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University of Science and Technology of China Training Program for Master's Students in Safety Science and Engineering (2025 Edition)

Note: The English translation of all the following information is for reference only. Should there be any discrepancy between the Chinese and English versions, the Chinese version shall prevail

关于国际研究生培养要求的相关说明

Relevant Explanations on the Training of International Graduate Students

根据教育部外交部公安部《学校招收和培养国际学生管理办法》以及教育部《来华留学生高等教育质量规范(试行)》等精神, 我校国际研究生的培养, 原则上参照《中国科学技术大学研究生培养方案总则》, 除公共必修课和汉语水平要求之外, 在学科专业上的培养目标和毕业要求与所在专业的中国学生一致。为进一步明确国际研究生培养相关要求, 现作以下说明:

In accordance with the *Administrative Measures for the Enrollment and Training of International Students by Schools* jointly issued by the Ministry of Education, the Ministry of Foreign Affairs, and the Ministry of Public Security, as well as the *Quality Standards for Higher Education of International Students in China (Trial)* released by the Ministry of Education, the training of international graduate students at our university shall, in principle, follow the *General Principles of Graduate Training Program at the University of Science and Technology of China*. Apart from public compulsory courses and Chinese language proficiency requirements, the training objectives and graduation standards for international students in their respective disciplines shall align with those applicable to Chinese students in the same programs. To further clarify the relevant requirements for the training of international graduate students, the following provisions are hereby specified:

一、汉语和中国概况是来华接受高等学历教育的留学生的必修课。国际研究生的公共必修课课程设置及汉语水平要求, 按照专业授课语言规定如下(不区分硕士研究生、普通博士研究生、硕博一体化研究生, 不区分学术学位、专业学位):

I. Chinese Language and China Panorama are compulsory courses for international students pursuing degree education in China. The public compulsory course arrangements and Chinese proficiency requirements for international graduate students are set according to the language of instruction of the program (with no distinction between master's students, regular doctoral students, consecutive master's and doctoral students, academic degrees, or professional degrees):

1. 汉语授课专业的国际研究生, 毕业时汉语应达到 HSK 五级水平。公共必修课包括:《高级汉语》(4 学分),《中国概况》/《中国概况 II》(4 学分), 共计 8 学分。

1. For programs taught in Chinese, international graduate students must attain HSK Level 5 by the time of graduation. Public compulsory courses include: Advanced Chinese (4 credits), China Panorama / China Panorama II (4 credits), totaling 8 credits.

2. 英语授课专业的国际研究生，毕业时汉语应至少达到 HSK 三级水平。公共必修课包括：《综合汉语》(2 学分)，《汉语听说》(2 学分)，《中国概况》/《中国概况 II》(4 学分)，共计 8 学分。

2. For programs taught in English, international graduate students must attain at least HSK Level 3 by the time of graduation. Public compulsory courses include: Comprehensive Chinese (2 credits), Chinese Listening and Speaking (2 credits), China Panorama / China Panorama II (4 credits), totaling 8 credits.

二、国际研究生在学科专业上的培养目标和毕业要求与所在专业的中国学生一致。各学科可参照《中国科学技术大学研究生培养方案总则》和本学科研究生培养方案，结合国际研究生的学习特点，制定本学科国际研究生培养方案。

II. The training objectives and graduation requirements for international graduate students in their specialized disciplines shall be consistent with those for Chinese students in the same programs. Each discipline may formulate a tailored training program for international graduate students with reference to the *General Principles of Graduate Training Program at the University of Science and Technology of China* and the discipline-specific training program, taking into account the learning characteristics of international graduate students.

三、对于不单独制定国际研究生培养方案的学科，相关国际研究生的总学分要求，在各学科培养方案规定的总学分要求基础上，根据国际研究生公共必修课与中国学生公共必修课学分的差额，作相应调整。例如：如果中国学生总学分要求为 35 学分，其中公共必修课学分要求为 7 学分，则同专业同类别的国际研究生总学分要求为 36 学分；如果中国学生总学分要求为 45 学分，其中公共必修课学分要求为 11 学分，则同专业同类别的国际研究生总学分要求为 42 学分。

III. For disciplines that do not formulate a separate training program for international graduate students, the total credit requirement for relevant international graduate students shall be adjusted based on the difference between the public compulsory course credits for international graduate students and those for Chinese students, relative to the total credit requirement stipulated in the discipline-specific training program. For example: If the total credit requirement for Chinese students is 35 credits, including 7 credits for public compulsory courses, then the total credit

requirement for international graduate students in the same program and category shall be 36 credits. If the total credit requirement for Chinese students is 45 credits, including 11 credits for public compulsory courses, then the total credit requirement for international graduate students in the same program and category shall be 42 credits.

四、对于与国外高校联合培养项目的国际研究生，公共必修课学分要求按以上规定执行，毕业时对汉语水平不作硬性要求，各学科可制定专门的联合培养项目国际研究生培养方案。

IV. For international graduate students enrolled in joint programs with overseas universities, the public compulsory course credit requirements shall follow the above regulations. However, there is no mandatory Chinese language proficiency requirement for graduation. Each discipline may formulate a specialized training program for international graduate students in such joint programs.

2024 年 11 月 18 日

November 18, 2024

中国科学技术大学安全科学与工程学科

硕士研究生培养方案（2025 版）

Training Program for Master's Students in Safety Science and Engineering (2025 Edition)

一、培养目标

I. Training Objectives

本学科培养德、智、体、美、劳全面发展，适应我国新时代社会、经济、科技、教育发展需要，从事安全科学与工程领域的研究、教学、设计、管理的高级人才。硕士研究生应掌握本学科的基础理论和专业知识，具备科学研究或实际工作的能力。至少掌握一门外语。

This discipline is dedicated to cultivating high-level talents with an all-round development of morality, intelligence, physical fitness, aesthetics and labor competence, who can meet the development needs of China's society, economy, science and technology, and education in the new era, and engage in research, teaching, design and management in the field of Safety Science and Engineering. Master's students shall master the fundamental theories and specialized knowledge of this discipline, and possess the capabilities for scientific research or practical professional work. They shall command proficiency in at least one foreign language.

二、主要研究方向

II. Core Research Directions

1. 火灾安全科学与工程：重点研究火灾及其相关灾害的演化过程，揭示火灾及其相关灾害安全的科学规律并建立相应的基础理论。

1. Fire Safety Science and Systems Engineering: Focus on investigating the evolutionary processes of fires and associated disasters, revealing the scientific laws governing fire and disaster safety, and establishing the corresponding fundamental theories.

2. 火灾安全技术：重点研究清洁阻燃、智能探测和高效灭火等火灾防治关键技术原理，发展新型火灾防治关键技术。

2. Fire Safety Technology: Focus on exploring the principles of key fire prevention

and control technologies including clean flame retardancy, intelligent detection and high-efficiency fire suppression, and developing cutting-edge key technologies for fire prevention and control.

3.智能火灾安全：重点研究先进智能技术在火灾及其相关灾害场景的应用，发展先进的灾害预测方法和模型。

3. Intelligent Fire Safety: Focus on examining the application of advanced intelligent technologies in fires and associated disaster scenarios, and developing advanced disaster prediction methods and models.

4.公共安全应急与安全管理：重点研究火灾及其相关灾害系统要素的演化行为与规律，探索突发事件形成机制及其优化干预策略，发展公共安全事件应急管理理论和方法。

4. Public Safety Emergency Response and Safety Management: Focus on investigating the evolutionary behaviors and laws of systemic elements in fires and associated disasters, exploring the formation mechanisms of emergent incidents and their optimized intervention strategies, and developing theories and methodologies for the emergency management of public safety incidents.

三、学习方式及修业年限

III. Study Mode and Duration

学术学位硕士研究生采用全日制学习方式，基本学习年限为 2-3 年，最短学习年限为 2 年，最长学习年限为 5 年。

Academic master's students shall adopt a full-time study mode. The standard duration is 2-3 years, with a minimum of 2 years and a maximum of 5 years.

四、课程设置及学分要求

IV. Curriculum Structure and Credit Requirements

课程学习是研究生掌握基础理论和专业知识，构建知识结构的主要途径，课程学习应按照培养计划严格执行。

Course learning constitutes the primary pathway for graduate students to acquire foundational theories and specialized knowledge, and construct a systematic knowledge framework. It must be rigorously implemented in accordance with the training program.

学术学位硕士研究生课程学习实行学分制，研究生在申请硕士学位时，取得的学

分不少于 35 学分(*留学生不少于 36 学分), 其中课程学习不少于 34 学分(*留学生不少于 35 学分), 具体要求如下:

A credit-based system is adopted for the course learning of academic master's students. To apply for the master's degree, they must complete a minimum of **36** credits, including no less than **35** credits from course learning. Specific requirements are as follows:

1.公共课程 (7 学分) (*留学生需 8 学分)

1. Public courses (8 credits)

包括: 硕士政治课程 3 学分; 硕士英语课程 4 学分。(*留学生修综合汉语 2 学分; 汉语听说 2 学分; 中国概况 4 学分。)

These include Comprehensive Chinese (2 credits), Chinese Listening and Speaking (2 credits), and China Panorama (4 credits).

2.硕士学科基础课、硕士专业基础课、硕士专业选修课 (不少于 22 学分)

2. Master's disciplinary foundation courses, professional foundation courses, and professional elective courses (no less than 22 credits)

其中硕士学科基础课和硕士专业基础课不少于 11 学分。

Including ≥ 11 credits for master's disciplinary foundation courses and master's professional foundation courses.

3.素质类课程 (课程编号最后一位字母是“Q”, 不超过 3 学分)

3. Quality-oriented courses (with "Q" as the last character of the course code; a maximum of 3 credits)

为提高研究生综合素养, 鼓励学术学位硕士研究生选修本专业之外的素质类课程, 课程通过之后可认定作为申请学位的学分, 但最多不得认定超过 3 学分。

To enhance the comprehensive competence of graduate students, academic master's students are encouraged to take quality-oriented courses from other fields. Credits of passed courses can be recognized for degree application, with a maximum recognized credits capped at 3.

4.必修环节 (1 学分)

4. Compulsory components (1 credits)

包括: 开题报告 1 学分、学位论文预评审。

Including Dissertation Proposal (1 credit) and Dissertation Preliminary Review.

课程设置及学分具体要求如下表。

Specific curriculum structure and credit requirements are detailed in the following table.

学术学位研究生课程设置及学分要求

Curriculum Structure and Credit Requirements for Academic Graduate Students

课程类别	课程编号	课程名称	学分	教学方式	备注
公共课程 (*留学生参照《关于国际研究生培养要求的相关说明》)	MARX6102U	新时代中国特色社会主义思想理论与实践	2	讲授	必修
	PHIL6101U	自然辩证法概论	1	讲授	必修(任选一门)
	MARX6103U	马克思恩格斯列宁经典著作选读	1	讲授	
	FORL6101	研究生综合英语	2	讲授	必修(任选一门)
	FOLR6104U	研究生高阶英语	2	讲授	
	FOLR6102U	日常交流英语	2	讲授	必修(任选一门)
	FOLR6103U	学术交流英语	2	讲授	
	FORL7101U	科技论文写作	2	讲授	
硕士学科基础课	SAFE6001P	安全科学原理	3	讲授	必修
	SAFE6002P	风险评估理论与方法	3	讲授	必修
硕士专业基础课	SAFE6101P	火灾学	3	讲授	必修
	SAFE6102P	灭火技术原理及应用	3	讲授	
	SAFE6105P	火灾化学	3	讲授	
	SAFE6109P	火灾探测与安全监控技术	3	讲授	
硕士专业选	SAFE6402P	安全工程材料制备与应用基	3	讲授	

修课		础			
	SAFE6403P	能源火灾安全理论及方法学	3	讲授	
	SAFE6406P	热自燃理论及其应用	2	讲授	
	SAFE6412P	火灾动力学实验测量方法	3	讲授	
	SAFE6413P	危化品安全分析原理	3	讲授	
	SAFE6414P	火灾仿真软件原理及应用	3	讲授	
	SAFE6415P	安全文化学	3	讲授	
	SAFE6416P	专业英语	2	讲授	
	SAFE6417P	阻燃原理及其技术	3	讲授	
	SAFE6418P	公共安全学	3	讲授	
	SAFE6419P	火灾安全人工智能	3	讲授	
	SAFE6420P	火羽流理论	2	讲授	
	SAFE6421P	人群疏散应急策略与方法	2	讲授	
	SAFE7005P	应用数学基础	2	讲授	
	SAFE7006P	安全科学与工程前沿	3	讲授	
	SAFE7007P	智能安全材料与传感	3	讲授	
	SAFE7008P	安全工程数值计算方法	2	讲授	
必修环节	MPRO6202M	学位论文开题	1		

Course Category	Course Code	Course Name	Credit	Teaching Method	Remarks
Public courses	FORL6201U	Comprehensive Chinese	120	2	Compulsory 8 credits
	FORL6202U	Chinese Listening and Speaking	60	2	
	FORL6203U/ FORL6205U	China Panorama I/II	80	4	

Master's disciplinary foundation courses	SAFE6001P	Principles of Safety Sciences	3	Lecture	Compulsory
	SAFE6002P	Risk Assessment Theory and Method	3	Lecture	Compulsory
Master's professional foundation courses	SAFE6101P	Fire Science	3	Lecture	Compulsory
	SAFE6102P	Principles and Applications of Fire Extinguishing Technology	3	Lecture	
	SAFE6105P	Fire Chemistry	3	Lecture	
	SAFE6109P	Fire Detection and Safety Monitoring Technology	3	Lecture	
Master's professional elective courses:	SAFE6402P	Fundamentals of Preparation and Application of Safety Engineering Materials	3	Lecture	
	SAFE6403P	Energy Fire Safety Theory and Methodology	3	Lecture	
	SAFE6406P	Theory and Application of Thermal Autoignition	2	Lecture	
	SAFE6412P	Experimental Measurement Methods in Fire	3	Lecture	

		Dynamics			
	SAFE6413P	Principles of Hazardous Chemicals Safety Analysis	3	Lecture	
	SAFE6414P	Principles and Applications of Fire Simulation Software	3	Lecture	
	SAFE6415P	Safety Culturology	3	Lecture	
	SAFE6416P	Professional English	2	Lecture	
	SAFE6417P	Principles and Technologies of Flame Retardancy	3	Lecture	
	SAFE6418P	Public Safety Science	3	Lecture	
	SAFE6419P	Artificial Intelligence for Fire Safety	3	Lecture	
	SAFE6420P	Fire Plume Theory	2	Lecture	
	SAFE6421P	Emergency Strategies and Methods for Crowd Evacuation	2	Lecture	
	SAFE7005P	Fundamentals of Applied Mathematics	2	Lecture	

	SAFE7006P	Frontiers in Safety Science and Engineering	3	Lecture	
	SAFE7007P	Intelligent Safety Materials and Sensing	3	Lecture	
	SAFE7008P	Numerical Calculation Method for Safety Engineering	2	Lecture	
Compulsory component	MPRO6202M	Dissertation Proposal	1		

修读说明:

Notes on course study:

1. 硕士研究生中途由其他专业转入本专业的，应按照本专业课程要求补修课程，已修课程符合本专业要求的（课程号一致），可以计入学位课程学分。

1. Master's students transferring to this program from other fields midway shall complete supplementary courses in accordance with the curriculum requirements of this program. Courses previously completed that meet the standards of this program (with identical course codes) may be counted toward the degree course credits.

2. 硕士研究生补修本科生课程所获学分不计入学位课程学分。

2. Credits earned by master's students for making up undergraduate courses shall not be counted towards degree course credits.

3. 研究生公共课程成绩通过，硕士学科基础课、硕士专业基础课加权平均成绩须达 75 分及以上，其他学位课程每门课成绩均达 60 分及以上的，方可申请学位。

3. Master's students shall be eligible to apply for the degree only if they have passed the public courses, achieved a weighted average score of no less than 75 in the master's disciplinary foundation courses and professional foundation courses, and obtained a score of 60 or above in each of other degree courses.

五、研究生培养过程要求

V. Requirements for the Training Process of Graduate Students

1. 开题报告：学位论文的开题报告及评审过程是硕士研究生培养的必要环节，硕士开题通过后满半年方可申请学位论文评审，由各课题组组织，时间由导师根据研究生工作进度情况确定，硕士生一般应在硕士培养阶段的第三或第四学期内完成。达到或超过三分之二的评审专家同意通过的方可通过。如学位论文选题或研究内容发生重大变化，须重新开题。

1. Dissertation Proposal: The proposal and review of a dissertation is a necessary component of master's student cultivation. A dissertation review application may only be submitted six full months after the proposal is approved, which shall be organized by each research group. The specific timeline shall be determined by the supervisor based on the student's research progress, generally to be completed by the third or fourth semester of the master's training program. The proposal shall be approved only if two-thirds or more of the review experts vote in favor. If there are significant changes in the topic selection or research content of the dissertation, a new proposal must be made.

2. 预评审：学位论文的预评审是硕士研究生培养的必要环节。修完培养方案要求学分，并完成开题报告、学位论文初稿的硕士研究生可申请参加预评审。

2. Preliminary Review: The preliminary review of the dissertation is a necessary component of master's student cultivation. Master's students who have completed the credits required by the Training Program, finalized their dissertation proposal, and finished the first draft of their dissertation shall be eligible to apply for the preliminary review.

六、学位授予

VI. Degree Conferral

遵照学校学位授予实施有关政策执行。

Pursuant to the relevant policies on the conferral of degrees by the university.

七、其他

VII. Miscellaneous

本培养方案经中国科学技术大学力学与工程科学学位分委员会工作会议审议通过，自 2025 级安全科学与工程硕士研究生开始施行。

This Training Program has been reviewed and approved at the working meeting of the Degree Sub-Committee of Mechanics and Engineering Discipline, University of Science and Technology of China, and shall come into force for the 2025 cohort of master's students in Safety Science and Engineering.