

# 中南民族大学资源与环境学院简介

## 学院简介

### 环境工程专业

本专业以工程教育认证的标准制定了完善的培养目标、培养方案、毕业要求和课程质量管理体系，以学生为中心，以产出为导向，坚持持续改进的理念，培养学生解决复杂环境工程问题的能力。为毕业生走向世界提供国际统一的“通行证”。

本专业开设环境工程微生物学、环境监测、环境工程原理、水污染控制工程、大气污染控制工程、物理性污染控制工程、固体废弃物的处理与处置、环境规划与管理、环境影响评价等专业基础理论课程。本专业培养符合国家、区域及少数民族经济和社会发展需要，具备良好的思想品德、人文素养、职业道德和敬业精神，系统掌握环境工程专业基础知识和污染控制工程、资源利用及环境修复等方面的理论与实践技能，具备创新意识和持续学习能力，不断适应行业科学与技术进步，能够从事环境污染控制工程的设计及运营、环境管理、环境监测和水土环境保护及修复技术研发等环境保护事业的高级专门人才，成长为扎根地方尤其是民族地区从事环境保护的骨干人才。本科，学制四年，按环境科学与工程大类招生，招收理科生，毕业时若符合学位授予条件，即授予工学学士学位。

# 环境工程专业本科培养方案 2021 版

## Undergraduate Program for the Specialty of Environmental Engineering

### 一、培养目标

#### I、 Educational Objectives

本专业培养符合国家、区域及少数民族经济和社会发展需要，具备良好的思想品德、人文素养、职业道德和敬业精神，系统掌握环境工程专业基础知识和污染控制工程、资源利用及环境修复等方面的理论与实践技能，具备创新意识和持续学习能力，不断适应行业科学与技术进步，能够从事环境污染控制工程的设计及运营、环境管理、环境监测和水土环境保护及修复技术研发等应用能力环境保护事业的高级专门人才，成长为扎根地方尤其是民族地区从事环境保护的骨干人才。

具体培养目标可以归纳为以下四方面内容：

**目标 1 (知识能力)：**能够掌握环境工程专业相关技术在民族资源与环境保护中的应用与发展现状，融会贯通工程数理基础知识和环境工程专业知识，针对复杂环境工程项目提供整体解决方案。

**目标 2 (实践能力)：**具备系统思维和可持续发展理念，能将知识有效运用到环境污染控制工程的设计及运营、环境管理、环境监测和民族地区水土环境保护及修复技术研发的实践中，并具备一定的创新能力。

**目标 3 (职业素养)：**身心健康，具有社会责任感和职业道德修养，拥有团队精神、有效的沟通、表达能力和工程项目管理能力。

**目标 4 (发展潜能)：**具备较强的获取知识和综合运用知识的能力，能及时了解环境工程专业最新理论、技术及国际前沿动态，有效地持续自主学习以适应社会和行业的多样性发展。

This specialty aims to train the talents with complex engineering skills who are in accordance with national, regional or ethnic minority economic and social development needs, who have the good ideology and morality, humanistic quality, professional ethics and professional dedication, who master the basic knowledge and practical skills of environmental engineering systematically, who have the ability to innovate and continue learning, who adapt to the industry science and technology progress constantly, who can bear the environmental engineering projects and environmental protection management and who can solve the problem of complex environmental

projects. Graduates can be engaged in the work of environmental management, design, research and development for environmental pollution prevention and control projects in government departments, environmental protection companies, industrial and mining enterprises, scientific research institutes and other units. Meanwhile, the graduates can grow into the backbone talents rooted in local, especially in ethnic areas for environmental protection and achieve the following goals:

Goal 1 (knowledge capability): Able to grasp the development status of technologies in environmental engineering, master the basic knowledge of engineering, mathematics and professional knowledge of environmental engineering and provide integrated solutions for complex environmental engineering projects.

Goal 2 (practical ability): Have the systematic thinking and idea of sustainable development, can effectively apply knowledge to the practice of design, construction and operation management, environmental planning and management as well as the environmental monitoring and assessment and have the innovation ability.

Goal 3 (professional quality): Have correct environmental ethics, noble sense of social responsibility and professional ethics, able to communicate effectively with team members, industry peers and publics under the context of globalization and able to coordinate the teams and manage engineering projects.

Goal 4 (potential for development): Have the consciousness of lifelong learning and ability to criticize and reflect, able to keep abreast of the latest theories, technologies and international cutting-edge developments in environmental engineering and can study independently, effectively and continuously to adapt to the diverse development of society and industry.

## 二、培养规格

### II、Cultivation Standards

#### I) 学制

Length of Schooling

修业年限： 4 年

Duration: 4 years

#### II) 学位

Degree

授予学位：工学学士学位

Degrees Conferred: Bachelor of Engineering

#### III) 人才培养基本要求

Basic Requirements for Cultivation

根据我校环境工程专业培养目标的要求，通过人文社会科学课程、工程基础课、专业基

础课、专业课的课堂教学、讲座、社会活动、文化活动、各种竞赛、实践、辅导、座谈等教学环节，使环境工程专业毕业生能力达到如下基本要求：

1) 工程知识：能够利用数学、物理、化学等自然科学和工程科学的基本原理及环境工程专业知识来解决环境污染治理工程的设计、运行和管理等复杂环境工程问题；

1.1 能将数学、工程数学的基本知识运用到工程问题的恰当表述之中；

1.2 理解物理、化学等自然科学知识的原理及在识别环境污染问题基本应用；

1.3 能够将工程制图、工程力学、流体力学、环境工程微生物、化工原理等环境工程基础知识应用环境污染治理单元的设计、运行和管理；

1.4 能将水、气、固及物理性污染控制等环境工程专业知识用于环境污染防治工艺的设计、系统的控制和改进中。

2) 问题分析：能够利用数学、自然科学和环境工程相关的基础理论和知识以及文献资料对环境污染问题进行识别、表达和分析，以获得有效结论；

2.1 能够运用数学、自然科学和环境工程的基本原理和专业知识，识别和判断复杂环境工程问题的关键点和参数；

2.2 能够通过数学、自然科学和环境工程专业的概念、原理、方法，分析环境污染防治工程的关键环节和参数，并给予表述；

2.3 能够运用环境工程相关的基础理论和知识结合文献分析环境污染防治过程的影响因素及采用相关技术，并获得有效结论。

3) 能够应用水污染控制、大气污染控制及固体废物处理处置与资源化、土壤及地下水修复的基本原理和方法开发、设计满足环境防治要求的污染治理工艺流程与处理单元，并能够在设计中体现创新意识，综合考虑社会、健康、安全、法律文化及环境等因素；

3.1 能够根据环境污染的特征和防治要求提出复杂环境工程问题的解决方案；

3.2 能够对所提技术方案及工艺流程的可行性进行初步分析与论证；

3.3 能够进行污染治理工艺系统及处理单元的设计，并在设计中综合考虑社会、健康、安全、法律、文化等因素，且体现创新意识，进而优化设计方案。

4) 能够基于科学原理并采用科学方法，开展试验研究，预测、分析环境污染防治技术和工程中的问题，为解决环境污染防治实践中的复杂工程问题提供合理有效的结论；

4.1 掌握现代分析方法，能够识别复杂工程问题中的各种制约条件，分析研究对象的基本特征；

4.2 能够基于环境工程专业理论，根据环境污染对象特征，选择合适的研究路线、设计可行的研究方案；

4.3 能正确采集、整理研究数据，对研究结果进行关联、分析处理，获取合理有效的结论。

5) 能够针对复杂环境工程问题，开发、选择与使用恰当的环境工程专业领域相关的计

计算机辅助设计、计算机模拟仿真等技术、资源和工具，熟练使用现代分析检测仪器，具备预测、模拟及优化环境污染防治实践中的复杂工程问题的能力，并能够理解其局限性；

5.1 能够基于复杂环境工程问题的技术背景，选择、使用和开发恰当的计算机语言程序、计算机辅助设计软件等现代工具；

5.2 能够运用环境工程仿真软件和现代分析检测仪器，预测、模拟和评价复杂环境工程问题，明确各种方法的局限性。

6) 工程与社会：能基于环境工程相关背景知识，在解决复杂工程问题的同时，分析和评价设计方案对社会、健康、安全、法律及文化的影响，并理解其承担的责任；

6.1 熟悉环境工程领域相关的技术规范、法律法规和民族区域政策，能客观评价环境污染防治过程对社会、健康、安全、法律以及文化的影响，能理解环境污染防治过程中应承担的责任；

6.2 具有环境工程实习和实践经历，有较强的工程和社会意识。

7) 环境和可持续发展：能够理解和评价环境污染防治工程实践对环境、社会可持续发展的影响；

7.1 理解环境保护和社会可持续发展的内涵和意义，熟悉环境保护的相关政策和法律法规；

7.2 能针对实际的环境污染防治工程项目中的生产、运行和维护相关环节中正确理解并评价工程实践对环境、社会可持续发展的影响。

8) 职业规范：具有人文社会科学素养、社会责任感，能够在环境工程实践中理解并遵守工程职业道德和规范，履行责任；

8.1 具有科学的世界观、正确的人生观、价值观和爱国精神，具有人文社会科学素养和社会责任感；

8.2 理解工程伦理的核心理念，熟悉环保工程师的职业性质和责任，在工程实践中能自觉遵守职业道德和规范，履行责任。

9) 具有在科学研究、工程设计与实践的多学科背景团队中团结互助的合作精神、一定的组织管理协调能力及在工作中对不同角色的适应能力；

9.1 能在多学科背景下的团队合作中承担自己的角色，听取不同意见，具有一定组织管理能力，能够综合团队成员的建议，并进行合理决策；

9.2 具有较强的团队协作和人际交往能力，能同其他成员进行有效交流，并妥善处理组织内外关系。

10) 沟通：具备良好的文字及语言表达能力、辩论能力、倾听能力、外语应用能力，并能就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。注重与民众的沟通，尤其是在民族地区民汉之间的顺畅沟通与交流，并具备一定的国际视野，能够在跨文化背景下进行沟通和交流；

10.1 具备良好的文字及语言表达能力、辩论能力、倾听能力；

10.2 能够通过图纸、报告等形式表达自己的想法和见解，就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；

10.3 能够运用外语了解环境工程专业及相关领域的国际发展动态，能够在跨文化背景下进行沟通和交流。

11) 项目管理：能够理解和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；

11.1 理解和掌握环境工程实践活动中涉及的工程管理原理与经济决策方法；

11.2 能够将工程管理的原理和经济决策的方法用于应用到多学科环境中。

12) 终身学习：具有自主学习和终身学习的意识，有不断学习、自我提高和适应发展的能力；

12.1 能认识不断探索和学习的必要性，具有自主学习和终身学习的意识；

12.2 掌握自主学习的方法和拓展知识、提高能力的途径，具备为适应发展而自我提高的能力。

According to the requirements for cultivation of environmental engineering specialty in our university, we make the graduates in specialty of environmental engineering reach the basic requirements through the study of humanistic and social science, basic engineering, professional basic and professional courses as well as the lectures, social activities, culture activities, competitions, practices, lessons and discussions. The requirements are listed as follow:

1) Engineering Knowledge: Able to use the rationales of natural science and engineering science such as mathematics, physics and chemistry as well as professional knowledge of environmental engineering to solve the complex problems of environmental engineering such as the design, operation and management of treatment for environmental pollutions;

1.1 Able to use the fundamental knowledge of mathematics and engineering mathematics to the expression of engineering problems;

1.2 Understand the rationales of natural science such as physics and chemistry as well as its fundamental applications to recognize problems of environmental pollution;

1.3 Able to apply the fundamental knowledge of lessons in environmental engineering specialty such as the engineering drawing, engineering mechanics, fluid mechanics, environmental engineering microbiology and principles of chemical engineering into the design of environmental pollution control units;

1.4 Able to use the professional knowledge of water, air, solid and physical contamination control to the design, systematic control and improvement.

2) Problem Analysis: Able to apply the rationales, knowledge and references of mathematics,

natural science and environmental engineering to recognize, explain and analyze for requiring effective conclusions;

2.1 Able to use the rationales and professional knowledge of mathematics, natural science and environmental engineering to recognize complex problems of environmental engineering;

2.2 Able to use the concepts, rationales and methods of mathematics, natural science and environmental engineering to analyze and explain the key links and parameters of environmental pollution prevention and control projects;

2.3 Able to use the basic theory and knowledge of environmental engineering as well as references to analyze the factors and related technologies in the process of environmental pollution prevention and make effective conclusions.

3) Designing/developing solutions: Able to use the rationales and methods of water pollution control, air pollution control as well as treatment, disposal and recycling of solid waste to develop and design the technological process and treatment units;

3.1 Able to put forward solutions of complex problems of environmental engineering according to characterizations and prevention requirements of environmental pollution;

3.2 Familiarize and grasp the technical standards, intellectual properties as well as policies and regulations of industry and can do feasibility studies to designing schemes through techno-economic appraisal under the constraint condition of reality;

3.3 Able to design the technology system of pollution control and treatment units, take the factors of society, health, security, law and culture into the design, reflect the sense of innovation and then optimize the design scheme.

4) Research: Able to use the scientific methods and treatments based on principles of environmental engineering to forecast and analyze the problems in technologies of environmental pollution treatments and engineering and provide proper conclusion for solving the complex engineering problems in the practices of environmental pollution treatments;

4.1 Grasp modern analytical method, can recognize the constraint conditions in the complex engineering problems and analyze the basic characterizations of research objects;

4.2 Able to choose proper research routes and design feasible research projects based on professional theories of environmental engineering as well as the characterizations of polluted objects;

4.3 Able to collect and clear up the research data correctly, analyze and deal with the research results and obtain the proper conclusions.

5) Usage of modern tools: Able to develop, choose and use correct technologies and tools of computer aided design in the area of environmental engineering, expertly use modern analytical

instruments and able to forecast, simulate and optimize complex engineering problems in the practices of environmental pollution prevention;

5.1 Able to choose, use and develop correct modern tools such as the computer language programs and software of computer aided design;

5.2 Able to use modern analytical instruments, forecast, simulate and evaluate complex engineering problems, and make clear the boundedness of methods.

6) Engineering and society: Able to solve complex engineering problems based on background knowledge of environmental engineering while simultaneously analyze and evaluate the influences of designing project to society, health, safety, law and culture and understand the responsibility;

6.1 Have practice experiences of environmental engineering and senses of engineering and society;

6.2 Be familiar with the relevant technical regulations, laws and ethnic regional policies in the area of environmental engineering, able to evaluate the influences to society, health, security, law and culture in the process of prevention for environmental pollutions, and understand the responsibilities in the process of prevention for environmental pollutions.

7) Environment and sustainable development: able to understand and evaluate the influences of engineering practices of environmental pollutions prevention to the sustainable progress of environment and society;

7.1 Understand the connotation and meaning of environmental protection and sustainable development of society and know the relevant policies and laws of environmental protection well;

7.2 Able to correctly understand and evaluate the impacts of engineering practices on sustainable development of environment and society in the process of production, operation and maintenance for environmental pollution prevention and control project.

8) Professional norms: have the literacy of humanity and social science as well as responsibility for society, able to understand and comply with the professional ethics and regulations in projects and fulfill the duty;

8.1 Have the scientific world outlook, correct view of life, values and patriotism and have the literacy of humanity and social science as well as responsibility for society;

8.2 understand the core idea of engineering ethics, be familiar with the profession and responsibility of environmental engineer, can comply with the professional ethics and regulations in projects and fulfill the duty.

9) Individuals and teams: have the team spirit in the multi-disciplinary teams of science research, engineering design and practices, ability for organization, management and coordination as well as the adaptive capacities for different roles in the work;



9.1 Able to undertake the roles in the multi-disciplinary teams, Listen to different opinions, have certain ability of organization and management, able to sum up the conclusions of team members and make a proper decision;

9.2 Have strong team work and interpersonal skills, can communicate with other members effectively and properly deal with internal and external relationships of the organization.

10) Communication: have great writing and communicating skills, debate competences, listening skills, application ability for language, able to effectively communicate with industry peers and publics for complex engineering problems, have a certain international vision and able to communicate in a cross-cultural context;

10.1 Have good abilities for writing, communicating and listening;

10.2 Able to express ideas and opinions orally or in writing and effectively communicate with industry peers and publics for complex engineering problems;

10.3 Able to study the international developments of environmental engineering and relevant areas and can have a communication in a cross-cultural context.

11) Project management: able to understand and grasp the principles of engineering management and methods of economic decision and apply the professional knowledge of environmental engineering into the design, operation and management of projects for prevention of environmental pollutions;

11.1 Understand and grasp the principles of engineering management and methods of economic decision in the practices of environmental projects;

11.2 Able to apply the principles of engineering management and methods of economic decision to the design, operation and management of projects for prevention of environmental pollutions.

12) Lifelong learning: have the sense of independent study and lifelong learning as well as the ability for self-improvement and adaptive development;

12.1 Able to realize the necessity of continuous discovery and study as well as the senses of independent study and lifelong learning;

12.2 Grasp the methods of independent study and pathway to expand knowledge and improve ability as well as the ability for self-improvement.







毕业要求	一级	1)工程知识				2) 问题分析			3) 设计/开发解决方案			4) 研究			5) 现代工具使用		6) 工程与社会		7) 环境和可持续发展		8) 职业规范		9) 个人和团队		10) 沟通			11) 项目管理		12) 终身学习	
	二级	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7.1	7.2	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2
水污染控制工程 (A2)				H			H	H																							
环境工程概预算																	L													H	
固体废物处理与处置				H			H	H																							
大气污染控制工程实验												M	H																		
水污染控制工程实验												H	H																		
固体废物处理与处置实验												M	H																		
环境工程原理实验												H			H																
环境工程综合实验																							H							M	H
大气污染控制工程课程设计									H																H						
水污染控制工程课程设计									H																H				H		
环境工程原理									H																H						

毕业要求	一级	1)工程知识				2) 问题分析			3) 设计/开发解决方案			4) 研究			5) 现代工具使用		6) 工程与社会		7) 环境和可持续发展		8) 职业规范		9) 个人和团队		10) 沟通			11) 项目管理		12) 终身学习		
	二级	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7.1	7.2	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2	
课程设计																																
固体废物处理与处置课程设计										H															H				M			
环境规划与管理										H							H	H														
环境工程专业英语																											H					M
土壤及地下水污染修复				H			L	L																								
环境工程设备											H																					
环境工程设计											H															H						
环境影响评价																	H		H													
军事理论与训练																							H									
金工实习																	M															
认识实习																	H									M						
生产实习																	H			H		H				H						
毕业实习																				H		H				H						H
毕业设计（论文）										H		H	H										H		H		H					H

毕业要求	一级	1) 工程知识				2) 问题分析			3) 设计/开发解决方案			4) 研究			5) 现代工具使用		6) 工程与社会		7) 环境和可持续发展		8) 职业规范		9) 个人和团队		10) 沟通			11) 项目管理		12) 终身学习	
	二级	1.1	1.2	1.3	1.4	2.1	2.2	2.3	3.1	3.2	3.3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7.1	7.2	8.1	8.2	9.1	9.2	10.1	10.2	10.3	11.1	11.2	12.1	12.2
说明：1) 课程与毕业要求的关联度的高低分别用“H(强)”、“M(中)”、“L(弱)”表示。																															

#### **四、核心课程**

##### **IV、 Core Courses**

环境工程微生物学 Microbiology of Environmental Engineering、环境监测（B） Environmental Monitoring（B）、环境工程原理 Environmental Engineering Principle、物理性污染控制工程 Physical Pollution Control Engineering、大气污染控制工程 Air Pollution Control Engineering、水污染控制工程（A1） Water Pollution Control Project（A1）、环境规划与管理 Environmental Planning and Management、水污染控制工程（A2） Water Pollution Control Project（A2）、固体废物处理与处置 Solid Waste Treatment and Disposal、环境影响评价 Environmental Impact Assessment.

#### **五、主要实践性教学环节**

##### **V、 Main Internship and Practical Training**

环境工程原理实验 Principle Experiments of Environmental Engineering、环境监测实验 Experiments of Environmental Monitoring、环境工程微生物学实验 Experiments of Environmental Engineering Microbiology、水污染控制工程实验 Experiments of Water Pollution Control Engineering、固体废物处理与处置实验 Experiments of Solid Waste Treatment and Disposal、环境工程原理课程设计 Course Design of Environmental Engineering Principles、大气污染控制工程课程设计 Course Design of Air Pollution Control Engineering、水污染控制工程课程设计 Course Design of Water Pollution Control Engineering、固体废物处理与处置课程设计 Course Design of Treatment and Disposal of Solid Wastes、工程测量学实习 Engineering Surveying Practice、金工实习 Metalworking Practice、认识实习 Cognition Practice、生产实习 Production Practice、毕业实习 Graduation Practice、毕业设计(论文) Graduation Design (Thesis)。

#### **六、学时与学分**

##### **VI、 Hours/Credits**



学时学分构成表

Table of Hours and Credits

课程类别 Courses Classified		学时/周数 Period/Weeks	学 分 Credits		学分比例 Proportion of Credits	
			理 论 Theory	实 践 Practice		
通识课程平台 General Courses Platform	通 必 General Compulsory	758	30	9	22.6%	
	通 选 General Elective	80	5		2.91%	
学科基础课程平台 Basic Courses Platform	必 修 Compulsory	1184	52	8.5	35.17%	
	选 修 Elective					
专业课程平台 Major Courses Platform	必 修 Compulsory	648	28.5	6	20.06%	
	选 修 Elective	120	7.5		4.36%	
实践教学平台 Practical Teaching Platform	必 修 Compulsory	20.5W		20.5	11.92%	
	选 修 Elective					
创新创业平台 Innovation and Entrepreneurship Platform	创新学分 Innovation Credits		3		2.91%	
	创业学分 Entrepreneurship Credits		2			
小 计 Amount	必修学分 总数 Compulsory Credits	159.5	选修学分 总数 Elective Credits	12.5	选修学分比例 Proportion of Elective Credits	7.27%
	理论学分 总数 Theory Credits	128	实践学分 总数 Practice Credits	44	实践教学环节比例 Proportion of Internship and Practical Training	25.58%
最低毕业学分 The Lowest Graduate Credits		172				

学期学分分配表

Division of Credits of Each Term

各学期学分分配 Division of Credits of Each Term		学期 Term							
		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
课程类别 Courses Classified									
通识课程平台 General Courses Platform	通 必 General Compulsory	9.5	10	7	6	5	1	0.5	
	通 选 (建议) General Elective (suggestive)		5	0					
学科基础课程平台 Basic Courses Platform	必 修 Compulsory	16	10.5	19	13.5	1.5			
	选 修 Elective								
专业课程平台 Major Courses Platform	必 修 Compulsory					17.5	17		
	选 修 Elective				1.5		3	3	
实践教学平台 Practical Teaching Platform	必 修 Compulsory		0.5		2	2	2	2	12
	选 修 Elective								
小计 Amount		25.5	26	26	23	26	23	5.5	12
创新创业平台 Innovation and Entrepreneurship Platform	创新学分 Innovation Credits	3							
	创业学分 Entrepreneurship Credits	2							
最低毕业学分 The Lowest Graduate Credits		172							

注①学分比例：各教学平台或教学环节占最低毕业学分的比例。

②实践教学环节，包括集中性实践教学环节和实验教学（不含体育）。集中性实践教学环节，包括培养方案内集中实施的实践、实习、课程设计、毕业设计、毕业论文、社会调查等；实验教学，包括课内实验和独立开设实验。

③学期学分分配表中，选修课须规定每学期最少修读的学分。

## 七、教学进程计划表

### VII、 Teaching Schedule Form

表一：通识课程平台 / Form I:General Course Platform

表一（A）：通识必修课程（通必修课）/Form I (A):General Compulsory Courses(General Required)

课程编号 Course Code	课程名称 Course Names	学分数 Cr.s.	总学时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
				理论 The.	实验 Exp.	实践 Pra..	习题 Ueb		
109100000418	军事理论 Military Theory	2	36	36				1	1-18
109110000318	军事技能训练 Military Training	2	36			36		1	1-2
	国家安全教育 National Security Education	1	32	32				1（理）	/
20W100000613	英语 1 English 1	2	32	32				1	4-11
218110000313	体育 1 Physical Education 1	0/1	26			26		1	4-15
	计算机基础II Computer Base II	1/0.5	32	16	16			1	
217100000313	思想道德修养与法律基础 Cultivation of Morals and Fundamentals of Law	2.5/0. 5	52	40		12		2（理）	1-14
217100000413	形势与政策 Situation and Policy	2	32	32		0		2	1-16
225100000118	中华民族共同体概论 Education of Chinese Minzu Community Consciousness	1.5/ 0.5	32	24		12		2	1-8
20W100000713	英语 2 English 2	2	32	32				2	1-8/ 9-16
218110000213	体育 2 Physical Education 2	0/1	32			32		2	1-16
2171000122	中国近现代史纲要 Essentials of China Modern and Contemporary History	2.5/ 0.5	52	40		12		3（理）	1-14
20W100000813	英语 3 English 3	2	32	32				3	1-8/ 9-16

课程编号 Course Code	课程名称 Course Names	学分 Crs.	总学 时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
				理论 The.	实验 Exp.	实践 Pra..	习题 Ueb		
218110000413	体育 3 Physical Education 3	0/1	32			32		3	1-16
112110010718	劳动教育 Labor Education	0/1	32			32		3	1-16
217100000113	马克思主义基本原理 Marxist Fundamentals	2.5/0. 5	52	40		12		4	1-14
2171000121	毛泽东思想和中国特色社 会主义理论体系概论 Introduction to MAO zedong Thought and Socialist Theoretical System with Chinese Characteristics	4/1	88	64		24		5	1-16
20W100000913	英语 4 English 4	2	32	32				4	1-8/ 9-16
218110000113	体育 4 Physical Education 4	0/1	32			32		4	1-16
/	体育素质（名称待定）	0/0.5	16			16		7	1-16
115100000113	就业指导 Employment Guidance	1	16	16				6	1-8/ 9-16
学分要求：学分: 39 Demand of Credits: Credits: 39									

表一 (B): 通识选修课程 (通选课) / Form I (B): General Elective Courses

课程类别 Course Classi-fied	学分 Crs.
通识选修课程 (通选课) General Elective Courses	5

表二：学科基础课程平台

Form II. Basic Course Platform

课程类别 Course Classified	课程编号 Numbers of courses	课程名称 Course Names	学分数 Crs.	总学时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
					理论 The.	实验 Exp.	实践 Pra..	习题 Ueb		
学科基础必修 Require Basic Courses	2241000066	民族资源与环境保护 导论 Introduction to Ethnic Resources and Environmental Protection	1.5	24	24				1	
		无机化学 Inorganic Chemistry	3	48	48				1	
		无机化学实验 Inorganic Chemistry Experiments	/0.5	16		16			1	
		分析化学 Analytical Chemistry	2	32	32				1	
		分析化学实验 Analytical Chemistry Experiments	1	32		32			1	
		高等数学 A(1) Higher Mathematics A (1)	4	80	64			16	1	
		线性代数 Linear Algebra	2	48	32			16	1	
	22410000913	画法几何&工程制图 Descriptive Geometry & Engineering Drawing	2	32	32				2	
	210102000413	高等数学 A(2) Higher Mathematics A (2)	5	96	80			16	2	
		大学物理 B(1) College Physics B (1)	3	56	48			8	2	
	211112000113	大学物理 B(1)实验 University Physics B(1) Experiments	0.5	16		16			2	
	2241000067	工程测量学 Engineering Surveying	2	32	32				2	

课程类别 Course Classified	课程编号 Numbers of courses	课程名称 Course Names	学分 数 Crns.	总学 时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
					理论 The.	实验 Exp.	实践 Pra..	习题 Ueb		
		概率论与数理统计 Probability Theory and Mathematical Statistics	2.5	56	40			16	3	
	211100011218	大学物理 B (2)	2.0	40	32			8	3	
	211112000213	大学物理 B (2) 实验	0.5	16		16			3	
学科基础必修 Require Basic Courses	213100035218	有机化学 Organic Chemistry	3	48	48				3	
	213110036118	有机化学实验 Organic Chemistry Experiments	1	32		32			3	
		物理化学 Physical chemistry	3.5	56	56				3	
		物理化学实验 Physical Chemistry Experiments	1	32		32			3	
	2241000068	环境工程 CAD Environmental Engineering CAD	1	16	16				3	
	2241100069	环境工程 CAD 实验 Environmental Engineering CAD Experiments	1.5	48		48			3	
	2241000070	电子电工学 Electronic Engineering	2.5	40	40				3	
	2241100071	电子电工学实验 Electronics and Electrotechnics Experiments	0.5	16		16			3	
	2241000073	现代环境分析 Modern Environmental analysis	2	32	32				4	
	2241100074	现代环境分析实验 Modern Environmental Analysis Experiments	1	32		32			4	

课程类别 Course Classi- fied	课程编号 Numbers of courses	课程名称 Course Names	学分 数 Crns.	总学 时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
					理论 The.	实验 Exp.	实践 Pra..	习题 Ueb		
	213103016813	流体力学 Fluid Mechanics	3	48	48				4	
学科基础必修 Require Basic Courses	213113016913	流体力学实验 Experiments of Fluid Mechanics	0.5	16		16			4	
	2241000133	环境工程微生物学 Microbiology of Environmental Engineering	2	32	32				4	
	2241100132	环境工程微生物学实 验 Environmental Engineering Microbiology Experiments	0.5	16		16			4	
	213103013213	工程力学 Engineering Mechanics	2.5	40	40				4	
	2241000072	土建工程基础 Foundation of Civil Engineering	2	32	32				4	
	213103012113	工程项目管理 Project Management	1.5	24	24				5	
	学分要求：学分:60.5 Demand of Credits:Credits: 60.5									

表三：专业课程平台

Form III: Major Courses Platform

课程类别 Course Classified	课程编号 Course Code	课程名称 Course Names	学分数 Crs.	总学时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
					理论 The.	实验 Exp.	实践 Pra.	习题 Ueb		
专业必修 Required Courses	213103017113	环境工程原理 Environmental Engineering Principle	4	64	64				5	
	213113016213	环境工程原理实验 Principle Experiments of Environmental Engineering	1	32		32			5	
	213103011313	大气污染控制工程 Air Pollution Control Engineering	3	48	48				5	
	2241100127	大气污染控制工程实验 Experiments of Air Pollution Control Engineering	0.5	16		16			5	
	213103021513	环境监测 (B) Environmental Monitoring (B)	2	32	32				5	
	213113023813	环境监测实验 (B) Environmental Monitoring Experiments (B)	1	32		32			5	
	2241000124	物理性污染控制工程 Physical Pollution Control Engineering	2	32	32				5	
	213103029713	环境规划与管理 Environmental Planning and Management	2	32	32				5	
	213103018313	水污染控制工程 (A1) Water Pollution Control Project (A1)	2	32	32				5	
	213103018613	水污染控制工程 (A2) Water Pollution Control Project (A2)	3.5	56	56				6	1-14 周
	214113019613	水污染控制工程实验 Water Pollution Control Engineering Experiments	1	32		32			6	



课程类别 Course Classified	课程编号 Course Code	课程名称 Course Names	学分 Crs.	总学时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
					理论 The.	实验 Exp.	实践 Pra.	习题 Ueb		
	2241000137	固体废物处理与处置 Solid Waste Treatment and Disposal	2.5	40	40				6	
专业必修 Required Courses	2241100136	固体废物处理与处置 实验 Solid Waste Treatment and Disposal Experiments	0.5	16		16			6	
	213103017613	环境工程设备 Environmental Engineering Equipment	2	32	32				6	
	213103018013	环境工程设计 Environmental Engineering Design	2	32	32				6	
	224100005113	环境影响评价 Environmental Impact Assessment	2	32	32				6	
	213113018513	环境工程综合实验 Comprehensive Experiments of Environmental Engineering	2	64		64			6	
	2241000131	环境工程概预算 Budget Estimates For Environmental Engineering	1.5	24	24				6	
专业选修 Elective courses	2241000075	环境工程专业英语 English for Environmental Engineering	1.5	24	24				6 (限选)	至少修读 7.5 学分，第 4 学期修 1.5 学分，第六和第七学期各修 3.0 学分
	2241000128	环境保护政策、法规、标准 Environmental Protection Policies, Regulations and Standards	1.5	24	24				4 (限选)	
	2241000077	土壤及地下水污染修复 Remediation of Soil and Groundwater Pollution	1.5	24	24				6 (限选)	
	224101006013	清洁生产与循环经济 Cleaner Production and Circular Economy	1.5	24	24				6	

课程类别 Course Classified	课程编号 Course Code	课程名称 Course Names	学分 Crs.	总学时 Hrs.	学时类型 Period Classification				开课学期 Semester	备注 Notes
					理论 The.	实验 Exp.	实践 Pra.	习题 Ueb		
	213103018913	污染控制微生物工程 Microbial Engineering for Pollution Control	1.5	24	24				6	
	213103023613	高级氧化技术 Advanced oxidation technology	1.5	24	24				6	
	213103017413	水灾害防治 Water-related Disaster Prevention and Control	1.5	24	24				7	
	213103020613	给排水与环境工程施工 Water Supply and Drainage and Environmental Engineering Construction	1.5	24	24				7	
	213103024313	膜处理技术 Membrane Treatment Technology	1.5	24	24				7	
	213103021013	给水处理 Treatment of Water Supply	1.5	24	24				7	
	213103014513	水化学 Hydrochemistry	1.5	24	24				7	
	213103021413	生态水文学 Ecohydrology	1.5	24	24				7	
	213103022213	环境生态学(B) Environmental Ecology (B)	1.5	24	24				7	
	213103008413	GIS 与环境模型 GIS and Environmental Modelling	1.5	24	24				7	
	2241000078	文献检索及科技论文写作 Document Retrieval and Scientific Paper Writing	1.5	32	16	16			7	
学分要求: 学分: 42 其中必修 34.5 学分, 选修 7.5 学分 Demand of Creditx:Credits: 42 Required: 34.5 Elective: 7.5										

表四：实践教学平台

Form IV: Practical Teaching Platform

类别 Category	课程编号 Course Code	实践教学名称 Practical Teaching Name	学分 Crs.	周数 Total Period	学时类型 Type of Period		开课学期 Semester	地点 Place	
					实验 Exp.	实习 Pra.			
教学实践 Teaching Practice	课程设计 Project Design	2241100079	环境工程原理课程 设计 Course Design of Environmental Engineering Principles	1.0	1.0W			5	校内 At Scho ol
		213113026613	大气污染控制工程课 程设计 Course Design of Air Pollution Control Engineering	1.0	1.0W			5	校内 At Scho ol
		2241100135	固体废物处理与处置 课程设计 Course Design of Treatment and Disposal of Solid Wastes	1.0	1.0W			6	校内 At Scho ol
		213113028013	水污染控制工程课程 设计 Course Design of Water Pollution Control Engineering	1.0	1.0W			6	校内 At Scho ol
	小计 Preliminary			4	4W				
教学实习 Teaching Exercitation	教学实习 Teaching Exercitation	2241100080	工程测量学实习 Engineering Surveying Practice	0.5	0.5W			2	校内 At Scho ol
		224110000213	工程训练 Engineering Training	1	1W			4	第四 学期 结束 后的 暑期 校外 Out of Scho ol
		224110006213	认识实习 Cognition Practice	1	1W			4	校外 Out of Scho ol

类别 Category	课程编号 Course Code	实践教学名称 Practical Teaching Name	学分 Crs.	周数 Total Period	学时类型 Type of Period		开课学期 Semester	地点 Place
					实验 Exp.	实习 Pra.		
	2241100130	生产实习 Production Practice	2	2W			7	校外 Out of School
毕业实习 Graduation Practice	2241100134	毕业实习 Graduation Practice	2	2W			8	校外 Out of School
毕业论文 (设计) Graduation Project (Thesis)	224110000113	毕业设计 (论文) Graduation Project (Thesis)	10	10W			8	校内 At School
小计 Amount			16.5	16.5W				
总计 Amount	学分 Credits 20.5 学时 Period 周 Weeks 20.5							

表五：创新创业平台

Form V: Innovation & Entrepreneurship Platform

类别 Category	学分 Crs.
创新学分 Innovation Credits	3
创业学分 Entrepreneurship Credits	2
总计 Amount	5