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矿业类培养方案

一、大类所包含的专业

矿业类包含如下专业：矿物加工工程；采矿工程；地理信息科学。

二、大类阶段课程设置

大类学科基础课程（必修）：高等数学B；大学物理B（一）；无机化学B；工程制图B。

大类学科选修课程（选修）：无

大类实践课程：军事训练

矿物加工工程专业培养方案

Curriculum for Undergraduate of Mineral processing Engineering Major

一、专业介绍

矿物加工工程专业始于1973年的武汉钢铁学院，已通过中国工程教育认证，是国家级一流本科建设专业点、国家“卓越工程师教育培养计划”、国家级特色专业、湖北省专业综合改革试点专业。本专业经过多年的发展与积淀，形成了领域特色鲜明、在国内外具有较大影响的创新团队，拥有“国家环境保护矿冶资源利用与污染控制重点实验室”、“战略钒资源利用省部共建协同创新中心”、“冶金矿产资源高效利用与造块湖北省重点实验室”等教学科研平台及多个国家级工程实践教育中心和大学生创新实践教学基地，为行业输送了大批优秀人才。

I. Professional Introduction

The Mineral Processing Engineering major began in Wuhan Iron and Steel College in 1973 and has passed the China Engineering Education Certification. It is a national first-class undergraduate construction major, a

national "Excellent Engineer Education and Training Plan", a national characteristic major, and a pilot major for comprehensive professional reform in Hubei Province. After years of development and accumulation, this major has formed an innovative team with distinctive characteristics in the field and significant influence both domestically and internationally. It has teaching and research platforms such as the "National Key Laboratory for Environmental Protection, Mining and Metallurgical Resource Utilization and Pollution Control", the "Collaborative Innovation Center for Strategic Vanadium Resource Utilization between the Province and the Ministry", the "Hubei Province Key Laboratory for Efficient Utilization and Blocking of Metallurgical Mineral Resources", as well as multiple national engineering practice education centers and university student innovation practice teaching bases, providing a large number of outstanding talents for the industry.

二、培养目标

本专业围绕学校“钢铁品质、社会英才”的人才培养总目标，立足矿物加工、资源综合利用、钢铁冶金和环境工程及其相关领域，培养具有良好的人文科学素养和社会责任感、合理的知识结构、厚实的基础理论知识、较强的工程实践能力和一定的国际视野，能够从事生产、工艺和设备设计、研究与开发、技术管理和经营的学术型人才，使之成为德智体美劳全面发展的社会主义事业建设者和接班人。预期本专业学生毕业五年左右达到以下目标：

1. 身心健康，具有良好的人文社会科学素养，较强的适应社会和环境的能力，良好的表达及沟通协调能力、团队意识和合作精神；
2. 社会责任感强，坚守职业道德，具有与工作相关的质量意识、环境保护意识和安全意识；
3. 能够综合运用基础理论及专业知识，分析、研究和解决矿物加工工程及相关领域中的复杂工程问题，富有创新精神；
4. 具有多学科知识，能熟练运用现代技术工具，胜任矿物加工、资源综合利用、钢铁冶金和环境工程及其相关领域中的技术与产品研发、工程设计和生产组织管理等方面的工作；
5. 具有较强的学习知识、获取信息的能力和一定的国际视野，能及时了解本专业相关学科前沿及发展动态，具有终身学习的能力。

II.Training objectives

This major revolves around the school's general goal of "steel quality and social talent" in talent training. Based on mineral processing, comprehensive utilization of resources, metallurgy, environmental engineering and related fields, this major cultivates students with good human science literacy, social responsibility, reasonable Knowledge structure, solid-basic theoretical knowledge, strong engineering practice ability, and international perspective. Students can be engaged in production, process and equipment design, research and development, and technical management and operation, making them be the builders and successors of the socialist cause for the comprehensive development of moral, intellectual, physical, aesthetics and labour. Graduates of this major are supposed to achieve the following aims in about 5 years:

1. Being in physical and mental health, possessing good humanity and social science literacy, having a strong ability to adapt to the society and environment, good language expression, communication skills, and team and cooperation spirit.
2. having strong social responsibility; adhering to professional ethics, possessing work-related quality awareness, environmental protection awareness and safety awareness.
3. Comprehensively using the basic theory and professional knowledge to analyze, investigate and solve the complex problems in minerals processing and the related fields with an innovative spirit.

4. Possessing multi-disciplinary knowledge, proficiently using modern technical tools, and being competent in product development, engineering design, and production organization management in mineral processing, comprehensive utilization of resources, metallurgy, environmental engineering and related fields.

5. learning knowledge and acquiring information, possessing the international perspective, being able to understand the frontier and development trends of relevant disciplines of the major in time, having the ability for lifelong learning.

三、专业特色（200字左右）

矿物加工工程专业面向国家发展战略需求，服务矿业及区域经济社会发展，经过多年的发展形成了矿产资源高效分选与提取、烧结与球团、资源综合利用、矿物材料等具有鲜明特色的研究平台。在微细粒矿物分选、矿物湿法冶金、高效磨矿理论与装备、烧结球团、资源综合利用等方面开展了创新性工作，建成了“矿产资源物性特征-分离提纯-高值利用”的高素质专业技术人才培养体系，在高效洁净矿物加工理论技术，烧结球团与二次资源综合利用等方面特色鲜明。

III. Professional characteristics

The Mineral Processing Engineering major caters to the needs of national development strategies, serving the mining industry and regional economic and social development. After years of development, it has formed a research platform with distinct characteristics, including efficient sorting and extraction of mineral resources, block making and metallurgy, comprehensive utilization of resources, and mineral materials. Innovative work has been carried out in the fields of fine-grained mineral sorting, mineral hydrometallurgy, efficient grinding theory and equipment, iron ore block making, and comprehensive resource utilization. A high-quality professional and technical talent training system has been established for "mineral resource physical characteristics separation purification high-value utilization". The system has distinctive features in efficient and clean mineral processing theory and technology, as well as iron ore block making and comprehensive utilization of secondary resources.

四、毕业要求

1. 具有良好的人文社会科学素养和高度的社会责任感，理解并遵守工程职业道德。
2. 掌握数学、自然科学、工程基础知识和技术经济管理知识，并能应用于解决矿物加工中的复杂工程问题过程中。
3. 掌握矿物加工工程的基本理论及专业知识并能用于描述和分析矿物加工复杂工程问题，以获得有效结论。
4. 具有对矿物加工工程及相关复杂工程问题进行实验、设计、研究和建模等工程综合知识和工程实践能力，能够解决矿物加工复杂工程问题，具有创新意识。
5. 具备熟练使用信息获取工具和现代工程工具的能力，能够对矿物加工工程设计和研究中的复杂问题进行模拟和预测。
6. 了解与矿物加工工程生产、设计、研究与开发、安全和环境保护等方面的国家宏观发展相关产业政策与法律法规，正确认识和评价工程实践对环境、社会可持续发展的影响。
7. 具有开放包容的心态，积极沟通与分享，具有团队合作精神、组织管理能力和较强的书面和语言表达能力。
8. 了解学科前沿发展趋势，关注本专业与其他学科衍生交叉的新理论、新方法和新技术，能熟练运用一门以上的外语，具备一定的国际视野和跨文化的交流、竞争与合作能力。
9. 具有自主学习和终生学习的意识，能主动并持续更新核心知识以适应专业或职业发展。

IV. Requirements

1. Have a good social literacy and social responsibility, understand and abide by the professional ethics of

the project.

2. Master mathematics, natural science, engineering knowledge and economic management knowledge, and can be used to solve the complex problems of mineral processing.

3. Have an ability to describe and analyze the complex engineering problems of mineral processing using theory and professional knowledge of mineral processing engineering.

4. Have a sense of innovation, the engineering knowledge and engineering practice ability of mineral processing to experiment, design, research and model for solving complex engineering problems in mineral processing.

5. Have ability to use information acquisition tools and modern engineering tools and apply it to model and predict in the design and research of mineral processing engineering.

6. Understand the national industrial policies and laws related design, production, research and explore, safety and environmental protection in mineral processing, have ability to understand and evaluate the effect of engineering practice to the development of environment and society.

7. With an open and inclusive attitude, ability of organizing and managing, expressing and communicating.

8. Understand the forefront of mineral processing, pay attention to the new theory, new method and new technology of the professional cross and other subjects derived, proficiency in the use of more than one foreign language as well as international vision and ability to compete and cooperate in cross-cultural communication.

9. Have a sense of self-study and lifelong learning to update the core knowledge for adapt to professional development.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 1	√	√			
毕业要求 2			√	√	
毕业要求 3			√	√	
毕业要求 4			√	√	
毕业要求 5			√	√	√
毕业要求 6		√			√
毕业要求 7	√				
毕业要求 8	√				√
毕业要求 9	√				√

五、专业主干课程

流体力学、分析化学、物理化学、冶金物理化学、固体物料分选学、造块学、矿物加工研究方法、矿物分选综合实验、造块工艺学系统实验、矿物加工工程设计等。

V. Core courses

Fluid Mechanics, Analytical Chemistry, Physical Chemistry, Metallurgical Physical Chemistry, Solid Materials Separation, Agglomeration, Research Techniques of Mineral Processing, Systematic Experiments of Mineral Processing, Systematic Experiments of Agglomeration Technology, and Design of Mineral Processing.

六、基本学制：四年

VI. Recommended length of the program: 4 years

七、授予学位：工学学士

VII. Degree: Bachelor of Engineering

学生修满所规定的最低毕业学分，符合武汉科技大学授予学士学位规定，授予工学学士学位。

八、毕业学分要求：160学分

课程类型		学分要求	课程类型		学分要求
1、公共课程平台		43	3、专业课程模块		50
公共基础课程		28	专业必修课程		30
通识教育课程	必修	9	专业选修课程		20
	选修	6	4、实践教学模块		21.5
2、学科基础平台		39.5	大类实践课程		2
大类学科基础课程	必修	18.5	专业实践课程	必修	19.5
	选修	0			
专业学科基础课程		21	5、素质拓展模块		6

*通识教育选修课6学分包括：理工类、医学类、人文社科类、经济管理类中选择2学分（学生在本专业所属类别外的3个类中选择2个学分）；思想政治及新时代素质教育类选择2学分（“四史”1个学分，国家安全教育1个学分）；美育教育类选择2学分（美学和艺术史论类、艺术鉴赏和评论类课程至少选修1个学分）。

VIII. Credits required for graduation: 160 credits

Type of courses		Academic credits	Type of courses		Academic credits
1.Common Courses		43	3. Specialized Courses		50
Common Basic Courses		27	Required Courses		30
General Education Courses	Required Courses	9	Elective Courses		20
	Elective Courses	7	4.Practicum and Internship Courses		21.5
2.General Disciplinary Courses		39.5	Large Category Practical Courses		2
Large Category Basic Courses	Required Courses	18.5	Disciplinary Practical Courses	Required Courses	19.5
	Elective Courses	0			
Disciplinary Basic Courses		21	Quality Development Courses		6

九、学分比例

IX. Ratio of Credits

1、必修选修学分比例

The proportion of compulsory elective credits

类别	学分	占总学分比例
必修	133	83.1%
选修	27	16.9%

2、实践教学环节学分比例

The Proportion of credits in practice teaching

类别		学分	占总学分比例
实践教学环节	实验教学学分	17.7	28.3%
	实践教学模块	21.5	
	素质拓展模块	6	

十、辅修

修读本专业辅修课程达到26学分且主修专业达到毕业要求者，颁发辅修专业证书。修读本专业辅修课程达到40学分（含实践教学），并达到辅修学位授予条件的，颁发辅修学位证书。

X. Minor

The minor certificate will be issued to those who have completed 26 credits of minor courses and their own major has met the graduation requirements. The minor degree certificate will be issued to those who have completed 40 credits of minor courses (including practical teaching) and meet the conditions for awarding minor degree.

十一、毕业要求实现矩阵

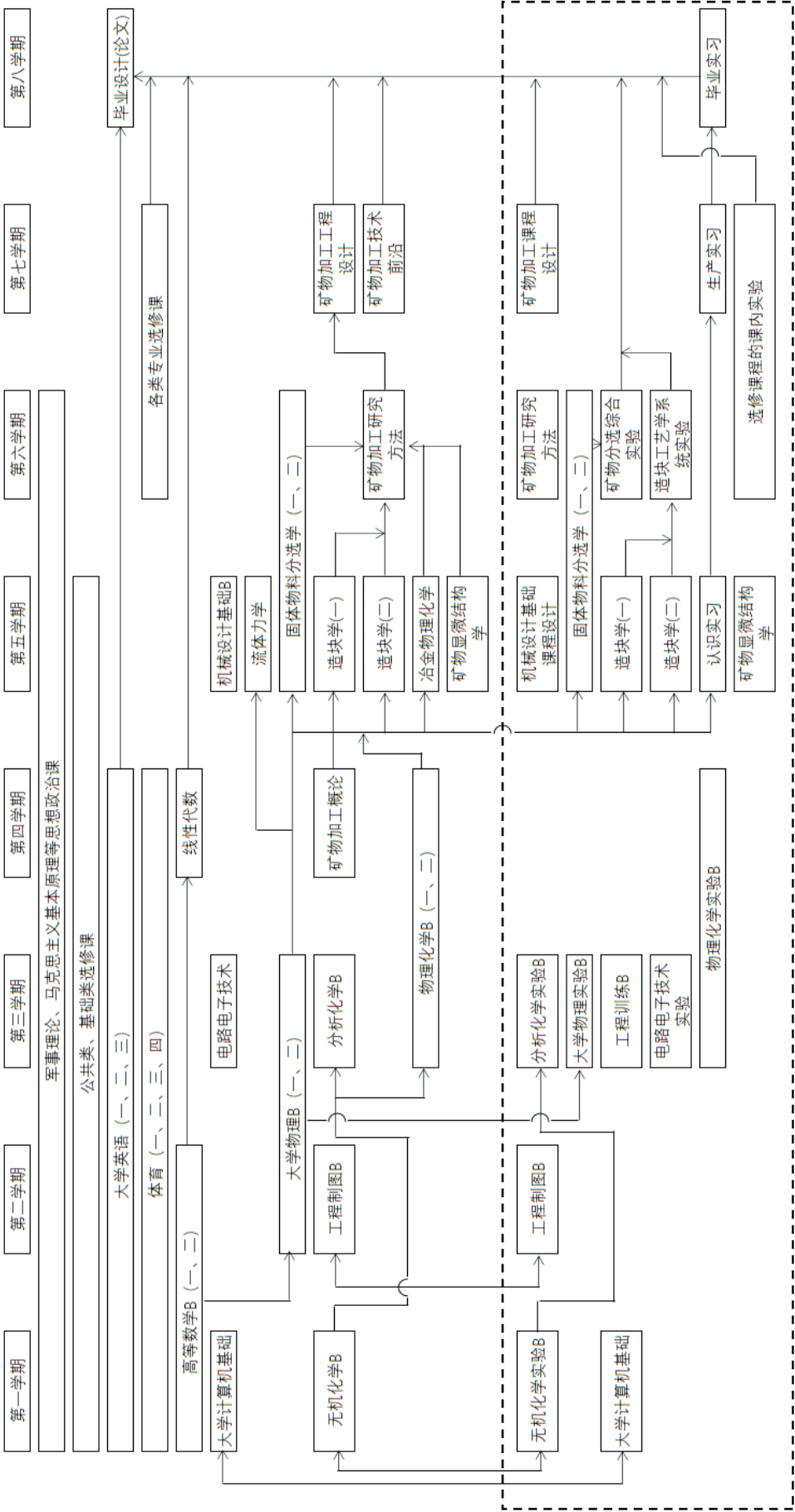
XI. Graduation Realization Matrix

课程名称	矿物加工工程专业毕业要求								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
思想道德与法治	√					√			
中国近现代史纲要	√								
马克思主义基本原理	√								
毛泽东思想和中国特色社会主义理论体系概论	√					√			
习近平新时代中国特色社会主义思想概论	√					√			
军事理论课	√								
大学生心理健康教育	√						√		√
职业生涯规划与就业创业指导	√						√		√
大学英语					√		√	√	√
体育	√						√		
公益劳动	√						√		
形势与政策	√					√		√	
大学生创新创业基础	√								√
大学计算机基础				√	√		√		√
C 语言程序设计基础		√		√					
C 语言程序设计基础实验	√	√		√					
人文社科类公选课	√					√	√	√	
经济管理类公选课		√				√	√		
医学类公选课		√							
思想政治及新时代素质教育类公选课	√								
美育教育类公选课	√								
工程制图 B		√		√	√				
机械设计基础 B		√		√	√				
电路电子技术		√		√					
电路电子技术实验	√	√		√			√		
高等数学 B		√		√	√				
线性代数 B		√		√	√				
概率论与数理统计 B		√		√	√	√			

课程名称	矿物加工工程专业毕业要求								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
大学物理 B		√		√					
大学物理实验 B	√	√		√			√		
工程力学 B		√		√					
无机化学 B		√		√					
无机化学实验 B	√	√		√			√		
有机化学 B		√		√					
有机化学实验 B	√	√		√			√		
物理化学 B		√		√					
物理化学实验 B	√	√		√			√		
分析化学 B		√		√					
分析化学实验 B	√	√		√			√		
冶金物理化学		√		√					
流体力学		√		√	√				
矿物加工概论			√					√	
矿物加工专业英语							√	√	√
造块学			√	√		√		√	
固体物料分选学			√	√		√		√	
矿物加工研究方法			√	√	√	√		√	√
矿物加工工程设计			√	√	√	√	√	√	
造块工艺学系统实验	√		√	√			√		√
矿物分选综合实验	√		√	√			√		√
矿物加工技术前沿								√	
矿物材料			√	√		√		√	
技术经济与投资分析		√		√		√	√	√	
矿山企业管理		√		√		√	√		
二次资源综合利用	√		√	√		√		√	
矿物显微结构学		√	√	√	√				
炼铁学			√	√		√		√	
资源分离与提取技术原理			√	√		√		√	√
固体废物资源化	√		√	√		√		√	√
废水资源化综合利用	√		√	√		√		√	√

课程名称	矿物加工工程专业毕业要求								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
再生资源工艺设备			√	√				√	√
再生资源工程设计			√	√	√	√	√	√	√
计算机在矿物加工中的应用				√	√		√	√	
矿物加工过程检测与控制				√	√			√	
矿物化学提取			√	√		√		√	
CAD 技术				√	√		√		
环境影响评价	√	√				√			
冶金炉原理		√		√					
选矿药剂			√	√	√	√		√	
矿物加工工程典型案例分析	√		√	√	√	√			
军事训练	√						√		
工程训练 B	√			√			√		
机械设计基础课程设计	√	√		√	√		√		
认识实习	√	√	√	√			√	√	√
生产实习	√	√	√	√		√	√	√	√
矿物加工课程设计	√	√	√	√			√		√
毕业实习	√	√	√	√		√	√	√	√
毕业设计（论文）	√	√	√	√	√	√	√	√	√
创新创业教育	√								√
第二课堂	√						√		√

十二、课程修读进程表
XII. Course Reading Progress Table
(四年制本科 2024级 矿物加工工程专业)



采矿工程专业培养方案

Curriculum for Undergraduate of Mining Engineering Major

一、专业介绍

本专业始建于1973年，隶属于矿业工程一级学科，是湖北省国内一流学科建设学科的主体专业之一，为全国第二批硕士授权点专业（1983年）和湖北省“楚天学者”特聘教授设岗学科（2007年），已通过中国工程教育认证（2020年），为国家级一流本科专业建设点（2020年）。

本专业以矿床开采系统为主线，以解决复杂工程问题为目标，培养能够运用现代采矿技术和信息化手段实施固体矿产资源安全、高效、绿色和智能开采的科研、生产及管理方面工作的学术型人才，是理论与实践紧密结合的多学科交叉专业。

I. Professional Introduction

The major, established in 1973, belongs to the first-level discipline of mining engineering. It is one of the main majors in Hubei Province's domestically top-tier discipline construction. Recognized as a second-batch master's degree authorization major in 1983 and a "Chutian Scholar" Distinguished Professor position in Hubei Province in 2007, it passed the China Engineering Education Accreditation in 2020 and was named a national first-class undergraduate major construction site in the same year.

Focusing on the mining system and aiming to solve complex engineering problems, this major cultivates academic talents who can use modern mining technology and information technology to safely, efficiently, environmentally friendly, and intelligently mine solid mineral resources for research, production, and management. It is a multidisciplinary and interdisciplinary major that tightly integrates theory with practice.

二、培养目标

本专业围绕学校“钢铁品质、社会英才”的人才培养总目标，立足金属非金属矿床开采及其相关领域，培养具有较好的沟通合作意识、良好的人文素养和一定的国际化视野，掌握厚实的自然科学知识、专业技能及研究方法，通晓固体矿床安全、高效、绿色和智能开采基本原理，具备矿床开采行政管理、技术管理和技术开发能力，能从事规划、生产运行与管理、工程设计与施工、技术研究与开发等方面工作，德、智、体、美、劳全面发展、知识结构合理、社会适应能力强、富有实践能力和创新创业精神的学术型人才。期待毕业生五年左右达到以下目标：

1. 具备良好的人文社会科学素养、社会责任感和职业道德，能够在金属非金属矿床开采中注重环境保护、安全生产和可持续发展。

2. 具备厚实的自然科学基础知识、采矿工程专业知识和独立解决复杂工程问题的能力，能够承担金属非金属矿床开采领域的规划与咨询、工艺系统设计与优化、生产施工与管理、技术研究与开发等工作。

3. 具备开阔的国际视野和创新能力，能够持续关注国内外金属非金属矿床开采及相关领域的前沿动态和发展趋势，并针对工程实际问题开展科学研究。

4. 具备团队合作精神和良好的沟通、协调、领导能力，能够在多学科背景下担任工程项目团队负责人或自主创业。

5. 具备终身学习和不断发展的能力，能够适应水利工程、道路工程和城市地下工程等相关领域的工作。

II. Training objectives

This major revolves around the school's general goal of "steel quality and social talent" in talent training. Based on the mining of metallic and non-metallic deposits and related fields, this major trains students who adapt the needs of national economic and technological development, and have a good sense of communication and cooperation, good humanistic literacy and a certain international vision. It educates students to master solid natural science knowledge, professional skills and research methods, to be familiar with the basic principle of solid mineral safe, efficient, green and intelligent exploitation, and to possess the ability of mineral deposit administration, and technical management and design. Graduates potentially engage in planning, production operation and management, engineering design and construction, technological research and development in the field of metallic and non-metallic deposits mining and mine safety. The major fosters academic talents with comprehensive development of morality, intelligence, physique, beauty and labor with a rational knowledge structure, strong social adaptability, practical ability and innovative entrepreneurship. Based on their knowledge, abilities and qualities and with five years of social practice after graduation, the graduates are expected to:

1. Possess a good humanities and Social Sciences literacy, social responsibility and professional ethics and can pay attention to environmental protection, safe production and sustainable development in the mining of metallic and non-metallic deposits.
2. Solidly master the fundamental knowledge of natural science and the professional knowledge of mining engineering, and possess the ability to solve complex engineering problems independently, and can undertake planning and consultation, process system design and optimization, technical research and development in the field of metallic and non-metallic deposit mining.
3. Possess a strong scientific research ability and broad international vision, and can become technical experts to solve the complex engineering problems in metallic and non-metallic deposits mining and related fields.
4. Have a good ability of teamwork spirit, innovation and entrepreneurship and are able to act as project team leaders or self-employed in a multi-disciplinary context.
5. Possess the ability of lifelong learning and continuous development, can adapt to the work of water conservancy engineering, road engineering and urban underground engineering and other related fields.

三、专业特色

本专业始终坚持学校的办学定位和发展思路，依托学科特色，形成了“以矿床开采系统为主线，解决复杂工程问题为目标，融合信息技术为手段，培养学生时空思维能力和创新能力”的本科生培养特色，围绕特殊环境下金属矿床开采理论与工艺、矿山安全与灾害防治等特色研究方向，在复杂矿床安全开采、地压监测与灾害控制、露天高陡边坡与下覆采空区稳定控制技术等方面取得了丰硕的成果，成为我国中西部，尤其长江中下游地区矿业工程高层次人才培养和科技创新基地。

III. Professional characteristics

Adhering to the school's educational positioning and development strategy, this major leverages its disciplinary strengths to foster undergraduate students' spatial-temporal thinking and innovation capabilities through its distinctive cultivation model. Focusing on mining theories and techniques for metal deposits in special environments, mine safety, and disaster prevention, it has achieved remarkable outcomes in safe mining of complex deposits, ground pressure monitoring and disaster control, and stability control of open-pit high-steep slopes and underlying goafs. These achievements have positioned it as a high-level talent cultivation and technological innovation hub for mining engineering in central and western China, particularly in the middle and

lower reaches of the Yangtze River.

四、毕业要求

1. 工程知识：具备从事金属非金属矿床开采领域所需的数学、自然科学、工程基础和专业基础知识，并能用于解决金属非金属矿床开采领域中的复杂工程问题。

2. 问题分析：能够应用数学、自然科学和工程科学的原理，识别、表达、分析金属非金属矿床开采复杂工程问题，并获得有效结论。

3. 设计/开发解决方案：能够综合考虑社会、公共健康、安全、法律、文化及环境等因素设计针对金属非金属矿床开采复杂工程问题的解决方案，满足金属非金属矿床安全、绿色、智能和高效开采需求的系统和工艺流程，并能够在设计环节中体现创新意识。

4. 研究：能够基于科学原理和方法对金属非金属矿床开采复杂工程问题进行研究，包括设计实验、分析与解释数据，并通过信息综合得到合理有效的结论。

5. 使用现代工具：能够应用现代信息技术和系统工程方法对金属非金属矿床开采复杂工程问题进行分析、预测和模拟，并能够理解其局限性。

6. 工程与社会：能够分析和评价金属非金属矿床开采活动与社会、健康、安全、法律以及文化的相互影响，并理解应承担的责任。

7. 环境和可持续发展：能够理解和评价金属非金属矿床开采复杂工程问题的工程实践对环境、社会可持续发展的影响。

8 职业规范：具有良好的人文社会科学素养、社会责任感，能够在金属非金属矿床开采及相关工程实践中理解并遵守职业道德和规范，履行责任。

9. 个人和团队：能够在基于金属非金属矿床开采领域中的多学科背景下的团队中承担个体、团队成员以及负责人的角色。

10. 沟通：能够就金属非金属矿床开采复杂工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令，并具备一定的国际视野和跨文化背景下沟通、交流与合作的能力。

11. 项目管理：理解并掌握工程管理原理与经济决策方法，并能在多学科环境中应用于金属非金属矿床开采领域。

12. 终身学习：具有自主学习和终身学习的意识，有不断学习和适应发展的能力。

IV. Requirements

1. Engineering Knowledge: Students must possess mathematical, natural science, engineering fundamentals, and specialized knowledge necessary for the mining of metallic and non-metallic deposits, and apply them to solve complex engineering problems in this field.

2. Problem Analysis: Students must be able to apply principles of mathematics, natural science, and engineering science to identify, articulate, and analyze complex engineering problems in metallic and non-metallic mining, leading to valid conclusions.

3. Design/Development of Solutions: Students must design solutions to complex engineering problems in metallic and non-metallic mining, considering societal, public health, safety, legal, cultural, and environmental factors. They must create systems and processes that meet the needs for safe, green, intelligent, and efficient mining, demonstrating innovative thinking in the design process.

4. Research: Students must conduct research on complex engineering problems in metallic and non-metallic mining based on scientific principles and methods, including designing experiments, analyzing and interpreting

data, and drawing reasonable and effective conclusions through information synthesis.

5. Use of Modern Tools: Students must apply modern information technology and systems engineering methods to analyze, predict, and simulate complex engineering problems in metallic and non-metallic mining, understanding their limitations.

6. Engineering and Society: Students must analyze and evaluate the interactions between metallic and non-metallic mining activities and society, health, safety, legal, and cultural aspects, understanding their responsibilities.

7. Environment and Sustainable Development: Students must understand and evaluate the impact of engineering practices in metallic and non-metallic mining on environmental and societal sustainability.

8. Professional Ethics: Students must possess good humanities and social science literacy, social responsibility, and understand and abide by professional ethics and norms in metallic and non-metallic mining and related engineering practices, fulfilling their responsibilities.

9. Individual and Teamwork: Students must be able to assume individual, team member, and leadership roles in multidisciplinary teams in the field of metallic and non-metallic mining.

10. Communication: Students must effectively communicate and exchange ideas with industry peers and the public on complex engineering problems in metallic and non-metallic mining, including writing reports and design documents, presenting speeches, clearly expressing or responding to instructions. They must also possess international perspective and the ability to communicate, cooperate, and collaborate in cross-cultural contexts.

11. Project Management: Students must understand and apply engineering management principles and economic decision-making methods in the field of metallic and non-metallic mining in a multidisciplinary environment.

12. Lifelong Learning: Students must possess the awareness of independent and lifelong learning, as well as the ability to continuously learn and adapt to development.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 1		√			
毕业要求 2		√			
毕业要求 3	√	√			
毕业要求 4			√		
毕业要求 5		√	√		√
毕业要求 6	√	√			
毕业要求 7	√	√			
毕业要求 8	√				
毕业要求 9				√	
毕业要求 10			√	√	
毕业要求 11		√		√	
毕业要求 12				√	√

五、专业主干课程

地质学、智能矿山导论、岩石力学、露天开采、地下开采、矿山爆破、井巷工程、采掘机械及其智能化、矿井通风与安全、矿山安全与环保、系统工程基础、技术经济与投资分析

V. Core courses

Geology, Introduction of Intelligent Mine, Rock Mechanics, Surface Mining, Underground Mining, Mining Blasting, Shafting and Drifting Engineering, Mining Machinery and Its Intelligence, Mine Ventilation and Safety, Mine Safety and Environmental Protection, System Engineering Foundation, Technical Economy and Investment Analysis.

六、基本学制：四年

VI. Recommended length of the program: 4 years

七、授予学位：工学学士

VII. Degree: Bachelor of Engineering

学生修满所规定的最低毕业学分，符合武汉科技大学授予学士学位规定，授予工学学士学位。

八、毕业学分要求：160学分

课程类型		学分要求	课程类型		学分要求
1、公共课程平台		43	3、专业课程模块		53.5
公共基础课程		28	专业必修课程		33
通识教育课程	必修	9	专业选修课程		20.5
	选修	6	4、实践教学模块		26
2、学科基础平台		31.5	大类实践课程		2
大类学科基础课程	必修	18.5	专业实践课程	必修	24
	选修	0		选修	0
专业学科基础课程		13	5、素质拓展模块		6

*通识教育选修课6学分包括：理工类、医学类、人文社科类、经济管理类中选择2学分（学生在本专业所属类别外的3个类中选择2个学分）；思想政治及新时代素质教育类选择2学分（“四史”1个学分，国家安全教育1个学分）；美育教育类选择2学分（美学和艺术史论类、艺术鉴赏和评论类课程至少选修1个学分）。

VIII. Credits required for graduation: 160 credits

Type of courses		Academic credits	Type of courses		Academic credits
1.Common Courses		43	3. Specialized Courses		53.5
Common Basic Courses		28	Required Courses		33
General Education Courses	Required Courses	9	Elective Courses		20.5
	Elective Courses	6	4.Practicum and Internship Courses		26
2.General Disciplinary Courses		31.5	Large Category Practical Courses		2
Large Category Basic Courses	Required Courses	18.5	Disciplinary Practical Courses	Required Courses	24
	Elective Courses	0		Elective Courses	0
Disciplinary Basic Courses		13	5. Quality Development Courses		6

九、学分比例

XI、Ratio of Credits

1.必修选修学分比例

The proportion of compulsory elective credits

类别	学分	占总学分比例
必修	133.5	83.4%
选修	26.5	16.6%

2.实践教学环节学分比例

The Proportion of credits in practice teaching

类别	学分	占总学分比例
实践教学环节	实验教学学时	15.6
	实践教学模块	26
	素质拓展模块	6
		29.75%

十、辅修

修读本专业辅修课程达到26学分且主修专业达到毕业要求者，颁发辅修专业证书。修读本专业辅修课程达到40学分（含实践教学），并达到辅修学位授予条件的，颁发辅修学位证书。

X. Minor

The minor certificate will be issued to those who have completed 26 credits of minor courses and their own major has met the graduation requirements. The minor degree certificate will be issued to those who have completed 40 credits of minor courses (including practical teaching) and meet the conditions for awarding minor degree.

十一、毕业要求实现矩阵

XI. Graduation Realization Matrix

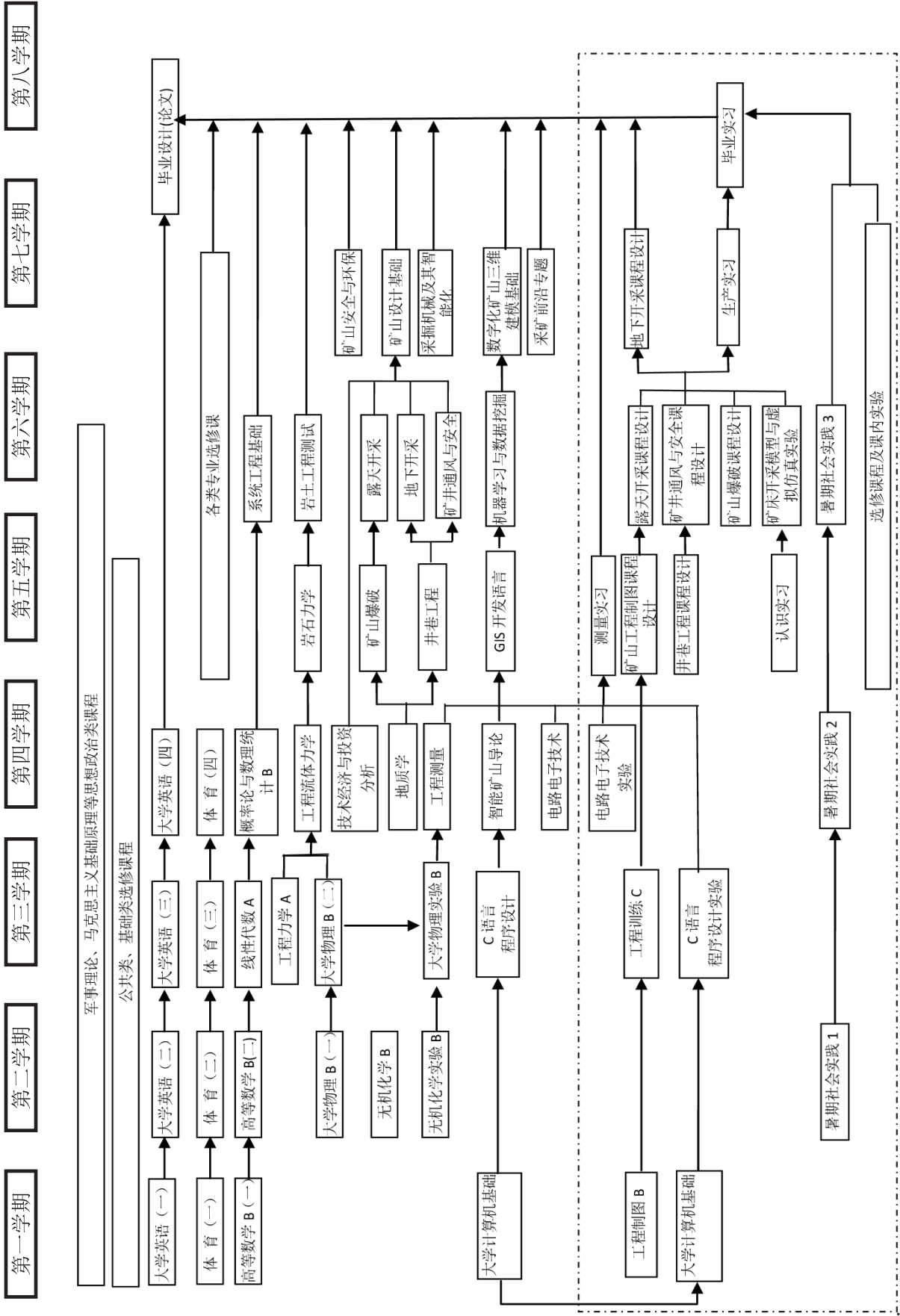
课程名称	采矿工程专业毕业要求											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
思想道德修养与法律基础						√		√				
中国近现代史纲要								√				
马克思主义基本原理								√				√
毛泽东思想和中国特色社会主义理论体系概论								√				√
习近平新时代中国特色社会主义思想概论								√				√
大学计算机基础	√											
大学英语										√		
体育						√						
大学生心理健康教育								√				√
职业生涯规划与就业创业指导								√				√
军事理论									√			
军事训练									√			
创业学基础								√	√			√
公益劳动									√			
形势与政策						√	√	√		√		
工程制图 B					√							
工程力学 A	√	√										
概率论与数理统计 B	√	√										
线性代数 A	√	√										
高等数学 B	√	√										
大学物理 B(一) (二)	√			√								
大学物理实验 B				√								
无机化学 B	√			√								
无机化学实验 B				√								
C 语言程序设计					√							
C 语言程序设计实验					√							
电路电子技术	√											
电路电子技术实验				√								

课程名称	采矿工程专业毕业要求											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
地质学	√	√										
工程测量		√			√							
智能矿山导论			√									√
技术经济与投资分析	√										√	
工程流体力学	√	√										
岩石力学	√			√								
井巷工程		√	√									
GIS 开发语言	√				√							
露天开采		√	√									
地下开采		√	√									
系统工程基础	√	√									√	
矿床开采模型与虚拟仿真实验				√	√							
采矿前沿专题										√		√
矿山爆破		√	√	√			√					
岩土工程测试		√			√							
矿井通风与安全		√	√	√								
矿山设计基础	√	√	√			√						
矿山安全与环保		√				√	√					
工程项目管理									√		√	
弹性力学	√	√										
机器学习与数据挖掘	√			√	√							
数字化矿山三维建模基础			√		√							
房屋建筑学		√										
力学计算与仿真	√				√							
地下空间防排水		√	√									
地下空间规划与设计		√	√									
采掘机械及其智能化		√	√									
选矿概论						√	√					
结构工程		√										
环境影响评价						√	√					
工程训练 C					√							

课程名称	采矿工程专业毕业要求											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
认识实习								√	√	√		
测量实习					√			√	√			
矿山工程制图课程设计					√							
井巷工程课程设计			√	√		√						
露天开采课程设计	√		√								√	
矿山爆破课程设计			√	√		√						
矿井通风与安全课程设计			√	√		√						
地下开采课程设计	√		√								√	
生产实习								√	√	√		
毕业实习								√	√	√		
毕业设计(论文)	√		√			√	√			√	√	

十二、课程修读进程表
(四年制本科 2024级 采矿工程专业)

XII. Course Reading Progress Table



地理信息科学专业培养方案

Curriculum for Undergraduate of Geographic Information Science Major

一、专业介绍

本专业2019年开始招生，隶属于地理学一级学科，拥有校级资源与环境信息中心、测量实验室、数字矿山实验室等教学与科研平台。本专业是以地理学、计算机科学、遥感科学、地图学等学科为基础，以地理信息系统（GIS）、遥感（RS）和全球导航卫星系统（GNSS）等技术为核心，面向国家“互联网+地理信息服务”的重大战略需求，利用信息技术研究地理空间信息的产生、传输、分析、处理和应用的交叉学科。

I. Professional Introduction

This major started enrollment in 2019 and is a first level discipline of geography. It has a school level resource and environmental information center, measurement laboratory, digital mining laboratory, and other teaching and research platforms. This major is based on geography, computer science, remote sensing science, cartography and other disciplines, with geographic information system (GIS), remote sensing (RS), global navigation satellite system (GNSS) and other technologies as the core, facing the major strategic needs of the country's "Internet plus+geographic information services", and using information technology to study the generation, transmission, analysis, processing and application of geospatial information.

二、培养目标

本专业培养符合国家经济建设和社会发展的需要，德、智、体、美、劳全面发展，具备扎实的自然科学基础、良好的人文素养和一定的国际视野，掌握地理信息系统、遥感、测量、制图、计算机程序开发的基础知识和基本技能，能在资源开发、环境保护、国土规划等领域从事空间数据采集分析、地理信息服务、系统开发设计等工作，知识结构合理、社会适应能力强、富有实践能力和创新创业精神的高素质应用型人才。预期毕业生五年左右达到以下目标：

1. 具备扎实的数学、自然科学基础及其运用能力，具有良好的人文素养、社会责任感和职业道德。
2. 具备地理信息科学领域专业知识和专业技能，胜任地理空间信息采集、分析、处理和地理信息系统开发、设计、建模、维护和技术管理等工作。
3. 具备团队协作或独立解决地理信息系统复杂工程问题的能力，成为技术骨干或管理骨干。
4. 具备终身学习和适应发展的能力，能够将地理信息技术应用于资源开发、环境保护、国土规划等领域并不断拓展。
5. 具备较强的专业交流能力和开阔的国际视野，胜任地理信息科学领域的国际交流与合作。

II. Training objectives

This major trains undergraduate students to be the high quality practical talents with all around development of moral, intellectual, aesthetics, labor education and have reasonable knowledge structure, strong social adaptability, rich practical ability, strong innovation and entrepreneurship in line with national economic construction and social development needs. The graduated students must have a solid natural science foundation, good humanities and certain international vision, and master the basic knowledge and skills of geographic information systems, remote sensing, surveying, cartography, computer program development

technology, and can engage in spatial data collection and analysis, geographic information service, system development and design in the fields of resources exploitation, environment protection, territorial planning , etc. The graduated students are expected to achieve the following objectives in about five years:

1. Having a solid foundation in mathematics, natural science and the ability to use them, and having good humanistic quality, social responsibility and professional ethics.
2. Having professional knowledge and skills in GIS field, and can be competent in geospatial information collection, analysis, processing and geographic information system development, design, modeling, maintenance and technical management.
3. Having the ability to work as a team or independently to solve complex engineering problems in GIS field, and becoming a technical or management backbone.
4. Having the ability of lifelong learning and adaptation to development, and can apply geographic information technology to the fields of resources exploitation, environment protection, territorial planning, and can keep expanding.
5. Having a strong professional communication ability and broad international vision, and can be competent in international communication and cooperation in the field of geographic information science.

三、专业特色

本专业依托学院矿业、安全与环境等学科背景，突出地理信息系统（GIS）、遥感（RS）和全球导航卫星系统（GNSS）等技术在资源开发、环境保护、国土规划等领域的应用。本着“厚基础、高素质、强能力、有特色”的原则，坚持教学与科研良性互动、学校与企业密切合作的发展思路，形成了以三维建模及可视化、区域环境遥感监测、国土规划信息系统开发与应用的特色。

III. Professional characteristics

This major relies on the background of mining, safety and environment disciplines in the college, highlighting the application of technologies such as Geographic Information Systems (GIS), Remote Sensing (RS), and Global Navigation Satellite Systems (GNSS) in areas such as resource development, environmental protection, and national land planning. Adhering to the principles of "solid foundation, high quality, strong ability, and distinctive features", and adhering to the development concept of benign interaction between teaching and scientific research, and close cooperation between schools and enterprises, we have formed a professional characteristic of three-dimensional modeling and visualization , remote sensing monitoring of regional environment, and development and application of national land planning information systems.

四、毕业要求

1. 工程知识：掌握从事本专业领域所需的数学、地理学、计算机科学、遥感、地图学和管理等知识。
2. 问题分析：能够运用本专业理论知识和专业技能自主发现、独立设计和解决与地理信息相关的科学问题，具有科学思维方法以及创新意识。
3. 设计/开发解决方案：掌握地理信息系统的设计语言和开发平台，理解地理信息系统的设计方法和步骤，能够设计和实现基于二次开发的应用系统，实现对地理信息的采集、组织、存储、共享、分析和表达。
4. 研究：能够基于地理信息科学的原理对复杂的科学和工程问题进行研究，有效进行实验和模拟仿真设计与操作，并能够对实验结果进行分析和解释。
5. 使用现代工具：掌握地理信息系统、遥感图像处理系统、导航定位系统的基本方法和技术，能够

理解资源开发、环境保护、国土规划等领域中地理信息科学和技术的应用模式。

6. 工程与社会：了解当代社会问题和社会需求，在工程和规划设计中综合考虑经济、环境、法律、安全和伦理等制约因素。

7. 环境和可持续发展：能够理解和评价针对复杂工程问题的地理信息服务和规划对环境、社会可持续发展的影响。

8. 职业规范：具有良好的思想素质、身体素质、心理素质、文化修养和社会责任感，能够在实践中理解并遵守工程职业道德和行为规范。

9. 个人和团队：具有良好的团队意识和合作精神，能够在多学科背景下的团队中承担团队成员以及负责人的角色。

10. 沟通：具有良好的书面表达和口头交流能力，具备国际化视野，能够在跨文化背景下进行沟通和交流。

11. 项目管理：理解并掌握地理信息工程项目管理原理与决策方法，并能在多学科环境中应用。

12. 终身学习：具有终身学习的愿望和能力，掌握运用现代信息技术跟踪并获取信息的方法，熟悉并适应地理信息科学领域的发展动态和方向。

IV. Requirements

1. Master the relevant knowledge of mathematics, geography, computer science, remote sensing, cartography and management that required in the professional filed.

2. Be able to employ professional theoretical knowledge and professional skills to conduct independent discovery and design, and to independently resolve the related scientific problems in geographic information, and master the methods of scientific thinking, and the consciousness of innovation.

3. Master the design language and development platform of Geographic Information System, and the capability to understand the methods and steps in geographic information system design and to realize the acquisition, organization, storage, sharing, analysis and expression of geographic information.

4. Be able to conduct research on complex scientific and engineering problems based on the principles of Geographical Information Science, carry out experiments and simulation design and operation, and analyze and interpret the experimental results.

5. Master the basic methods and techniques of geographic information system, remote sensing image processing system, navigation and positioning system, and understand the mode of the application of Geographical Information Science in the field of resources exploitation, environment protection, territorial planning , etc.

6. Be familiar with the contemporary social demands and social issues, and be conscious of the economic, environmental, legal, safety and ethical constraints in engineering and planning design.

7. Be able to understand and evaluate the impacts of the geographical information services and planning for complex engineering problems on the sustainability of environment and society.

8. Have good ideological quality, physical quality, psychological quality, cultural cultivation and social responsibility, be able to understand and comply with engineering ethics and code of conduct in practices.

9. Have a good sense of team and cooperation spirit, and be able to fulfill the role of either a member or a leader in a multi-disciplinary team.

10. Have good written and oral communication skills, have an international vision, and be able to communicate and exchange ideas in a cross-cultural context.

11. Understand and master the management principles and decision-making methods of Geographic Information Engineering projects, and be able to apply them in a multi-disciplinary context.

12. Have the desire and ability for lifelong learning, able to employ modern information technologies to track and acquire information, and be familiar with and adapt to the development frontiers and trends of Geographical Information Science.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4	培养目标 5
毕业要求 1	√				√
毕业要求 2		√	√		√
毕业要求 3		√	√	√	
毕业要求 4			√	√	
毕业要求 5		√		√	
毕业要求 6	√		√		
毕业要求 7	√				
毕业要求 8	√				
毕业要求 9		√			√
毕业要求 10					√
毕业要求 11		√	√		
毕业要求 12				√	

五、专业主干课程

地理信息系统原理、遥感原理与应用、人文与自然地理学、空间数据库原理、GIS开发语言，GIS应用与开发，卫星导航定位技术、地图学、工程测量、计量地理学。

V. Core courses

Principles of Geographic Information System, Principles and Applications of Remote Sensing, Human and Physical Geography, Principles of Spatial Database, GIS Development Language, Application and Development of GIS, Satellite Navigation and Positioning Technology, Cartography, Engineering Surveying, Quantitative Geography.

六、基本学制：四年

VI. Recommended length of the program: 4 years

七、授予学位：理学学士

VII. Degree: Bachelor of Science

学生修满所规定的最低毕业学分，符合武汉科技大学授予学士学位规定，授予理学学士学位。

八、毕业学分要求：160学分

课程类型		学分要求	课程类型		学分要求
1、公共课程平台		43	3、专业课程模块		56.5
公共基础课程		28	专业必修课程		33
通识教育课程	必修	9	专业选修课程		23.5
	选修	6	4、实践教学模块		25
2、学科基础平台		29.5	大类实践课程		2
大类学科基础课程	必修	18.5	专业实践课程	必修	23
	选修	0			
专业学科基础课程		11	5、素质拓展模块		6

*通识教育选修课6学分包括：理工类、医学类、人文社科类、经济管理类中选择2学分（学生在本专业所属类别外的3个类中选择2个学分）；思想政治及新时代素质教育类选择2学分（“四史”1个学分，国家安全教育1个学分）；美育教育类选择2学分（美学和艺术史论类、艺术鉴赏和评论类课程至少选修1个学分）。

VIII. Credits required for graduation: 160 credits

Type of courses		Academic credits	Type of courses		Academic credits
1.Common Courses		43	3. Specialized Courses		56.5
Common Basic Courses		28	Required Courses		33
General Education Courses	Required Courses	9	Elective Courses		23.5
	Elective Courses	6	4.Practicum and Internship Courses		25
2.General Disciplinary Courses		29.5	Large Category Practical Courses		2
Large Category Basic Courses	Required Courses	18.5	Disciplinary Practical Courses	Required Courses	23
	Elective Courses	0			
Disciplinary Basic Courses		11	6. Quality Development Courses		6

九、学分比例

IX. Ratio of Credits

1、必修选修学分比例

The proportion of compulsory elective credits

类别	学分	占总学分比例
必修	130.5	81.56%
选修	29.5	18.44%

2、实践教学环节学分比例

The Proportion of credits in practice teaching

类别		学分	占总学分比例
实践教学环节	实验教学学分	13	27.50%
	实践教学模块	25	
	素质拓展模块	6	

十、辅修

修读本专业辅修课程达到26学分且主修专业达到毕业要求者，颁发辅修专业证书。修读本专业辅修课程达到40学分（含实践教学），并达到辅修学位授予条件的，颁发辅修学位证书。

X. Minor

The minor certificate will be issued to those who have completed 26 credits of minor courses and their own major has met the graduation requirements. The minor degree certificate will be issued to those who have completed 40 credits of minor courses (including practical teaching) and meet the conditions for awarding minor degree.

十一、毕业要求实现矩阵

XI. Graduation Realization Matrix

课程名称	地理信息科学专业毕业要求											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
思想道德与法治							√	√				
中国近现代史纲要						√		√				
马克思主义基本原理		√						√				
毛泽东思想和中国特色社会主义理论体系概论		√				√						
习近平新时代中国特色社会主义思想概论		√				√	√					
大学计算机基础	√											√
大学英语										√		√
体育								√	√			
大学生心理健康教育								√	√			
职业生涯规划与就业指导						√		√				
军事课								√	√			
公益劳动								√	√			
形势与政策						√				√		
创业学基础										√	√	
高等数学	√	√		√								
线性代数	√	√		√								
概率论与数理统计	√	√		√								
大学物理	√	√		√								
无机化学	√						√					
C 语言程序设计基础	√		√	√								
工程制图	√					√						
地理信息科学导论	√							√				√
人文与自然地理学	√	√		√								
工程地质与水文地质	√	√		√								
技术经济与投资分析	√										√	
工程测量	√	√			√							
智能矿山导论					√							√
地理信息系统原理		√		√	√							

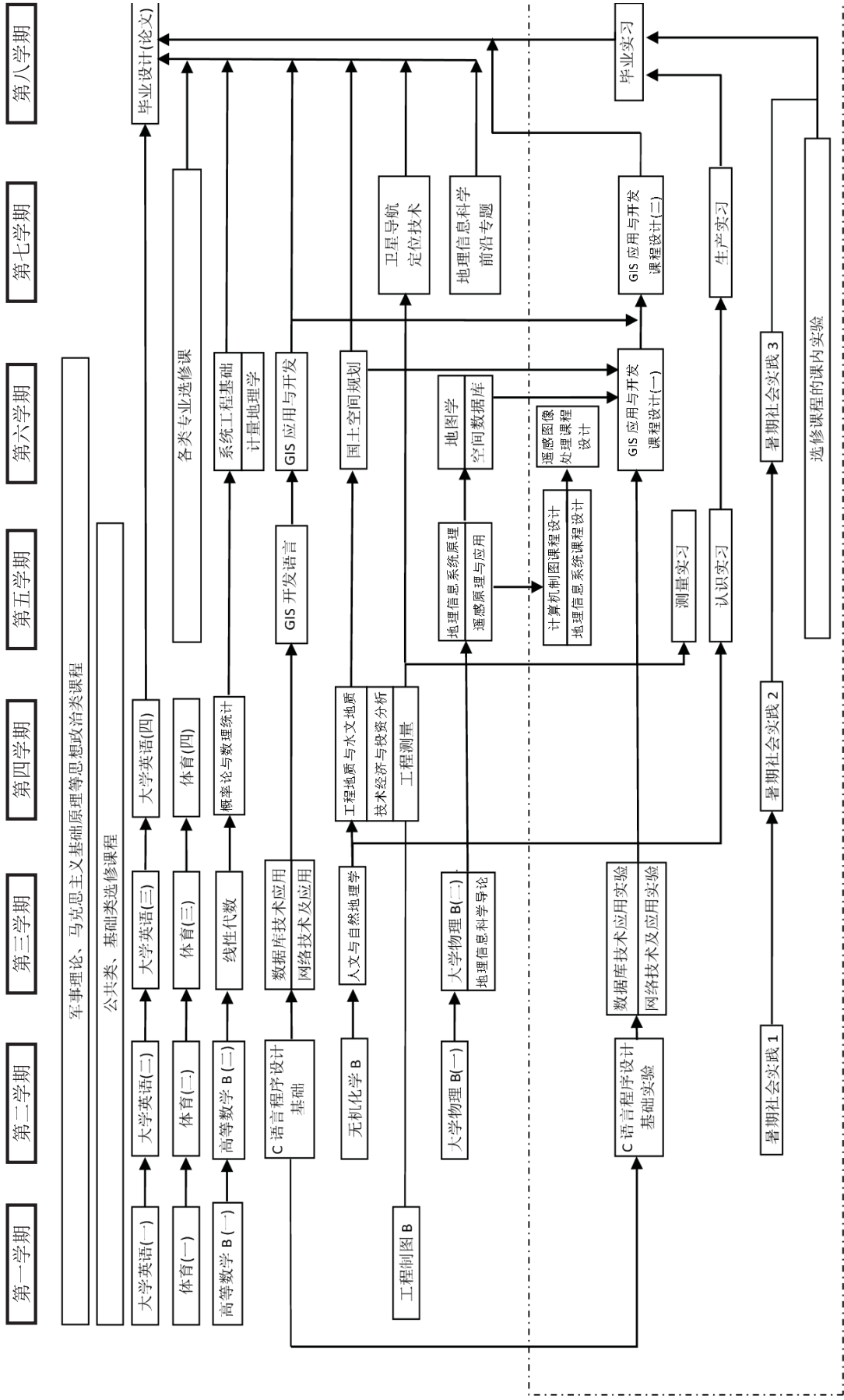
课程名称	地理信息科学专业毕业要求											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
GIS 开发语言			√	√								√
地图学	√			√								
遥感原理与应用	√	√		√								
计量地理学		√		√			√					
系统工程基础		√					√				√	
国土空间规划					√	√	√					
空间数据库原理	√		√		√							
GIS 应用与开发			√	√	√							
卫星导航定位技术	√				√							√
地理信息科学前沿专题				√		√						√
工程项目管理						√			√		√	
房屋建筑学		√				√	√					
城市地理学	√			√	√							
经济地理学	√			√	√							
土地评价与土地管理		√			√		√					
三维数字建模基础				√	√					√		
机器学习与数据挖掘	√	√		√								
数字化矿山三维建模基础					√					√		√
专业英语										√		√
网络地理信息系统			√		√	√						
智慧环境				√	√		√					
数字图像处理	√				√							√
测绘地理信息法律法规						√	√	√				
地理信息服务			√		√							√
认识实习		√						√	√			
计算机制图课程设计	√			√								
地理信息系统课程设计		√		√	√							
遥感图像处理课程设计	√	√		√								
GIS 应用与开发课程设计			√	√	√							
测量实习	√	√			√							
生产实习			√		√			√				

课程名称	地理信息科学专业毕业要求											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
毕业实习			√		√			√				
毕业设计(论文)		√	√	√	√							

十二、课程修读进程表

XII. Course Reading Progress Table

(四年制本科 2024级 地理信息科学专业)



十三、矿业类教学环节设置及学分分布表

(四年制本科 2024级 矿业类)

XIII. Offered Course and Distribution of Academic Credits

课 程 类 型			课程性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实践学时	学 期	是否辅修/双学位课程	先 修 课 程/备 注
								讲 课	实 验	上 机				
平台	公共课程平台课程	公共基础课	必修	5105017	思想道德与法治 Ideology and morality and rule of law	3	48	42	0	0	6	1		
				5103001	中国近现代史纲要 An Outline of Modern and Contemporary History of China	3	48	42	0	0	6	2		
				5102001	马克思主义基本原理 Fundamentals of Marxism	3	48	44	0	0	4	3		
				5101005	毛泽东思想和中国特色社会主义理论体系概论 Theoretical system of socialism with Chinese characteristics	3	48	32	0	0	16	4		
				5101006	习近平新时代中国特色社会主义思想理论体系概论 An Introduction of Xi Jinping Through on Socialism with Chinese Characteristics for a New Era	3	48	32	0	0	16	4		
				1401010	大学英语(一) College English (I)	2	32	32	0	0	0	1		
				1401062	大学英语(二) College English (II)	2	32	32	0	0	0	2		
				1401011	大学英语(三) College English (III)	2	32	32	0	0	0	3		
				1401064	大学英语(四) College English (IV)	1	16	16	0	0	0	4		
				1501882	体育(一) Physical Education(I)	1	26	26	0	0	0	1		
				1501883	体育(二) Physical Education(II)	1	34	34	0	0	0	2		
				1501884	体育(三) Physical Education(III)	1	34	34	0	0	0	3		
				1501885	体育(四) Physical Education(IV)	1	34	34	0	0	0	4		
				5106001	形势与政策 World Affairs and State Policy	2	64	64	0	0	0	1-8		分散进行
				1501024	体质健康测试 Physical Health Test	0	16	0	0	0	16	1-8		分散进行
		通识教育课程	必修	1306009	大学计算机基础 Computer Foundation	2	32	20	0	12	0	1		

矿业类教学环节设置及学分分布表

(四年制本科 2024级 矿业类)

Offered Course and Distribution of Academic Credits

课 程 类 型			课程性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实践学时	学 期	是否辅修/双学位课程	先 修 课 程/备 注
								讲 课	实 验	上 机				
平台	公共课程	通识教育课程	必修	2501016	大学生劳动教育 Labor Education for College Students	1	32	2	0	0	30	1-4		分散进行
				2502006	大学生心理健康教育 Mental Health Education	2	32	32	0	0	0	1		
				2503001	职业生涯规划与就业创业指导 Career Plan and Vocational Guidance	1	16	16	0	0	0	2		
				2504005	军事理论 Military Theory	2	36	36	0	0	0	2		
				8001003	大学生创新创业基础 Fundamentals of entrepreneurship	1	16	16	0	0	0	2		
			选修	美育教育类 2 学分 Art Education2 Academic Credit										
				医学类 1 学分 Medicine1 Academic Credit										
				思想政治及新时代素质教育类 2 学分 Ideological and Political Education2 Academic Credit										
				人文社科类 1 学分 Humanity and Social Science1 Academic Credit										
				经济管理类 1 学分 Economic and Management1 Academic Credit										
	学科基础平台课程	大类专业基础课程	必修	0702603	高等数学B(一) Advanced Mathematics B (I)	4	64	64	0	0	0	1		
				0702604	高等数学B(二) Advanced Mathematics B (II)	5	80	80	0	0	0	2		
				2206665	无机化学B Inorganic Chemistry B	3	48	48	0	0	0	1		
				2253020	无机化学实验B Experiments in Inorganic Chemistry B	1	16	0	16	0	0	1		
				0302609	工程制图B Engineering Drawing B	3	48	40	0	8	0	2		
				0703605	大学物理B(一) College Physics B(I)	2.5	40	40	0	0	0	2		
		必修	0703606	大学物理B (二) College Physics B(II)	2	32	32	0	0	0	0	3		

矿业类教学环节设置及学分分布表

(四年制本科 2024级 矿业类)

Offered Course and Distribution of Academic Credits

课 程 类 型	课程 性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实 践 学 时	学 期	是否 辅修/ 双学位 课程	先 修 课 程/备 注
						讲 课	实 验	上 机				
平台	学科基础平台课程	必修	0703607 大学物理实验B Experiments in College Physics B	1	24	0	24	0	0	3		
			2206681 分析化学B Analytical Chemistry B	2	32	32	0	0	0	3		
			2253051 分析化学实验B Experiments in Analytical Chemistry B	1	24	0	24	0	0	3		
			0401039 电路电子技术 Electric Circuit and Electronic Technologies	3	48	48	0	0	0	4		
			0450005 电路电子技术实验 Experiments of Electric Circuit and Electronic Technologies	1	16	0	16	0	0	4		
			2206675 物理化学B(一) Physical Chemistry B (I)	2	32	32	0	0	0	3		
			2206676 物理化学B(二) Physical Chemistry B (II)	1.5	24	24	0	0	0	4		
			2253054 物理化学实验B(一) Experiments in Physical Chemistry B (I)	1	24	0	24	0	0	3		
			2253022 物理化学实验B(二) Experiments in Physical Chemistry B (I)	1	16	0	16	0	0	4		
			0702104 线性代数B Linear Algebra B	2	32	32	0	0	0	4		
			0304602 机械设计基础B Basics of Mechanical Design B	3.5	56	50	6	0	0	5		
	采矿工程专业学科基础课程	必修	0701605 工程力学A Engineering Mechanics A	4.5	72	66	6	0	0	3		
			0702103 线性代数A Linear Algebra A	3	48	48	0	0	0	3		
			0703606 大学物理B(二) College Physics B(II)	2	32	32	0	0	0	3		
			0703607 大学物理实验B Experiments of College Physics B	1	24	0	24	0	0	3		
			0702304 概率论与数理统计B Probability and Mathematical Statistics(B)	2.5	40	40	0	0	0	4		

矿业类教学环节设置及学分分布表

(四年制本科 2024级 矿业类)

Offered Course and Distribution of Academic Credits

课 程 类 型			课程性质	课 程 编 码	课 程 名 称	学 分	合 计	课 内 学 时			实践学时	学 期	是否辅修/双学位课程	先 修 课 程/备 注
								讲 课	实 验	上 机				
平台		学科基础平台课程	必修	0703606	大学物理B(二) College Physics B(II)	2	32	32	0	0	0	3		
				0703607	大学物理实验B Experiments in College Physics B	1	24	0	24	0	0	3		
				1306010	C语言程序设计基础 Basics of Computer Programming (C)	2.5	40	40	0	0	0	3		
				1306011	C语言程序设计基础实验 Experiments in Computer Programming (C)	1	24	0	0	24	0	3		
				0702104	线性代数 B Linear Algebra B	2	32	32	0	0	0	3		
				0702304	概率论与数理统计 B Probability and Mathematical Statistics B	2.5	40	40	0	0	0	4		
模块		专业课程模块	必修	0107046	矿物加工概论 A Survey of Mineral Processing	2	32	32	0	0	0	4	是	
				0107079	矿物加工技术前沿 Advanced Mineral Processing Technology	1.5	24	24	0	0	0	7		
				0107110	造块学（一）：烧结理论与工艺 Agglomeration(1): Sintering Theory and Techniques	2.5	40	36	4	0	0	5	是	
				0107111	造块学（二）：团矿理论与工艺 Agglomeration(2): Pelletizing Theory and Techniques	2.5	40	36	4	0	0	5	是	
				0107009	流体力学 Fluid Mechanics	2	32	32	0	0	0	5	是	
				0101194	矿物显微结构学 Studies of mineral microstructure	2.5	40	30	10	0	0	5		
				0107065	冶金物理化学 Metallurgical Physical Chemistry	2	32	32	0	0	0	5	是	
				0107115	矿物粉体工程 Mineral powder engineering	2	32	28	4	0	0	5	是	
				0107116	固体物料分选学 Solid Materials Separation	3.5	56	50	6	0	0	6	是	
				0107054	矿物加工研究方法 Research Techniques of Mineral Processing	3	48	42	6	0	0	6	是	

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							讲 课	实 验	上 机				
模块	矿业类	必修	0107067	造块工艺学系统实验 Systematic Experiments of Agglomeration Technology	1.5	24	0	24	0	0	6	是	
			0107066	矿物分选综合实验 Systematic Experiments of Mineral Processing	1.5	24	0	24	0	0	6	是	
			0107053	矿物加工工程设计 Design of Mineral Processing	3.5	56	48	0	8	0	7	是	
	专业工程课程模块	必修	0101200	地质学 Geology	2.5	40	40	0	0	0	4	是	
			0101223	技术经济与投资分析 Technical Economy and Investment Analysis	1.5	24	24	0	0	0	4	是	
			0101224	工程测量 Engineering Surveying	2.5	40	36	0	0	4	4	是	
			0101252	智能矿山导论 Introduction of Intelligent Mine	1	16	16	0	0	0	4		
			0101044	岩石力学 Rock Mechanics	3	48	42	6	0	0	5	是	
			0101201	矿山爆破 Mining Blasting	2	32	30	2	0	0	5	是	
			0101202	井巷工程 Shafting and Drifting Engineering	2	32	32	0	0	0	5	是	
			0101227	GIS开发语言 GIS Development Language	2.5	40	28	0	12	0	5		
			0101034	地下开采 Underground Mining	3	48	48	0	0	0	6	是	
			0101253	矿床开采模型与虚拟仿真实验 Deposit Mining Model and Virtual Simulation Experiment	1	24	0	24	0	0	6		
			0101203	露天开采 Surface Mining	2	32	32	0	0	0	6	是	
			0101204	矿井通风与安全 Mine Ventilation and Safety	2	32	26	6	0	0	6	是	
			0101231	系统工程基础 System Engineering Foundation	2.5	40	40	0	0	0	6	是	

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模块	专业必修课程	采矿工程专业必修课程	必修	0101072	采矿前沿专题 Mining Frontier Theme	1	16	16	0	0	0	7	是	综合研究讨论课
				0101205	矿山设计基础 Mine Design Basis	1.5	24	24	0	0	0	7	是	
				0101254	采掘机械及其智能化 Mining Machinery and Its Intelligence	1	16	16	0	0	0	7		
				0106076	矿山安全与环保 Mine Safety and Environmental Protection	2	32	32	0	0	0	7	是	
	专业课程模块	地理信息科学专业必修课程	必修	0101221	人文与自然地理学** Human and Physical Geography	3	48	48	0	0	0	3	是	双语课程
				0101165	地理信息科学导论 Introduction to Geographic Information Science	1	16	16	0	0	0	3	是	
				0101222	工程地质与水文地质 Engineering Geology and Hydrographic Geology	2	32	32	0	0	0	4	是	
				0101223	技术经济与投资分析 Techno-economics and Investment Analysis	1.5	24	24	0	0	0	4	是	
				0101224	工程测量 Engineering Surveying	2.5	40	36	0	0	4	4	是	
				0101252	智能矿山导论 Introduction of Intelligent Mine	1	16	16	0	0	0	4	是	
				0101226	地理信息系统原理 Principles of Geographic Information System	2.5	40	28	0	12	0	5	是	
				0101227	GIS开发语言 GIS Development Language	2.5	40	28	0	12	0	5	是	
				0101228	遥感原理与应用 Principles and Applications of Remote Sensing	2.5	40	32	0	8	0	5	是	
				0101229	地图学 Cartography	1.5	24	24	0	0	0	6	是	
				0101230	计量地理学 Quantitative Geography	2.5	40	32	0	8	0	6	是	
				0101231	系统工程基础 System Engineering Foundation	2.5	40	40	0	0	0	6	是	

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								讲 课	实 验	上 机				
模块	专业基础课程	必修	地理信息科学专业必修课	0101232	国土空间规划 Territorial Spatial Planning	2	32	32	0	0	0	6	是	
				0101233	空间数据库原理 Principles of Spatial Database	2	32	32	0	0	0	6	是	
				0101234	GIS应用与开发 Application and Development of GIS	2	32	20	0	12	0	6	是	
				0101171	卫星导航定位技术 Satellite Navigation and Positioning Technology	1	16	16	0	0	0	7	是	
				0101235	地理信息科学前沿专题 Frontier Themes of Geographic Information Science	1	16	16	0	0	0	7	是	综合研究讨论课
		选修	专业选修课程	0702304	概率论与数理统计B Probability Theory and Mathematical Statistics B	2.5	40	40	0	0	0	3		
				2206679	有机化学B Organic Chemistry B	2.5	40	40	0	0	0	3		同时选修
				2253027	有机化学实验B Experiments in Organic Chemistry	1	24	0	24	0	0	3		
				1306010	C语言程序设计基础 Basics of Computer Programming (C)	2.5	40	40	0	0	0	3		同时选修
				1306011	C语言程序设计基础实验 Experiments in Computer Programming (C)	1	24	0	0	0	24	3		
				1306012	数据库技术及应用 Database Technology and Applications	1.5	24	24	0	0	0	3		同时选修
				1306013	数据库技术及应用实验 Experiments in Database Technology and Applications	1	24	0	0	24	0	3		
				0702301	复变函数与积分变换A Complex Function and Integral Transformation A	3	48	48	0	0	0	3		
				0701606	工程力学B Engineering Mechanics B	3	48	42	6	0	0	4		
				0107084	中国矿冶科技史 History of Mining & Metallurgy in China	2	32	32	0	0	0	4		
				0107068	资源分离与提取技术原理 Separation and Extraction Mechanism of Resources	2.5	40	40	0	0	0	4		

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模块	专业选修课程	选修		0401039	电路电子技术 Electric Circuit and Electronic Technologies	3	48	48	0	0	0	4		同时选修
				0450005	电路电子技术实验 Electric Circuit and Electronic Technologies Experiment	1	16	0	16	0	0	4		
				0107083	工程流体力学 Engineering Fluid Mechanics	2	32	32	0	0	0	4		
				1306014	网络技术的应用 Network Technology and Applications	1.5	24	24	0	0	0	4		同时选修
				1306015	网络技术应用实验 Experiments in Network Technology and Applications	1	24	0	0	24	0	4		
				0702019	数学建模 Mathematical Modeling	2	32	28	0	4	0	4		
				0107012	固体废物资源化 Solid Waste Resource	2	32	32	0	0	0	5		
				0101207	弹性力学 Elastic Mechanics	2	32	32	0	0	0	5		
				0101236	工程项目管理 Project Management	2	32	32	0	0	0	5		
				0101239	房屋建筑学 Building Architecture	2	32	32	0	0	0	5		
				0101107	土地评价与土地管理 Land Evaluation and Land Management	2	32	32	0	0	0	5		
				0101238	经济地理学 Economic Geography	2	32	32	0	0	0	5		
				0107070	废水资源化综合利用 Comprehensive Utilization of Wastewater	2	32	32	0	0	0	6		
				0107086	CAD技术 CAD	2	32	18	0	14	0	6		
				0107071	再生资源工艺设备 Process Equipment for Renewable Resources	2	32	32	0	0	0	6		
				0107035	炼铁学 Ironmaking	2	32	32	0	0	0	6		

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						讲 课	实 验	上 机				
模块	专业 课程 模块	专业 选修 课程	0107050 矿物化学提取 Chemical Extraction of Mineral	2	32	32	0	0	0	6		
			0107109 矿物加工专业英语 Specialty English	2	32	32	0	0	0	6		
			0107073 矿山企业管理 Mine Corporation Management	2	32	32	0	0	0	6		
			0107078 矿物加工过程检测与控制 Detection and Control of Mineral Processing	2	32	32	0	0	0	6		
			0107082 智慧环境 Wisdom Environments	2	32	32	0	0	0	6		
			0107094 城市矿产与循环经济 Urban Mining and Circular Economy	2	32	32	0	0	0	6		
			0101258 力学计算与仿真 Mechanics Computational and Simulation	2	32	32	0	0	0	6		
			0101210 地下空间防排水 Underground Waterproof and Drainage	2	32	32	0	0	0	6		
			0101211 岩土工程测试 Geotechnical Testing	2	32	28	4	0	0	6		
			0101241 机器学习与数据挖掘 Machine Learning and Data Mining	2	32	20	0	12	0	6		
			0101237 城市地理学 Urban Geography	2	32	32	0	0	0	6		
			0101240 三维数字建模基础 Basis of 3D Digital Modeling	2	32	16	0	16	0	6		
			0107104 3D设计及打印技术 3D design and printing technology	1.5	24	14	0	10	0	7		
			0107056 二次资源综合利用 Comprehensive Utilization of Secondary Resources	2	32	32	0	0	0	7		
			0107103 计算机在矿物加工中的应用 Computer Application of Mineral Processing	2	32	28	0	4	0	7		
			0107052 矿物材料 Mineral Material	2	32	32	0	0	0	7		

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模块		专业选修课程	选修	0107072	再生资源工程设计 Design of Renewable Resources	2	32	32	0	0	0	7		
				0107074	选矿药剂 Mineral Processing Reagents	2	32	32	0	0	0	7		
				0107075	再生资源生物技术 Biological Technology of Renewable Resources	2	32	32	0	0	0	7		
				0107108	矿物加工分析测试技术 Mineral processing analysis and testing technology	2	32	32	0	0	0	7		
				0107107	矿业环境工程 Mining Environmental Engineering	2	32	32	0	0	0	7		
				0107087	矿物加工工程典型案例分析 Typical Cases Analysis of Mineral Processing Engineering	1.5	24	24	0	0	0	7		
				0101212	地下空间规划与设计 Underground Planning and Design	2	32	32	0	0	0	7		
				0101213	结构工程 Structure Engineering	2	32	32	0	0	0	7		
				0101215	选矿概论 Beneficiation Overview	1.5	24	24	0	0	0	7		
				0101255	数字化矿山三维建模基础 Fundamentals of 3D Modeling in Digital Mines	2	32	20	0	12	0	7		
				0106099	环境影响评价 Environmental Assessment	2	32	32	0	0	0	7		
				0101243	专业英语 Specialized English	1	16	16	0	0	0	7		
				0101244	网络地理信息系统 Network Geographic Information System	2	32	24	0	8	0	7		
				0101245	数字图像处理 Digital Image Processing	2	32	20	0	12	0	7		
				0101246	测绘地理信息法律法规 Laws and Regulations for Surveying and Mapping Geographic Information	1	16	16	0	0	0	7		
				0101247	地理信息服务 Geographic Information Service	2	32	32	0	0	0	7		研讨课

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模块	实践教学模块	大类必修	2504006	军事训练 Military Training	2	112	0	0	0	112	1		
		矿物加工工程专业实践课程	1701008	工程训练B Engineering Training B	1.5	3 (周)	0	0	0	3 (周)	3		
			0107030	认识实习 Introductory Practice	2	2 (周)	0	0	0	2 (周)	5		
			0304010	机械设计基础课程设计 Course Project in Basics of Mechanical Design	1	2 (周)	0	0	0	2 (周)	5		
			0107031	生产实习 Production Practice	3	3 (周)	0	0	0	3 (周)	7	是	
			0107061	矿物加工课程设计 Course Project in Mineral Processing	1	2 (周)	0	0	0	2 (周)	7		
			0107097	毕业实习 Pre-graduation Practice Experience	3	3 (周)	0	0	0	3 (周)	8	是	
			0107096	毕业设计(论文) Graduation Project (Thesis)	8	14 (周)	0	0	0	14 (周)	8	是	
	实践教学模块	采矿工程专业实践课程	1701009	工程训练C Engineering Training C	1	2 (周)	0	0	0	2 (周)	3		
			0101038	认识实习 Introductory Practice Experience	2	2 (周)	0	0	0	2 (周)	5		
			0101039	井巷工程课程设计 Course Project in Sinking and Driving Engineering	1	2 (周)	0	0	0	2 (周)	5		
			0101256	矿山工程制图课程设计 Course Design of Mining Engineering Drawing	1	2 (周)	0	0	0	2 (周)	5		分散进行
			0101257	测量实习 Surveying Practice	1	1 (周)	0	0	0	1 (周)	5		分散进行
			0101041	露天开采课程设计 Course Project in Surface Mining	1	2 (周)	0	0	0	2 (周)	6		
			0101073	矿井通风与安全课程设计 Mine Ventilation and Safety Course Design	1	1 (周)	0	0	0	1 (周)	6		
			0101095	矿山爆破课程设计 Mining Blasting Course Design	1	1 (周)	0	0	0	1 (周)	6		

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								讲 课	实 验	上 机				
模块		采矿工程专业实践课程	必修	0101042	地下开采课程设计 Course Project in Underground Mining	1	2 (周)	0	0	0	2 (周)	7		
				0101096	生产实习 Production Practice	3	3 (周)	0	0	0	3 (周)	7		
				0101097	毕业实习 Pre-graduation Internship	3	3 (周)	0	0	0	3 (周)	8		
				0101098	毕业设计(论文) Undergraduate Project(Thesis)	8	14 (周)	0	0	0	14 (周)	8	是	
	实践教学模块	地理信息科学专业实践课程	必修	0101184	认识实习 Cognition Practice	2	2 (周)	0	0	0	2 (周)	5		
				0101189	测量实习 Surveying Practice	2	2 (周)	0	0	0	2 (周)	5		分散进行
				0101183	计算机制图课程设计 Course Design in Computer Cartography	1	2 (周)	0	0	0	2 (周)	5		1周集中 1周分散
				0101185	地理信息系统课程设计 Course Design in Geographic Information System	1	2 (周)	0	0	0	2 (周)	5		1周集中 1周分散
				0101186	遥感图像处理课程设计 Course Design in Remote Sensing Image Processing	1	2 (周)	0	0	0	2 (周)	6		1周集中 1周分散
				0101187	GIS应用与开发课程设计(一) Course Design in Application and Development of GIS(I)	2	4 (周)	0	0	0	4 (周)	6		2周集中 2周分散
				0101188	GIS应用与开发课程设计(二) Course Design in Application and Development of GIS(II)	2	4 (周)	0	0	0	4 (周)	7		2周集中 2周分散
				0101190	生产实习 Production Practice	2	2 (周)	0	0	0	2 (周)	7		
				0101191	毕业实习 Pre-graduation Internship	2	2 (周)	0	0	0	2 (周)	8		
				0101192	毕业设计(论文) Undergraduate Project(Thesis)	8	14 (周)	0	0	0	14 (周)	8	是	
	素质拓展模块	创新创业教育	必修	创新创业实践3学分 Innovation Practices 3 Academic Credits										
		第二课堂	必修	第二课堂3学分 Second Classroom 3 Academic Credits										

*创新创业教育和第二课堂主要安排在小学期进行