目　录

资源与环境工程学院

矿业工程博士研究生培养方案

（学科代码：0819　授 工学博士 学位）

一、培养目标

培养系统全面掌握矿业工程学科坚实宽广的基础理论和专门知识及相关学科知识；能运用现代科学理论、实验手段和信息工具，独立从事矿业工程领域科学研究和独立担负专门技术工作，在本学科有关理论和工程实际问题的研究中做出创造性成果的高层次人才。

二、研究方向

1. 矿床开采理论与技术
2. 岩土力学与边坡工程
3. 矿业经济与系统工程
4. 爆炸理论与应用
5. 矿物加工新工艺及新设备
6. 矿物化学提取
7. 城市矿产资源综合利用
8. 铁矿造块与直接还原

三、学习年限

本学科博士生的学习年限一般为 3-5 年。

四、学分要求

矿业工程博士研究生学分要求及学分分配表

总学分	≥26 学分	
修课学分	≥14 学分	公共必修课 6 学分 其中：汉语 4 学分，中国概况 2 学分 公共选修课≥2 学分 学科基础课≥4 学分 专业选修课≥2 学分
研究环节	12 学分	开题报告 1 学分 学术交流 1 学分 论文中期进展报告及考核 1 学分 学位论文 9 学分
具体课程设置见课程计划表		

五、培养要求

1.基本要求

全面系统掌握本学科的科学理论与技术及相关学科的理论基础，对本学科的发展历史、现状和前沿动态有深入的了解，具备坚实的基础理论和系统宽广的专门知识。能运用现代科学理论和实验手段、计算机应用技术和信息技术，创造性地进行本学科方向有关的理论和实际问题的研究。具有创造性地发现和解决矿业工程实际问题的能力，遵守学术道德规范，具有强烈的事业心和责任感。至少掌握一门外国语，具备熟练阅读本专业的外文文献，进行国际学术交流的能力。达到《中华人民共和国高等教育法》、《中华人民共和国学位条例》等的相关要求。

2.开题要求

以书面及答辩形式作为开题报告，记 1 学分，成绩按通过/不通过登记。

开题报告的内容主要包括：课题来源和选题依据，对国内外有关文献进行阅读、分析和总结（不少于 70 篇）；研究方案需阐明：研究目标、研究内容、关键问题与创新点、研究方法、技术路线、实验方案等；研究工作计划及时间安排。

开题报告至少由 5 名具有副教授以上职称（其中至少 3 名教授）审定并签署意见，答辩环节至少有 5 名具有副教授以上职称（其中至少 3 名教授）参加，答辩未能通过者，必须重新做开题报告。

开题报告一般应为 0.8～1.5 万字。开题报告评审通过后，须完整填写《博士研究生开题报告》，交学院留存，毕业时归入学位档案。

3.论文中期进展要求

必须以书面及答辩形式做论文研究中期进展报告，记 1 学分。

中期进展报告就课题的实验方法、数据、结果的可靠性、设计方案初步结论的正确性以及能否如期完成学位论文工作等进行公开答辩，须有至少 5 名具有副教授以上职称（其中至少 3 名教授）或博士学位者对中期报告进行考核，对存在的问题提出指导性建议。

中期考核通过后，须填写《博士生中期报告及综合考核表》交研究生院，复印件和书面开题报告交学院留存。

4.参加学术活动要求

研究生须参加 9 次以上学术活动，记 1 学分。每次参加学术活动应有书面记录，做学术报告应有书面材料，在申请学位前，经导师签字的书面记录交学院备案并记相应学分。

5.发表学术论文要求

按照《武汉科技大学博士、硕士研究生申请学位取得学术成果的规定》执行。

6.学位论文预答辩要求

研究生完成所有培养环节，满足发表学术论文要求，按照《武汉科技大学博士、硕士学位授予工作细则》及《武汉科技大学研究生学位论文检测规定（试行）》等文件执行。

7.学位论文答辩要求

按照《武汉科技大学博士、硕士学位授予工作细则》及《武汉科技大学研究生学位论文检测规定（试行）》等文件执行。

矿业工程博士研究生课程计划表

类别	课程性质	课程编号	课程名称	学时	学分	开课学期	开课学院	备注
学位课	公共必修课	17BSA0601	汉语	160	4	1	文法与经济学院	必修
		17BSA2101	中国概况	32	2	1	国际学院	
	学科基础课	18BD01101	高等矿山地质学	32	2	1	资源与环境工程学院	采矿工程选修
		15BD01102	岩石力学新进展	32	2	2	资源与环境工程学院	
		15BD22101	近代分析测试技术	32	2	1	化学与化工学院	
		15BD01121	湿法冶金学	40	2.5	1	资源与环境工程学院	矿物加工工程选修
		15BD01122	结构化学	40	2.5	2	资源与环境工程学院	
		15BD01123	泥沙运动学	40	2.5	2	资源与环境工程学院	
		15BD22101	近代分析测试技术	32	2	1	化学与化工学院	
选修课	公共选修课	19BSY2101	来华留学的跨文化适应	32	2	2	国际学院	必修
		19BSY0701	数值分析	16	1	1	理学院	
	专业选修课	18BC01101	矿山地质边坡稳定性分析与控制	32	2	1	资源与环境工程学院	采矿工程选修
		15BC01121	现代矿物浮选溶液化学	40	2.5	1	资源与环境工程学院	矿物加工工程选修
研究环节		15BYJ0101	开题报告		1		资源与环境工程学院	必修
		15BYJ0102	学术交流≥9 次		1			
		15BYJ0103	论文中期进展报告及考核		1		资源与环境工程学院	
		15BYJ0104	学位论文		9		资源与环境工程学院	

Educational Program for Doctoral Students of Mineral Engineering

(Discipline Code: 0819 Conferred Degrees: Doctor of Engineering)

Ⅰ.Educational Objectives

The program's purpose is to educate high-caliber personnel with such abilities as: having a solid foundation of basic theories, and specialized and relevant knowledge in Mineral Engineering discipline; conducting independent scientific research and undertaking specialized technical work in the field of Safety Science and Engineering with modern scientific theories, experimental equipment and information tools; and having made creative achievements in theoretical study and practical engineering work in this disciplinary domain.

Ⅱ.Research Fields

1. Mining Theories and Technologies
2. Rock and Soil Mechanics and Slope Engineering
3. Mining Economics and Systems Engineering
4. Explosion Theory and Application
5. New Mineral Processing Technologies and Equipment
6. Mineral Chemical Extraction
7. Comprehensive Utilization of Urban Mineral Resources
8. Iron Mine Agglomeration and Direct Reduction

Ⅲ. Program Duration

The duration of study for doctoral students normally ranges from 3 to 5 years.

Ⅳ.Credit Requirements

Credit Requirements and Allocation Instructions for Doctoral Students of Mineral Engineering

Total Credits	≥26credits	
course credits	≥14credits	Public Compulsory Courses total 6 credits, among which 4 credits are for Chinese Language, and 2 credits for A Survey of China Public Elective Courses≥2 credits Subject Basic Courses ≥4 credits Elective Specialized Courses ≥2 credits
research session	12credits	Thesis Proposal, 1 credit Academic communication, 1 credit

		Mid-term Progress Report and Thesis Assessment, 1 credit Dissertation, 9 credits
Please refer to the attached Curriculum for specific course arrangements		

Ⅴ. Training Requirements

1. Basic Requirements

Completely mastering scientific theories and technologies of the discipline and theoretical foundation of relevant disciplines. Having an in-depth understanding of the development history, status quo and leading edge of the discipline, and possessing solid basic theories and systematic and extensive expertise. Being able to conduct original studies both in theories and practice with modern scientific theories, experimental means, computer application technology and information technology. Innovatively discovering and resolving practical problems in Mineral Engineering, Complying with academic ethics, and having a strong sense of dedication and responsibility. Mastering at least one foreign language to read foreign professional literatures and conducting international academic exchanges. Meeting requirements of The Higher Education Law of the People's Republic of China and Regulations of the People's Republic of China on Academic Degrees.

2.Thesis Proposal Requirements

Thesis proposal shall be presented in a written and oral defense form, counting 1 credit, Grades are either pass or fail.

Contents of a thesis proposal shall include: the background and basis of the selected topic, a review of domestic and abroad literature with an analysis and a summary (no less than 70 articles); The research program should illustrate research objectives, content, key problems and innovation, research method, technical approach, and experiment means; and a research plan and a time schedule.

A thesis proposal report shall be reviewed and commented by at least five associate professors and above titles (at least three of whom are professors). There should be at least five associate professors and above titles (at least three professors) attending the oral defense. If students failed the oral defense, the thesis proposals should be re-prepared.

A thesis proposal normally ranges from 8000 to 15,000 words. When a proposal report is appraised and approved, a Doctoral Candidate’s Thesis Proposal Form shall be completed and submitted to one’s school and reserved in the degree achieves.

3.The Mid-term Progress Requirements for a Thesis

The mid-term progress of a thesis shall be presented in a written and oral defense form, counting 1 credit.

The mid-term progress report should be presented publicly around the validity of experiment methods, data, results, preliminary conclusion from the research approach, and whether the thesis can be completed on schedule. There should be at least five associate professors and above titles (at least three professors) or doctors attending the oral defense and providing advice for existing problems.

Once the mid-term examination is passed, a Doctoral Student's Mid-term Report and Comprehensive Assessment Form shall be completed and submitted to the Graduate School, and a copy of that and a written form of the original thesis proposal report shall be preserved by the school.

4.Requirements for Academic Activities

A graduate student shall participate in at least nine academic activities, counting 1 credit. A written record shall be prepared for each academic activity and a written material shall be reserved for an academic presentation. The written record signed by the supervisor shall be submitted to the school to register credits before applying for a degree.

5. Academic Articles Publishing Requirements

Follow the Provisions of Doctoral and Master Students of Wuhan University of Science and Technology Applying for a Degree and Gaining Academic Achievements.

6. Dissertation Pre-Defense Requirements

A graduate student shall complete all training sessions, meet academic articles publishing requirement, and shall follow the Working Rules on Awarding Doctoral and Master Degrees of Wuhan University of Science and Technology, and the Graduate Student Dissertation Detection Rules of Wuhan Wuhan University of Science and Technology (Trial).

7.Dissertation Defense Requirements

Follow the Working Rules on Awarding Doctoral and Master Degrees of Wuhan University of Science and Technology, and Graduate Student Dissertation Detection Rules of Wuhan Wuhan University of Science and Technology (Trial), etc.

Curriculum for Doctoral Students of Mineral Engineering

Category	Course Nature	Course Code	Course Name	Hour	Credit	Semester	School	Notes
Degree Courses	Public Compulsory Courses	17BSA0601	Chinese Language	160	4	1	School of Literature, Law and Economics	compulsory
		17BSA2101	A Survey of China	32	2	1	International School	
	Subject Basic Courses	18BD01101	Advanced Mining Engineering Geology	32	2	1	School of Resource and Environmental Engineering	Optional for Mining Engineering Major
		15BD01102	New Development in Rock Mechanics	32	2	2		
		15BD22101	Modern Analysis and Measurement Technology	32	2	1	School of Chemistry and Chemical Engineering	
		15BD01121	Hydro-metallurgy	40	2.5	1	School of Resource and Environmental Engineering	Optional for Mineral Processing Engineering Major
		15BD01122	Structural Chemistry	40	2.5	2		
		15BD01123	Sediment Kinematic	40	2.5	2		
		15BD22101	Modern Analysis and Measurement Technology	32	2	1	School of Chemistry and Chemical Engineering	
Selective Courses	Public Elective Courses	19BSY2101	Cross-Culture Adaptation —Study in China	32	2	2	International School	compulsory
		19BSY0701	Numerical Analysis	16	1	1	College of Science	
	Elective Specialized Courses	18BC01101	Stability Analysis and Control of Mine Slope	32	2	1	School of Resource and Environmental Engineering	Optional for Mining Engineering Major
		15BC01121	Solution Chemistry of Modern Mineral Flotation	40	2.5	1		Optional for Mineral Processing Engineering Major
research session		15BYJ0101	Research Proposal		1		School of Resource and Environmental Engineering	Compulsory
		15BYJ0102	Academic Communication, ≥9 times		1			
		15BYJ0103	The Mid-term Progress Report and evaluation		1		School of Resource and Environmental Engineering	
		15BYJ0104	Dissertation		9			

矿业工程硕士研究生培养方案

（学科代码：0819 授 工学硕士 学位）

一、培养目标

培养掌握矿业工程学科坚实的基础理论和系统的专门知识，具备运用计算机和先进测试手段的能力，具有从事科学研究或独立担负专门技术工作的能力，了解学科现状、发展趋势及国际发展动态，在本学科有关理论和工程实际问题的研究中取得成果的高层次人才。

二、研究方向

1. 采矿系统工程
2. 矿床开采方法与工艺
3. 资源经济
4. 爆破工程
5. 矿物加工理论与新工艺
6. 矿物提取技术
7. 二次资源综合利用
8. 造块与直接还原理论与技术

三、学习年限

全日制攻读学术型硕士学位的学习年限为 2-3 年。

四、学分要求

矿业工程学术硕士研究生学分要求及学分分配表

总学分	≥32 学分	
修课学分	≥25 学分	公共必修课≥6 学分 公共选修课≥2 学分 学科基础课≥10 学分 专业选修课≥7 学分
研究环节	7 学分	开题报告 1 学分 学术交流 1 学分 论文中期进展报告 1 学分 学位论文 4 学分
具体课程设置见附表		

五、研究环节与学位论文

1.培养基本要求

具有本学科坚实的基础理论和系统的专门知识，了解学科现状、发展趋势及国际发展动态。具备运用计算机和先进测试手段的能力，具有从事科学研究或独立担负专门技术工作的能力。具有科学的世界观和方法论，具备严谨的科研作风和良好的团队合作精神。至少熟练掌握一门外国语，具备阅读本专业外文文献的能力。达到《中华人民共和国高等教育法》、《中华人民共和国学位条例》等的相关要求。

2.开题要求

以书面及答辩形式就论文开题作报告，记 1 学分。

开题报告的内容一般应包括：（1）课题来源和选题依据，对国内外有关文献进行阅读、分析和总结（不少于 40 篇，其中外文不少于 10 篇）；（2）研究方案，阐明研究目标、研究内容、关键问题与创新点、研究方法、技术路线、实验方案等；（3）研究工作基础，说明具备的研究条件、研究过程中可能遇到的困难和问题及其可能的解决办法和措施；（4）研究工作计划及时间安排。

开题报告须有至少 5 名具有副教授以上职称或博士学位者审定并签署意见，答辩环节至少有 5 名具有副教授以上职称或博士学位者参加，答辩未能通过者，必须重新做开题报告。

书面开题报告一般应为 0.5～1.0 万字。开题报告评审答辩通过后，须完整填写《硕士研究生开题报告》，交学院留存，毕业时归入学位档案。

3.参加学术活动要求

研究生须参加 6 次以上学术活动，记 1 学分。每次参加学术活动应有书面记录，做学术报告应有书面材料，在申请学位前，经导师签字的书面记录交学院备案并记相应学分。

4.学位论文答辩要求

研究生完成所有培养环节，学位论文的相关要求参照《武汉科技大学博士、硕士研究生申请学位取得学术成果的规定》、《武汉科技大学博士、硕士学位授予工作细则》及《武汉科技大学研究生学位论文检测规定（试行）》等文件执行。

矿业工程学术硕士研究生课程计划表

类别	课程性质	课程编号	课程名称	学时	学分	开课学期	开课学院	备注
学位课	公共必修课	17BSA0601	汉语	160	4	1	文法与经济学院	必修
		17BSA2101	中国概况	32	2	1	国际学院	
	学科基础课	18SD01101	高等采矿学	40	2.5	1	资源与环境工程学院	采矿工程选修，≥10学分
		18SD01102	矿山岩石力学	40	2.5	1		
		18SD01103	矿山地质学	40	2.5	2		
		18SD01104	矿山安全	40	2.5	2		
		15SY22109	现代仪器分析	32	2	2	化学与化工学院	
		15SD01123	胶体与表面化学	48	3	1	资源与环境工程学院	矿物加工工程选修，≥10学分
		15SD01124	界面分选原理	40	2.5	2		
		15SD01125	高等造块学	48	3	2		
		15SD01126	高等矿物加工学	48	3	2		
		15SD01127	浮选电化学	32	2	2		
		15SY22109	现代仪器分析	32	2	2	化学与化工学院	
选修课	公共选修课	19BSY2101	来华留学的跨文化适应	32	2	2	国际学院	必修
		19BSY0701	数值分析	16	1	1	理学院	
	专业选修课	18SY01101	安全风险评价	40	2.5	1	资源与环境工程学院	采矿工程选修，≥7学分
		18SY01102	采矿物理模型	32	2	2		
		18SY01103	数值仿真	48	3	2		
		15SY01110	二次资源综合利用	32	2	2		矿物加工工程选修，≥7学分
		15SY01111	矿物加工实验技术	32	2	1		
		15SY01112	直接还原与熔融还原	32	2	2		
		15SY01113	矿物先进提取技术	32	2	2		
		15SY01114	矿物分析测试技术	32	2	2		
		15SY01115	矿物材料导论	32	2	2		
研究环节		15SYJ0101	开题报告		1		资源与环境工程学院	必修
		15SYJ0102	学术交流≥6次		1			
		15SYJ0103	论文中期进展报告		1			
		15SYJ0104	学位论文		4			

Educational Program for Master Students of Mineral Engineering

(Discipline Code: 0819 Conferred Degrees: Master of Engineering)

Ⅰ. Educational Objectives

The program's purpose is to educate high-caliber personnel with such abilities as: having a solid foundation of basic theories and systematically specialized knowledge in the Mineral Engineering discipline; having the ability to work with computer and advanced experimental techniques; conducting independent scientific research or undertaking specialized technical work; understanding the status quo, development trends and frontier dynamics of the discipline; and having made achievements in theoretical study and practical engineering work in this disciplinary domain.

Ⅱ.Research Fields in Mineral Engineering

1. Mining System Engineering
2. Mining Theories and Technologies
3. Resource Economics
4. Explosion Engineering
5. Mineral Processing Theories and New Technologies
6. Mineral Extraction Technologies
7. Comprehensive Utilization of Secondary Resources
8. Agglomeration and Direct Reduction Theories and Technologies

Ⅲ. Program Duration

The duration of study for full-time master students (academic) normally ranges from 2 to 3 years.

Ⅳ.Credit Requirements

Credit Requirements and Allocation Instructions for Academic Master Students of Mineral Engineering

Total Credits	≥32	
Course Credits	≥25credits	Public Compulsory Courses ≥6 credits, Public Elective Courses≥2 credits Subject Basic Courses ≥ 10 credits Elective Specialized Courses ≥ 7 credits
Research	7credits	Thesis Proposal, 1 credit

Session		Academic communication, 1 credit Mid-term Progress Report, 1 credit Degree Thesis, 4 credits
Please refer to the attached Curriculum for specific course arrangements		

V. Research and Dissertation

1. Basic Requirements

Possessing a solid foundation of basic theories and systematically specialized knowledge of the subject; being able to work with computers and advanced experimental techniques; having the ability to independently conduct scientific research or undertake specialized technical work; possessing a scientific world outlook and methodology with a rigorous research style and teamwork spirit; Mastering at least one foreign language to read foreign professional literatures; and meeting requirements of The Higher Education Law of the People's Republic of China and Regulations of the People's Republic of China on Academic Degrees.

2. Thesis Proposal Requirements

Thesis proposal shall be presented in a written and oral defense form, counting 1 credit.

Contents of a thesis proposal shall include: (1) the background and basis of the selected topic, and a review of domestic and abroad literature with an analysis and a summary (no less than 40 articles including at least 10 foreign language articles); (2) a research program with an illustration of research objectives, content, key research questions, innovation points, research method, technical approach, experiment means, etc. (3) the research foundation illustrating exsiting research condition, and possible difficulties, problems, and their possible solutions and measures during the research process; (4) a research plan and a time schedule.

A thesis proposal report shall be reviewed and commented by at least five associate professors and above titles or doctors. There should be at least five (associate) professors or doctors attending the oral defense. If students failed the oral defense, the thesis proposals should be re-prepared.

A thesis proposal normally ranges from 5000 to 10,000 words. When a proposal report is appraised and approved, a Master Candidate’s Thesis Proposal Form shall be completed and submitted to one’s school and reserved in the degree achieves.

3.Requirements for Academic Activities

A graduate student shall participate in at least six academic activities, counting 1 credit. A written record shall be prepared for each academic activity and a written material shall be kept for an academic presentation. The written record signed by the supervisor shall be submitted to the school to register credits before applying for a degree.

4.Dissertation Defense Requirements

A graduate student shall complete all training sessions, and shall follow the Provisions of Doctoral and Master Students of Wuhan University of Science and Technology Applying for a Degree and Gaining Academic Achievements, Working Rules on Awarding Doctoral and Master Degrees of Wuhan University of Science and Technology, and the Graduate Student Dissertation Detection Rules of Wuhan University of Science and Technology (Trial).

Curriculum for Master Students of Mineral Engineering

Category	Course Nature	Course Code	Course Name	Hour	Credit	Semester	School	Notes
Degree Courses	Public Compulsory Courses	17BSA0601	Chinese Language	160	4	1	School of Literature, Law and Economics	Compulsory
		17BSA2101	A Survey of China	32	2	1	International School	
	Subject Basic Courses	18SD01101	Advanced Mining Engineering	40	2.5	1	School of Resource and Environmental Engineering	Optional for Mining Engineering Major, ≥10 credits
		18SD01102	Mining rock mechanics	40	2.5	1		
		18SD01103	Mining Geology	40	2.5	2		
		18SD01104	Mining safety	40	2.5	2		
		15SD01105	GIS Principles and Applications	32	2	2		
		15BD22101	Modern Analysis and Measurement Technology	32	2	1	School of Chemistry and Chemical Engineering	
		15SD01123	Colloid and Surface Chemistry	48	3	1	School of Resource and Environmental Engineering	Optional for Mineral Processing Engineering Major, ≥10 credits
		15SD01124	Interface Separation Principle	40	2.5	2		
		15SD01125	Higher Agglomeration	48	3	2		
		15SD01126	Higher Mineral Processing	48	3	2		
		15SD01127	Flotation Electrochemistry	32	2	2		
		15BD22101	Modern Analysis and Measurement Technology	32	2	1	School of Chemistry and Chemical Engineering	
Selective Courses	Public Elective Courses	19BSY2101	Cross-Culture Adaptation — Study in China	32	2	2	International School	Compulsory
		19BSY0701	Numerical Analysis	16	1	1	College of Science	

	Elective Specialized Courses	18SY01101	Safety Risk Evaluation	40	2.5	1	School of Resource and Environmental Engineering	Optional for Mining Engineering Major, ≥7 credits
		18SY01102	Mining Physical Model	32	2	2		
		18SY01103	Numerical Simulation	48	3	2		
		15SY01105	Reinforcement Techniques in Geotechnical Engineering	32	2	2	School of Resource and Environmental Engineering	Optional for Mineral Processing Engineering Major, ≥7 credits
		15SY01106	New Techniques in Mining Engineering	32	2	2		
		15SY01110	Comprehensive Utilization of Secondary Resources	32	2	2		
		15SY01111	Mineral Processing Experiment Technology	32	2	1		
		15SY01112	Direct Reduction and Smelting Reduction	32	2	2		
		15SY01113	Advanced Mineral Extraction Technology	32	2	2		
		15SY01114	Mineral Analysis Testing Technology	32	2	2		
		15SY01115	Introduction to Mineral Materials	32	2	2		
research session		15SYJ0101	Research Proposal		1		School of Resource and Environmental Engineering	Compulsory
		15SYJ0102	Academic Communication, ≥6 times		1			
		15SYJ0103	The mid-term progress report and evaluation		1		School of Resource and Environmental Engineering	
		15SYJ0104	Dissertation		4		School of Resource and Environmental Engineering	

安全科学与工程博士研究生培养方案

（学科代码：0837 授 工学博士 学位）

一、培养目标

培养系统全面掌握安全科学与工程学科坚实宽广的基础理论和专门知识及相关学科知识；能运用现代科学理论、实验手段和信息工具，独立从事安全科学与工程领域科学研究和独立担负专门技术工作，在本学科有关理论和工程实际问题的研究中做出创造性成果的高层次人才。

二、研究方向

1. 金属矿山安全生产理论与技术
2. 工业通风除尘与职业危害控制
3. 冶金装备故障诊断与风险控制
4. 城市地下空间火灾动力学与防治
5. 冶金企业安全生产管理与风险评价

三、学习年限

本学科博士生的学习年限一般为 3-5 年。

四、学分要求

安全科学与工程博士研究生学分要求及学分分配表

总学分	≥26 学分	
修课学分	≥14 学分	公共必修课 6 学分 其中：汉语 4 学分，中国概况 2 学分 公共选修课≥2 学分 学科基础课≥4 学分 专业选修课≥2 学分
研究环节	12 学分	开题报告 1 学分 学术交流 1 学分 论文中期进展报告及考核 1 学分 学位论文 9 学分
具体课程设置见课程计划表		

五、培养要求

1.基本要求

全面系统掌握本学科的科学理论与技术及相关学科的理论基础，对本学科的发展历史、现状和前沿动态有深入的了解，具备坚实的基础理论和系统宽广的专门知识。能运用现代科学理论和实验手段、计算机应用技术和信息技术，创造性地进行本学科方向有关的理论和实际问题的研究。遵守学术道德规范，具有强烈的事业心和责任感。至少掌握一门外国语，具备熟练阅读本专业的外文文献，进行国际学术交流的能力。达到《中华人民共和国高等教育法》、《中华人民共和国学位条例》等的相关要求。

2.开题要求

以书面及答辩形式作为开题报告，记 1 学分，成绩按通过/不通过登记。

开题报告的内容主要包括：课题来源和选题依据，对国内外有关文献进行阅读、分析和总结（不少于 70 篇）；研究方案需阐明：研究目标、研究内容、关键问题与创新点、研究方法、技术路线、实验方案等；研究工作计划及时间安排。

开题报告至少由 5 名具有副教授以上职称（其中至少 3 名教授）审定并签署意见，答辩环节至少有 5 名具有副教授以上职称（其中至少 3 名教授）参加，答辩未能通过者，必须重新做开题报告。

开题报告一般应为 0.8～1.5 万字。开题报告评审通过后，须完整填写《博士研究生开题报告》，交学院留存，毕业时归入学位档案。

3.论文中期进展要求

必须以书面及答辩形式做论文研究中期进展报告，记 1 学分。

中期进展报告就课题的实验方法、数据、结果的可靠性、设计方案初步结论的正确性以及能否如期完成学位论文工作等进行公开答辩，须有至少 5 名具有副教授以上职称（其中至少 3 名教授）或博士学位者对中期报告进行考核，对存在的问题提出指导性建议。

中期考核通过后，须填写《博士生中期报告及综合考核表》交研究生院，复印件和书面开题报告交学院留存。

4.参加学术活动要求

研究生须参加 9 次以上学术活动，记 1 学分。每次参加学术活动应有书面记录，做学术报告应有书面材料，在申请学位前，经导师签字的书面记录交学院备案并记相应学分。

5.发表学术论文要求

按照《武汉科技大学博士、硕士研究生申请学位取得学术成果的规定》执行。

6.学位论文预答辩要求

研究生完成所有培养环节，满足发表学术论文要求，按照《武汉科技大学博士、硕士学位授予工作细则》及《武汉科技大学研究生学位论文检测规定（试行）》等文件执行。

7.学位论文答辩要求

按照《武汉科技大学博士、硕士学位授予工作细则》及《武汉科技大学研究生学位论文检测规定（试行）》等文件执行。

安全科学与工程博士研究生课程计划表

类别	课程性质	课程编号	课程名称	学时	学分	开课学期	开课学院	备注
学位课	公共必修课	17BSA0601	汉语	160	4	1	文法与经济学院	必修
		17BSA2101	中国概况	32	2	1	国际学院	
	学科基础课	15BD22101	近代分析测试技术	32	2	1	化学与化工学院	≥4学分
		15BD01204	职业安全与卫生	32	2	1	资源与环境工程学院	
		19BC01201	安全科学前沿	32	2	2	资源与环境工程学院	
		15BD01202	气溶胶科学与技术*	32	2	1	资源与环境工程学院	
		15BD01203	采动灾害控制工程	32	2	1	资源与环境工程学院	
选修课	公共选修课	19BSY2101	来华留学的跨文化适应	32	2	2	国际学院	必修
		19BSY0701	数值分析	16	1	1	理学院	
	专业选修课	17BY01205	智能安全矿山	32	2	1	资源与环境工程学院	≥2学分
		15BY01202	工业通风与防尘新进展	32	2	1	资源与环境工程学院	
研究环节		15BYJ0101	开题报告		1		资源与环境工程学院	必修
		15BYJ0102	学术交流≥9 次		1			
		15BYJ0103	论文中期进展报告及考核		1		资源与环境工程学院	
		15BYJ0104	学位论文		9		资源与环境工程学院	

Educational Program for Doctoral Students of Safety Science and Engineering

(Discipline Code: 0837 Conferred Degrees: Doctor of Engineering)

Ⅰ. Educational Objectives

The program's purpose is to educate high-caliber personnel with such abilities as: having a solid foundation of basic theories, and specialized and relevant knowledge in Safety Science and Engineering; conducting independent scientific research and undertaking specialized technical work in the field of Safety Science and Engineering with modern scientific theories, experimental equipment and information tools; and having made creative achievements in theoretical study and practical engineering work in this disciplinary domain.

Ⅱ.Research Fields

1. Theory and technology of safety production in metal mines
2. Industrial ventilation and dust removal and occupational hazard control
3. Fault diagnosis and risk control of metallurgical equipment
4. Urban underground space fire dynamics and prevention technology
5. Safety management and risk assessment of metallurgical enterprises

Ⅲ. Program Duration

The duration of study for doctoral students normally ranges from 3 to 5 years.

Ⅳ. Credit Requirements

Credit Requirements and Allocation Instructions for Doctoral Students of Safety Science and Engineering

Total Credits	≥26Credits	
Course Credits	≥14Credits	Public Compulsory Courses total 6 credits, among which 4 credits are for Chinese Language, and 2 credits for A Survey of China Public Elective Courses≥2 credits Subject Basic Courses ≥4 credits Elective Specialized Courses ≥2 credits
Research Session	Credits	Thesis Proposal, 1 credit Academic Communication, 1 credit Mid-term Progress Report and Thesis Assessment, 1

		credit Dissertation, 9 credits
Please refer to the attached Curriculum for specific course arrangements		

Ⅴ. Training Requirements

1. Basic Requirements

Completely mastering scientific theories and technologies of the discipline and theoretical foundation of relevant disciplines. Having an in-depth understanding of the development history, status quo and leading edge of the discipline, and possessing solid basic theories and systematic and extensive expertise. Being able to conduct original studies both in theories and practice with modern scientific theories, experimental means, computer application technology and information technology. Complying with academic ethics, and having a strong sense of dedication and responsibility. Mastering at least one foreign language to read foreign professional literatures and conducting international academic exchanges. Meeting requirements of The Higher Education Law of the People's Republic of China and Regulations of the People's Republic of China on Academic Degrees.

2.Thesis Proposal Requirements

Thesis proposal shall be presented in a written and oral defense form, counting 1 credit. Grades are either pass or fail.

Contents of a thesis proposal shall include: the background and basis of the selected topic, a review of domestic and abroad literature with an analysis and a summary (no less than 70 articles); The research program should illustrate research objectives, content, key problems and innovation, research method, technical approach, and experiment means; and a research plan and a time schedule.

A thesis proposal report shall be reviewed and commented by at least five associate professors and above titles (at least three of whom are professors). There should be at least five associate professors and above titles (at least three professors) attending the oral defense. If students failed the oral defense, the thesis proposals should be re-prepared.

A thesis proposal normally ranges from 8000 to 15,000 words. When a proposal report is appraised and approved, a Doctoral Candidate’s Thesis Proposal Form shall be completed and submitted to one’s school and reserved in the degree achieves.

3.The Mid-term Progress Requirements for a Thesis

The mid-term progress of a thesis shall be presented in a written and oral defense form, counting 1 credit.

The mid-term progress report should be presented publicly around the validity of experiment methods, data, results, preliminary conclusion from the research approach, and whether the thesis can be completed on schedule. There should be at least five associate professors and above titles (at least three professors) or doctors attending the oral defense and providing advice for existing problems.

Once the mid-term examination is passed, a Doctoral Student’s Mid-term Report and Comprehensive Assessment Form shall be completed and submitted to the Graduate School, and a copy of that and a written form of the original thesis proposal report shall be preserved by the school.

4. Requirements for Academic Activities

A graduate student shall participate in at least nine academic activities, counting 1 credit. A written record shall be prepared for each academic activity and a written material shall be reserved for an academic presentation. The written record signed by the supervisor shall be submitted to the school to register credits before applying for a degree.

5. Academic Articles Publishing Requirements

Follow the Provisions of Doctoral and Master Students of Wuhan University of Science and Technology Applying for a Degree and Gaining Academic Achievements.

6. Dissertation Pre-Defense Requirements

A graduate student shall complete all training sessions, meet academic articles publishing requirement, and shall follow the Working Rules on Awarding Doctoral and Master Degrees of Wuhan University of Science and Technology, and the Graduate Student Dissertation Detection Rules of Wuhan University of Science and Technology (Trial).

7.Dissertation Defense Requirements

Follow the Working Rules on Awarding Doctoral and Master Degrees of Wuhan University of Science and Technology, and Graduate Student Dissertation Detection Rules of Wuhan University of Science and Technology (Trial), etc.

Curriculum for Doctoral Students of Safety Science and Engineering

Category	Course Nature	Course Code	Course Name	Hour	Credit	Semester	School	Notes
Degree Courses	Public Compulsory Courses	17BSA0601	Chinese Language	160	4	1	School of Literature, Law and Economics	Compulsory
		17BSA2101	A Survey of China	32	2	1	International School	
	Subject Basic Courses	15BD22101	Modern Analysis and Measurement Technology	32	2	1	School of Chemistry and Chemical Engineering	≥4 records
		15BD01204	Occupational Safety and Hygiene	32	2	1	School of Resource and Environmental Engineering	
		19BC01201	Advanced Safety Science and Technology	32	2	2		
		15BD01202	Aerosol Science and Technology	32	2	1	School of Resource and Environmental Engineering	
		15BD01203	Mining Hazards Control Engineering	32	2	1	School of Resource and Environmental Engineering	
Selective Courses	Public Elective Courses	19BSY2101	Cross-Culture Adaptation —Study in China	32	2	2	International School	Compulsory
		19BSY0701	Numerical Analysis	16	1	1	College of Science	
	Elective Specialized Courses	17BY01205	Intelligent Safety Mine	32	2	1	School of Resource and Environmental Engineering	≥2 records
		15BY01202	Development of Industrial Ventilation and Dust Proof	32	2	1	School of Resource and Environmental Engineering	
Research Session		15BYJ0101	Thesis Proposal		1		School of Resource and Environmental Engineering	Compulsory
		15BYJ0102	Academic Activities ≥9 times		1			
		15BYJ0103	The Mid-term Progress Report and evaluation		1		School of Resource and Environmental Engineering	
		15BYJ0104	Dissertation		9			

安全科学与工程硕士研究生培养方案

（学科代码：0837 授 工学硕士 学位）

一、培养目标

培养掌握安全科学与工程学科坚实的基础理论和系统的专门知识，具备运用计算机和先进测试手段的能力，具有从事科学研究或独立担负专门技术工作的能力，了解学科现状、发展趋势及国际发展动态，在本学科有关理论和工程实际问题的研究中取得成果的高层次人才。

二、研究方向

1. 金属矿山安全生产理论与技术
2. 工业通风除尘与职业危害控制
3. 冶金装备故障诊断与风险控制
4. 城市地下空间火灾动力学与防治
5. 冶金企业安全生产管理与风险评价

三、学习年限

全日制攻读学术型硕士学位的学习年限为 2-3 年。

四、学分要求

安全科学与工程学术硕士研究生学分要求及学分分配表

总学分	≥32 学分	
修课学分	≥25 学分	公共必修课≥6 学分 公共选修课≥2 学分 学科基础课≥10 学分 专业选修课≥7 学分
研究环节	7 学分	开题报告 1 学分 学术交流 1 学分 论文中期进展报告 1 学分 学位论文 4 学分
具体课程设置见附表		

五、研究环节与学位论文

1.培养基本要求

具有本学科坚实的基础理论和系统的专门知识，了解学科现状、发展趋势及国际发展动态。具备运用

计算机和先进测试手段的能力，具有从事科学研究或独立担负专门技术工作的能力。具有科学的世界观和方法论，具备严谨的科研作风和良好的团队合作精神。至少熟练掌握一门外国语，具备阅读本专业外文文献的能力。达到《中华人民共和国高等教育法》、《中华人民共和国学位条例》等的相关要求。

2.开题要求

以书面及答辩形式就论文开题作报告，记 1 学分。

开题报告的内容一般应包括：（1）课题来源和选题依据，对国内外有关文献进行阅读、分析和总结（不少于 40 篇，其中外文不少于 10 篇）；（2）研究方案，阐明研究目标、研究内容、关键问题与创新点、研究方法、技术路线、实验方案等；（3）研究工作基础，说明具备的研究条件、研究过程中可能遇到的困难和问题及其可能的解决办法和措施；（4）研究工作计划及时间安排。

开题报告须有至少 5 名具有副教授以上职称或博士学位者审定并签署意见，答辩环节至少有 5 名具有副教授以上职称或博士学位者参加，答辩未能通过者，必须重新做开题报告。

书面开题报告一般应为 0.5～1.0 万字。开题报告评审答辩通过后，须完整填写《硕士研究生开题报告》，交学院留存，毕业时归入学位档案。

3.参加学术活动要求

研究生须参加 6 次以上学术活动，记 1 学分。每次参加学术活动应有书面记录，做学术报告应有书面材料，在申请学位前，经导师签字的书面记录交学院备案并记相应学分。

4.学位论文答辩要求

研究生完成所有培养环节，学位论文的相关要求参照《武汉科技大学博士、硕士研究生申请学位取得学术成果的规定》、《武汉科技大学博士、硕士学位授予工作细则》及《武汉科技大学研究生学位论文检测规定（试行）》等文件执行。

安全科学与工程硕士研究生课程计划表

类别	课程性质	课程编号	课程名称	学时	学分	开课学期	开课学院	备注
学位课	公共必修课	17BSA0601	汉语	160	4	1	文法与经济学院	公共必修
		17BSA2101	中国概况	32	2	1	国际学院	
	学科基础课	19SC01201	安全科技发展动态	16	1	1	资源与环境工程学院	≥10学分
		18SD01201	事故应急管理	40	2.5	1	资源与环境工程学院	
		18SY01101	安全风险评价	40	2.5	1	资源与环境工程学院	
		18SD01202	职业安全健康	40	2.5	1	资源与环境工程学院	
		18SD01104	矿山安全	40	2.5	2	资源与环境工程学院	
		15SY22109	现代仪器分析	32	2	2	化学与化工学院	
	公共选修课	19BSY2101	来华留学的跨文化适应	32	2	2	国际学院	必修
		19BSY0701	数值分析	16	1	1	理学院	
	专业选修课	18SY01103	数值仿真	48	3	2	资源与环境工程学院	≥7学分
		18SD01103	矿山地质学	32	2	2	资源与环境工程学院	
		18SY01202	安全系统工程	32	2	1	资源与环境工程学院	
		15SY01206	防排烟理论与技术	32	2	1	资源与环境工程学院	
		15SY01107	矿山安全技术	32	2	2	资源与环境工程学院	
		15SY01204	气溶胶力学	32	2	2	资源与环境工程学院	
研究环节		15SYJ0101	开题报告		1		资源与环境工程学院	必修
		15SYJ0102	学术交流≥6次		1		资源与环境工程学院	
		15SYJ0103	论文中期进展报告及考核		1		资源与环境工程学院	
		15SYJ0104	学位论文		4		资源与环境工程学院	

Educational Program for Master Students of Safety Science and Engineering

(Discipline Code: 0837 Conferred Degrees:Master of Engineering)

Ⅰ. Educational Objectives

The program's purpose is to educate high-caliber personnel with such abilities as: having a solid foundation of basic theories and systematically specialized knowledge in the Safety Science and Engineering discipline; having the ability to work with computer and advanced experimental techniques; conducting independent scientific research or undertaking specialized technical work; understanding the status quo, development trends and frontier dynamics of the discipline; and having made achievements in theoretical study and practical engineering work in this disciplinary domain.

Ⅱ. Research Fields

1. Theory and technology of safety production in metal mines
2. Industrial ventilation and dust removal and occupational hazard control
3. Fault diagnosis and risk control of metallurgical equipment
4. Urban underground space fire dynamics and prevention technology
5. Safety management and risk assessment of metallurgical enterprises

Ⅲ. Program Duration

The duration of study for full-time master students (academic) normally ranges from 2 to 3 years.

Ⅳ. Credit Requirements

Credit Requirements and Allocation Instructions for Academic Master Students of Safety Science and Engineering

Total Credits	≥32credits	
Course Credits	≥25credits	Public Compulsory Courses ≥6 credits, Public Elective Courses≥2 credits Subject Basic Courses ≥ 10 credits Elective Specialized Courses ≥ 7 credits
Research Session	7credits	Thesis Proposal, 1 credit Academic communication, 1 credit Mid-term Progress Report, 1 credit Degree Thesis, 4 credits
Please refer to the attached Curriculum for specific course arrangements		

Ⅴ. Research and dissertation

1. Basic Requirements

Possessing a solid foundation of basic theories and systematically specialized knowledge of the subject; being able to work with computers and advanced experimental techniques; having the ability to independently conduct scientific research or undertake specialized technical work; possessing a scientific world outlook and methodology with a rigorous research style and teamwork spirit; Mastering at least one foreign language to read foreign professional literatures; and meeting requirements of The Higher Education Law of the People's Republic of China and Regulations of the People's Republic of China on Academic Degrees.

2. Thesis Proposal Requirements

Thesis proposal shall be presented in a written and oral defense form, counting 1 credit.

Contents of a thesis proposal shall include: (1) the background and basis of the selected topic, and a review of domestic and abroad literature with an analysis and a summary (no less than 40 articles including at least 10 foreign language articles); (2) a research program with an illustration of research objectives, content, key problems, innovation points, research method, technical approach, experiment means, etc. (3) the research foundation illustrating existing research condition, and possible difficulties, problems, and their possible solutions and measures during the research process; (4) a research plan and a time schedule.

A thesis proposal report shall be reviewed and commented by at least five associate professors and above titles or doctors. There should be at least five (associate) professors or doctors attending the oral defense. If students failed the oral defense, the thesis proposals should be re-prepared.

A thesis proposal normally ranges from 5000 to 10,000 words. When a proposal report is appraised and approved, a Master Candidate’s Thesis Proposal Form shall be completed and submitted to one’s school and reserved in the degree achieves.

3. Requirements for Academic Activities

A graduate student shall participate in at least six academic activities, counting 1 credit. A written record shall be prepared for each academic activity and a written material shall be kept for an academic presentation. The written record signed by the supervisor shall be submitted to the school to register credits before applying for a degree.

4.Dissertation Defense Requirements

A graduate student shall complete all training sessions, and shall follow the Provisions of Doctoral and Master Students of Wuhan University of Science and Technology Applying for a Degree and Gaining Academic Achievements, Working Rules on Awarding Doctoral and Master Degrees of Wuhan University of Science and Technology, and the Graduate Student Dissertation Detection Rules of Wuhan University of Science and Technology (Trial).

Curriculum for Master Students of Safety Science and Engineering

Category	Course Nature	Course Code	Course Name	Hour	Credit	Semester	School	Notes
Degree Courses	Public Compulsory Courses	17BSA0601	Chinese Language	160	4	1	School of Literature, Law and Economics	Public Compulsory
		17BSA2101	A Survey of China	32	2	1	International School	
	Subject Basic Courses	19SC01201	Developments in Safety Science and Technolog	16	1	1	School of Resource and Environmental Engineering	≥10 records
		18SD01201	Accident/Incident Emergency Mangement	40	2.5	1		
		18SY01101	Safety Risk Evaluation	40	2.5	1		
		18SD01202	Occupational Safety and Health	40	2.5	1		
		18SD01104	Mine Safety	40	2.5	2		
		15SY22109	Modern Instrumental Analysis	32	2	2	School of Chemistry and Chemical Engineering	
	Public Elective Courses	19BSY2101	Cross-Culture Adaptation —Study in China	32	2	2	International School	Compulsory
		19BSY0701	Numerical Analysis	16	1	1	College of Science	
	Elective Specialized Courses	18SY01103	Numerical Simulation	48	3	2	School of Resource and Environmental Engineering	≥7 records
		18SD01103	Mining Geology	32	2	2		
		18SY01202	Safety System Engineering	32	2	1		
		15SY01206	Theory and Technology of Smoke Control	32	2	1		
		15SY01107	Mine Safety Technology	32	2	2		
		15SY01204	Aerosol Dynamics	32	2	2		
Research Session		15SYJ0101	Thesis Proposal		1		School of Resource and Environmental Engineering	Compulsory
		15SYJ0102	Academic Activities ≥6 times		1			
		15SYJ0103	The mid-term progress report and evaluation		1			
		15SYJ0104	Dissertation		4			