

院 系 名 称 School	(160)环境科学与工程学院 School of Environmental Science & Engineering		适 用 年 级 Grade	2025
适 用 专 业 Major	资源与环境(085700) Resources and Environmental Engineering			
项 目 类 型 Program Type	全日制硕士			
最 低 学 分 Min Credit	23	最低GPA学分 Min GPA Credit	14	最低GPA Min GPA	2.7

二、学科简介 Introduction

1984年获得环境化学硕士点，开始培养环境领域硕士生，1998年调整为环境工程硕士点，同年又获得环境科学硕士点，2000年获得环境工程二级学科博士点，2003年获得环境科学与工程一级学科博士点，同年设立环境科学与工程博士后流动站。在流域水污染控制、区域大气污染控制、废弃物资源化、环境功能材料、土壤地下水污染修复、环境化学与毒理学、环境管理、海洋环境等方向，具有鲜明的特色与雄厚的积累。学院拥有完善的教学与科研体系和先进的测试平台，承担着大量的国家级、省部级、国际合作及企业委托的科研项目。

As early as the 1984 we began to cultivate the master's students in environmental field. It was adjusted to the master degree of environmental engineering in 1998. The environmental science master station was established at the same year. In 2000, a second-rate discipline of environmental engineering for doctor-degree program was established. The first-rate discipli of environmental science and engineering for doctor-degree program was established in 2003. The school was approved to have post-doctoral mobile center of first class discipline of Environmental Science and Engineering in 2003.
The major research fields are regional water pollution control, regional air pollution control, solid waste treatment and disposal, environment function materials, soil and groundwater remediation, environmental chemistry and toxicology, environmental management, marine environment, etc. The school has advanced teaching and research system, and the public servic platform, the center laboratory, guarantees the advanced analysis and test. The school also undertakes many national, international and industrial scientific research projects.

三、培养目标 Program Objective

培养德、智、体、美、劳全面发展，热爱祖国、遵纪守法、品行端正，具有艰苦奋斗、为人民服务和为社会主义建设事业献身的精神，具有扎实的基础理论与系统的专门知识，熟练掌握英语，能够撰写研究论文，具备批判思维、创新能力、实践能力与全球视野，具有从事科学研究工作或担负专门技术工作的能力，能够引领环境工程理论发展的卓越工程人才。

To cultivate all-round development of morality, intelligence, body, beauty, and labor, love the motherland, abide by the law, and be upright, have the spirit of hard work, serving the people and dedicating to the cause of socialist construction, with solid basic theory and systematic expertise , Proficient in English, able to write research papers, possess critical thinking, innovative ability, practical ability and global perspective, have the ability to engage in scientific research work or undertake specialized technical work, and can lead the development of environmental engineering theory.

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

本项目学制为2.5年，采用全日制学习、导师制培养模式；包括在校学习和在企业/联培基地学习两部分（专项学生需根据培养要求到联培基地开展规定时长的学习和科研工作）；新生入学后两周内经师生互选确定导师； 硕士生最长可延长1学年。

This program requires a full-time study in school and enterprise for 2.5 years under a supervisor mutually selected. Students of special enrollment program should study and conduct research in the joint cultivation base. Upon approval of the application, the maximum period of study can be extended by one year.

五、课程学习要求 Course Requirement

课程类别 Course Type	学分要求 Min Credits	GPA 学分要求 Min GPA Credit	备注 Note
公共基础课 General Fundamental Courses	8.5	5	

专业基础课 Program Core Courses	9	9	
专业前沿课 Program Frontier Courses	6		
专业选修课 Program Elective Courses	3		

六、培养过程要求 Training Requirement

一、课程学习：课程原则上要求在第一学年完成。
二、开题报告：由导师（课题组）组织，一般在第三学期进行，参加开题报告时，硕士生应已基本完成培养计划中规定的课程学习，并成绩合格，GPA≥2.7。学生在交我办(my.sjtu.edu.cn)发起申请并完成在线归档，附件须完备。
三、中期检查：由学院集中组织，一般在第四学期进行，最晚应在学位论文送审前6个月进行，参加中期检查时，硕士生应已完成培养计划中规定的课程学习，并成绩合格，GPA≥2.7；学位论文开题已通过。学生在交我办(my.sjtu.edu.cn)发起申请并完成在线归档，附件须完备。
四、论文答辩：由学院集中组织，一般在第五学期进行。

1. Course Learning
Time of completion: In principle, course learning should be completed in the first academic year.
2. Thesis Proposals
Time and organizing: The thesis-proposal is organized by the supervisor and is generally conducted in the third semester.
Prerequisites: When participating in the thesis-proposal, master students should have basically completed the course study specified in the training plan and passed the grade with a GPA ≥2.7.
Filing: Students should apply and file on my.sjtu.edu.cn with complete reports and reviewing procedure.
3. The Mid-term Examination
Time and organizing: The mid-term examination is held by the school collectively and is generally conducted in the fourth semester or should be conducted 3 months before the dissertation is submitted for review.
Prerequisites: When participating in the mid-term examination, the master student should have completed the course study specified in the training plan and passed the grade with a GPA ≥2.7, and the thesis-proposal has been approved as well.
Filing: Students should apply and file on my.sjtu.edu.cn with complete reports and reviewing procedure.
4. Thesis Defense:
Time and organizing: Thesis defense presentation is held by the school collectively before the end of the fifth semester.

七、学术成果要求 Requirement on Academic Achievements

专业型硕士学位申请者应满足以下条件之一：
1.以第一作者或非第一作者（导师为第一作者）发表或录用1篇核心期刊论文（导师应为作者之一），或导师为第一作者、学生为第二作者发表1篇以及以上高水平学术论文（高水平学术论文认定参照《上海交通大学环境科学与工程学院代表性期刊分类目录》）。第一作者单位应为上海交通大学。
2.以第一发明人（导师为责任人）或第二发明人（导师为第一发明人）申请专利进入实质审查阶段或获得受权，第一专利权人应为上海交通大学。
3.以第一发明人（导师为责任人）或第二发明人（导师为第一发明人）申请并国发明专利进入实质审查阶段或获得型专利申请获得受权软件著作权获得证书，第一专利权人或著作权人应为上海交通大学。
4.完成1份英文项目报告（仅限于国际双学位学生或低碳学院到爱丁堡进行联合培养的学生）。
5.经学院学位评定委员会认定的其他形式创新性成果。
6.对于在工程技术领域潜心从事应用性、创新性研究，力争经过长期攻关取得突破性转化成果的硕士生，若答辩前暂无成果发表的，须通过学院规定的申请认定程序。

Applicants for professional master's degrees should meet one of the following criteria:
1. Publish or accept 1 core journal paper as the first author or the first co-first author (the supervisor should be one of the authors), or the supervisor is the first author and the student is the second author to publish 1 2A or above high-level academic paper (for the recognition of high-level academic papers, please refer to the "Classification Catalogue of Representative Journals of the School of Environmental Science and Engineering, Shanghai Jiao Tong University"). The first author's affiliation should be Shanghai Jiao Tong University.
2. If the first inventor (the supervisor is the responsible person) or the second inventor (the supervisor is the first inventor) applies for a patent and enters the substantive examination sta or is authorized, the first patentee shall be Shanghai Jiao Tong University.
3. If the first inventor (tutor is the responsible person) or the second inventor (the tutor is the first inventor) applies for a Chinese invention patent and enters the substantive examination stage or the utility model patent application is authorized/the software copyright registration certificate is obtained, the first patentee or copyright owner shall be Shanghai Jiao Tong University.
4. Complete 1 English project report (only for international double degree students or students from the School of Low Carbon to Edinburgh for joint training).
5. Other forms of innovative achievements recognized by the Academic Degree Evaluation Committee of the college.
6. For master's students who are engaged in applied and innovative research in the field of engineering technology and strive to achieve breakthrough scientific and technological achievements through long-term research, if there are no achievements published before the defense, they must pass the application and recognition procedures stipulated by the college

八、学位论文 Thesis/dissertation work

1.规范性要求：硕士学位论文撰写格式按照《上海交通大学博士、硕士学位论文撰写指南》，学位论文答辩与学位申请按照《上海交通大学关于申请授予硕士专业学位的规定》执行。

2.质量要求：环境工程专业学位论文强调应用性研究，课题应来源于企业或生产实际。学位论文必须对研究的课题在基本理论和专门技术等某一方面有新的见解，或用已有理论及最新科技成果解决本学科的实际问题，在学术上有一定的理论意义或应用价值。

1. Normative Requirements The writing format of thesis for master degree is in accordance with the Master's Degree Thesis Writing Guide. Thesis defense and degree application are in accordance with the Regulation of Master's Degree Application.

2. The thesis of environmental engineering degree should emphasize applied research, and the subject should come from the enterprise or the actual production. The dissertation must ha new insights into the basic theory and expertise of the subject under study, or use existing theories and the latest scientific and technological achievements to solve the practical problem the subject, and have a certain theoretical significance or application value in academics.

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：

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	是否必修 Compusory	可以计算GPA	必须计算GPA	备注 Note	多选组 Course Group
		中文Chinese	English 英文								
任意选修课 Elective Courses	GE6007	大学生心理健康	Mental Health for College Students	2	中文	春秋季	是	否	否	“好大学在线”慕课学习	
公共基础课 General Fundamental Courses	FL6001	学术英语	English for Academic Purposes	2	英文	秋季	是	是	是		
	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	中文	春季	是	是	是		
	MARX6003	自然辩证法概论	Introduction to Dialectics of Nature	1	中文	春季	是	是	是		
	GE6001	学术写作、规范与伦理	Scientific Writing, Integrity and Ethics	1	中英并行开班	春秋季	是	否	否	秋季中文班，春季英文班	
	GE6003	实验室安全教育	Laboratory Safety Education	0.5	中文	春秋季	是	否	否	“好大学在线”慕课学习	
	GE6011	学术报告会	Academic Lectures	1	中文	春秋季	是	否	否		
	GE8001	专业实践	Professional Practice	1	中文	春秋季	是	否	否		
专业基础课 Program Core Courses	MATH6004	计算方法	Numerical Analysis	3	中英并行开班	春秋季	是	是	是		最少1门、最低3分
	MATH6005	矩阵理论	Matrix Theory	3	中英并行开班	春秋季	是	是	是		最少1门、最低3分
	MATH6015	最优化方法	Optimization Method	3	中英并行开班	春秋季	是	是	是		最少1门、最低3分
	STAT6001	基础数理统计	Fundamental Mathematical Statistics	3	中英并行开班	春秋季	是	是	是		最少1门、最低3分
	ENVR7001	分子生物学与环境生物工程	Molecular Biology and Environmental Bioengineering	2	中文	秋季	否	是	否		
	ENVR7005	大气污染控制理论与技术	Theories and Technology of Air Pollution Control	2	中文	秋季	否	是	否		
	ENVR7101H	高等环境化学	Advanced Environmental Chemistry	3	英文	秋季	否	是	否		
	ENVR7110	环境能源技术	Environmental Energy Technology	2	英文	秋季	否	是	否		
	ENVR7002	环境生态工程	Environmental Ecological Engineering	2	中文	春季	否	是	否		
	ENVR7003	现代环境分析技术	Modern Environmental Analytical Technology	2	中文	春季	否	是	否		
	ENVR7004H	水污染控制理论与技术	Theory and Technology for Water Pollution Control	3	中文	春季	否	是	否		
	ENVR7006	废弃物的处理与资源化	Solid Waste Disposal And Recycling	2	中文	春季	否	是	否		
	ENVR7020	环境学科人工智能应用实践	Artificial Intelligence in Environmental Science	2	中文	春季	否	是	否	AI+课程	
	ENVR7102H	环境管理	Environmental Management	2	英文	春季	否	是	否		
专业前沿课 Program Frontier Courses	ENVR6014	水环境治理技术及工程应用	Water Environment Treatment Technology and Engineering Application	2	中文	秋季	否	否	否	大理专项学生必修	
	ENVR6101	土壤－地下水污染修复	Soil and Groundwater Pollution Remediation	2	中文	秋季	否	否	否		
	ENVR7017	乡村环境治理与碳中和	Rural Environmental Governance and Carbon Neutrality	2	中文	秋季	否	否	否	海南专项学生必修	
	ENVR7019	饮用水深度处理	Advanced Treatment of Drinking Water	2	中文	秋季	否	否	否		
	ENVR7103	产业生态学	Industrial Ecology	2	英文	秋季	否	否	否		
	ENVR8101	环境科学与工程进展	Advances in Environmental Science and Engineering	2	英文	秋季	是	否	否		
	ENVR7021	碳中和人工智能	AI for Carbon Neutrality	2	中文	春季	否	否	否	AI+课程	

专业前沿课 Program Frontier	ENVR7105	可持续能源技术	Technologies for Sustainable Energy	2	英文	春季	否	否	否		
	ENVR9003	工程经济学	Engineering Economics	2	中文	春季	否	否	否		
专业选修课 Program Elective Courses	ENVR6013	城市矿产资源循环技术与实践	Technology and Practice of Urban Mines Recycling	2	中文	秋季	否	否	否		
	ENVR6015	环境传感技术及原理	Environmental Sensing Technology and Principles	2	中文	秋季	否	否	否	AI+课程	
	ENVR6017	全球化学品管理	Global Chemical Management	2	中文	秋季	否	否	否		
	ENVR7010	高级氧化技术	Advanced Oxidation Process	2	中文	秋季	否	否	否		
	ENVR7013	水体富营养化	Water Eutrophication	2	中文	秋季	否	否	否		
	ENVR7014	环境电化学	Environmental Electrochemistry	2	中文	秋季	否	否	否		
	ENVR7015	大气化学	Atmospheric Chemistry	2	中文	秋季	否	否	否		
	ENVR7018	环境地球化学	Environmental Geochemistry	2	中文	秋季	否	否	否		
	ENVR7104	环境经济学	Environmental Economics	2	英文	秋季	否	否	否		
	ENVR7106	环境微生物技术与应用	Environmental microbiology: technology and application	2	中文	秋季	否	否	否		
	ENVR7011	现代环境化工技术	Modern Technology of Environmental Chemical Engineering	2	中文	春季	否	否	否		
	ENVR7111	环境催化原理与应用	The Principles and Application of Environmental Catalysis	2	英文	春季	否	否	否		