|  |  |  |  |
| --- | --- | --- | --- |
| 院教学指导委员主任（院长） | 学院分管教学副院长 | 审核人  （专业责任教授负责人） | 执笔人 |
| 叶义成电子签名 | 冯涛院长电子签名 | 冯涛院长电子签名 |  |

**环境工程专业培养方案**

**Curriculum for Undergraduate of** **Environmental Engineering Major**

**一、培养目标**

本专业培养德、智、体、美、劳全面发展，具有扎实的自然科学基础、良好的人文素养和可持续发展理念，掌握环境工程学科的基本理论、专业知识和技能，具有较强的工程实践能力、创新创业精神、国际视野、团队合作精神和良好的沟通能力，能够在环境保护及相关领域从事污染控制工程的设计与运营管理、环境监测与评价、环境管理、教育与研究开发等工作，适应社会经济及科技发展需要的高素质应用型人才。期待毕业生五年左右达到以下目标：

1、具有良好的人文社会科学素养、社会责任感和职业道德，理解环境保护和可持续发展的内涵。

2、掌握环境工程领域的基础理论和专业知识，具有污染物监测和分析、环境质量评价、环境规划与管理的实际应用能力，具备在环境工程领域独立从事工程设计、制图、施工、环保产品开发、生产及设备运行管理等工作的能力。

3、具有良好的交流和沟通能力、组织管理能力及团队合作精神，并在团队中作为骨干或者领导发挥有效作用。

4、具有较强的实践能力、创新意识、国际视野，能够解决环境工程领域的复杂工程技术问题。

5、具有自主学习和终身学习的能力，能适应社会和行业的发展。

**I.Training objectives**

This major trains undergraduate students to be high-quality applied talents with all-round development of morality, intelligence, physique, aesthetics and labor, who have the ability of strong natural science basis, good humanistic literacy and sustainable development idea. The students should master the basic theory, professional knowledge and skills in environmental engineering. The student should have strong engineering practice ability, innovation and entrepreneurship, international vision, teamwork spirit and good communication ability. Students will be qualified for design and operation of pollution control engineering, environmental [monitoring](javascript:;) and assessment, environmental management, education and research etc. in environmental protection and related fields. This major aims at cultivating students to become high quality applied talents to satisfy the needs of the [social](javascript:;) [economy](javascript:;) and the [technological](javascript:;) [development](javascript:;). Students of this major are supposed to achieve the following aims after graduated 5 years:

**1.** Having good humanistic and social science literacy, social responsibility and professional ethics. Being able to comprehensively consider legal policy, social ethics, environmental resources and sustainable economic development in the systematic design.

**2.** Mastering basic theory and professional knowledge of environmental engineering. Being capable of [practical](javascript:;) [application](javascript:;) in monitoring and analysis of pollutant, environmental assessment, planning and management. Having skills of environmental engineering design, engineering drawing, engineering construction, product exploitation, operation and management of environmental protection facilities.

**3.** Having good communication, organization and management skills, team-work spirit. Being able to play an effective role as a backbone or leader in the team.

**4.** Having strong practical ability, innovative consciousness and international vision, be able to solve the complex engineering technical problems in the field of environmental engineering.

**5.** Having ability to acquire information, understand the forefront and development trends of environmental engineering. Having a sense of autonomous and lifelong learning.

**二、毕业要求**

1、工程知识：能够将数学、自然科学、工程基础和环境工程专业知识用于解决环境污染防治、环境监测和环境评价中的复杂环境工程问题。

2、问题分析：能够应用数学、自然科学和环境工程科学的基本原理，识别和表达复杂环境工程问题，并结合文献研究进行分析，以获得有效结论。

3、设计/开发解决方案：能够设计环境污染防治等复杂工程问题的解决方案和工艺流程，并在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。

4、实验设计与信息处理：能够基于环境科学原理，采用科学方法对复杂环境工程问题进行研究，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、现代工具的应用：针对环境工程领域的复杂工程问题，能够开发、选择与使用恰当的现代分析仪器、信息技术工具和软件对工程问题进行模拟和预测，并理解其局限性。

6、工程师社会责任意识：能够基于环境工程相关背景知识进行合理分析，评价环境专业工程实践和复杂环境工程问题解决方案对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。

7、环境和可持续发展：能够理解并正确评价针对复杂环境工程问题的工程实践对环境、社会可持续发展的影响，并能够基于可持续发展理念设计和管理环境工程、开发环保新技术。

8、职业道德与规范：具有良好的人文社会科学素养、高度的社会责任感和保护环境的使命感，能够在环境工程实践中理解并恪守工程职业道德和规范，履行环境保护的社会责任。

9、团队合作：具备团队协作的精神，能够在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、沟通交流：能够就复杂的环境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说明书、陈述发言、清晰表达或回应指令。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。

11、项目管理：理解并掌握环境工程管理原理与经济决策方法，并能在多学科环境中应用，具有较强的组织管理能力。

12、终身学习：具有自主学习和终身学习的意识，有不断学习新知识，拓展新技能，不断增强自身专业水平和适应发展的能力。

**II.Requirements**

**1.** Engineering knowledge: being able to solve complex environmental engineering problems in the field of [environmental](javascript:;) [pollution](javascript:;) [prevention](javascript:;), [environmental](javascript:;) [monitoring](javascript:;) and [environmental](javascript:;) [evaluation](javascript:;) by using mathematics, natural science, engineering fundamental and professional knowledge.

**2.** Problem analysis: being able to use fundamentals of mathematics, natural science and engineering science to identify and analyze complex environmental engineering problems by literatures and acquire valid conclusions.

**3.** Designing and exploiting solutions: being able to use the fundamentals and technological means of environmental engineering to design solution of complex problems with consciousness of innovation. The design process should take the factors of society, health, safety, law, culture and environment etc. into account.

**4.** Experimental design and information processing: being able to study complex environmental engineering problems with scientific principle and method, including experiment design, data analysis and explanation, and acquire valid conclusion by synthetical information.

**5.** Application of modern tools: being able to select and use appropriate modern analytical instrument, information technology tools and software to solve complex environmental engineering problems, including prediction and simulation of the problems, and understand their limitation.

**6.** The social responsibility awareness of engineer: being able to analyze and assess the influence of solution of environmental engineering practice and complex problems on society, health, safety, law and culture based on environmental background knowledge, and understand the responsibilities.

**7.** Environment and sustainable development: being able to understand and assess the influence of environmental engineering practice on environmental and social sustainable development, and being able to design and manage environmental projects and develop new environmental technologies based on the concept of sustainable development.

**8.** Professional moral and standard: having human and social science literacy, social responsibility and mission. Being able to understand and comply with the engineering professional ethics and standards in environmental engineering and fulfill responsibilities.

**9.** Teamwork: having a good team spirit, being able to be individual, team member and manager in a group with multidisciplinary background.

**10.** Communication: be able to effectively communicate with industry peers and the public on complex environmental engineering issues, be able to write reports and design scripts, make presentations, express clearly and respond to instructions. Having certain international vision and be able to communicate under cross-cultural background.

**11.** Project management: having the ability of organization and management. Be able to grasp engineering management principles and economic decision-making methods and use them flexibly in multi-disciplinary environment.

**12**. Lifelong learning: possessing the consciousness of independent learning and lifelong learning; having the ability of continuous learning and adapting 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 |  |  |  | √ | √ |

**三、专业主干课程**

环境工程导论、环境工程原理、环境化学、环境工程微生物学、水污染控制工程、大气污染控制工程、固体废物处理与处置、噪声污染控制A、环境监测、环境影响评价、环境热点案例讨论、工程流体力学。

**III．Core courses**

Introduction to Environmental Engineering, Principles of Environmental Engineering, Environmental Chemistry, Environmental Engineering Microbiology, Water Pollution Control Engineering, Air Pollution Control Engineering, Solid Waste Treatment and Disposal, Noise Pollution Control A, Environmental Monitoring, Environmental Assessment, Discussion of Environmental Case, Engineering Fluid Mechanics.

**四、基本学制：四年**

**IV. Recommended length of the program：4 years**

**五、授予学位：工学学士**

**V. 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。

**六、毕业学分要求：176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 | | 48 | 3、专业课程模块 | | 57 |
| 公共基础课程 | | 32 | 专业必修课程 | | 39 |
| 通识教育课程 | 必修 | 12 | 专业选修课程 | | 18 |
| 选修 | 4 | 4、实践教学模块 | | 18.5 |
| 2、学科基础平台 | | 46.5 | 专业实践课程 | 必修 | 18.5 |
| 专业学科基础课程 | 必修 | 43 | 选修 | 0 |
| 选修 | 3.5 | 5、素质拓展模块 | | 6 |

\*通识教育选修课4学分包括：人文社科类1学分、艺术体育类1学分、自然科学类1学分、经济管理类1学分

**VI. Credits required for graduation：176 credits**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Type of courses** | | **Academic credits** | **Type of courses** | | **Academic credits** |
| 1.Common Courses | | 48 | 3. Specialized Courses | | 57 |
| Common Basic Courses | | 32 | Required Courses | | 39 |
| General Education Courses | Required Courses | 12 | Elective Courses | | 18 |
| Elective Courses | 4 | 4.Practicum and Internship Courses | | 18.5 |
| 2.General Disciplinary Courses | | 46.5 | Disciplinary Practical Courses | Required Courses | 18.5 |
| Disciplinary Basic Courses | Required Courses | 43 | Elective Courses | 0 |
| Elective Courses | 3.5 | 5.Quality Development Courses | | 6 |

**七、学分比例**

**VII. 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 | 150.5 | 85.51% |
| 选修 | 25.5 | 14.49% |

1. **实践教学环节学分比例**

**The Proportion of credits in practice teaching**

|  |  |  |  |
| --- | --- | --- | --- |
| 实践教学环节 | 实验教学学分 | 28.75 | 30.26% |
| 实践教学模块 | 18.5 |
| 素质拓展模块 | 6 |

1. **毕业要求实现矩阵**

**VIII. Graduation Realization Matrix**

| **课程名称** | **环境工程专业毕业要求** | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| （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 |  |  |  |  |  |  |  | √ |  |  |  |  |
| 大学计算机基础 |  |  |  |  | √ |  |  |  |  |  |  |  |
| 大学英语 |  |  |  |  |  |  |  |  |  | √ |  | √ |
| 体育 |  |  |  |  |  |  |  |  | √ |  |  |  |
| 大学生心理健康 |  |  |  |  |  |  |  |  | √ |  |  | √ |
| 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 |  |  |  |  |  |  |  |  |  |  |  | √ |
| 工程制图B |  |  |  |  | √ |  |  |  |  |  |  |  |
| 机械设计基础C |  |  | √ |  |  |  |  |  |  |  |  |  |
| 线性代数 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 高等数学B | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 大学物理B | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 大学物理实验 |  |  |  | √ |  |  |  |  |  |  |  |  |
| 无机化学B | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 无机化学实验B |  |  |  | √ |  |  |  |  |  |  |  |  |
| 物理化学A | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 物理化学实验A |  |  |  | √ |  |  |  |  |  |  |  |  |
| 有机化学B | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 有机化学实验B |  |  |  | √ |  |  |  |  |  |  |  |  |
| 分析化学B | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 分析化学实验B |  |  |  | √ |  |  |  |  |  |  |  |  |
| 信息检索与利用 |  |  |  |  | √ |  |  |  |  |  |  |  |
| 工程流体力学 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 大气污染控制工程 | √ | √ | √ |  |  |  |  |  |  | √ |  |  |
| 环境工程微生物学 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 环境化学 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 水污染控制工程（一） | √ | √ | √ |  |  |  |  |  |  |  |  |  |
| 水污染控制工程（二） | √ | √ | √ |  |  |  |  |  |  |  |  |  |
| 噪声污染控制A | √ | √ | √ |  |  |  |  |  |  |  |  |  |
| 环境影响评价 |  |  |  |  | √ | √ | √ |  |  |  | √ |  |
| 固体废物处理与处置 | √ | √ | √ |  |  |  |  |  |  |  |  |  |
| 环境监测 | √ | √ |  |  |  | √ |  |  |  |  |  |  |
| 环境工程原理 | √ | √ | √ |  |  |  |  |  |  |  |  |  |
| 环境工程导论 |  |  | √ |  |  |  | √ | √ |  |  |  |  |
| 环境热点案例讨论 |  | √ |  |  |  |  | √ |  |  |  |  |  |
| 环境工程综合实验（一） |  |  |  | √ |  |  |  |  |  |  |  |  |
| 环境工程综合实验（二） |  |  |  | √ |  |  |  |  |  |  |  |  |
| 环境生态工程 |  |  | √ |  |  |  | √ |  |  |  |  |  |
| 环境法 |  |  | √ |  |  | √ |  | √ |  |  |  |  |
| 环境管理 |  |  |  |  | √ | √ | √ |  |  |  | √ |  |
| 环境仪器分析 |  |  |  |  | √ |  |  |  |  |  |  |  |
| 专业英语 |  |  |  |  |  |  |  |  |  | √ |  |  |
| 大气污染控制工程课程设计 |  | √ | √ |  |  |  |  |  |  | √ | √ |  |
| 水污染控制课程设计 |  | √ | √ |  |  |  |  |  |  | √ | √ |  |
| 机械设计基础课程设计 |  |  | √ |  |  |  |  |  |  |  |  |  |
| 工程训练B |  |  |  |  |  |  |  |  | √ |  |  |  |
| 创新创业实践 |  |  |  |  |  |  |  |  | √ |  |  | √ |
| 第二课堂 |  |  |  |  |  |  |  |  | √ |  |  |  |
| 认识实习 |  |  |  |  |  | √ |  | √ |  |  |  |  |
| 生产实习 |  |  |  |  |  | √ |  | √ |  |  |  |  |
| 毕业实习 |  |  |  |  |  | √ | √ | √ |  |  |  |  |
| 毕业设计（论文） |  | √ | √ | √ | √ |  | √ |  |  | √ | √ |  |

**九、课程修读进程表**

有机化学B

分析化学B

军事理论、马克思主义基础原理等思想政治类课程

公共类、基础类选修课程

大学英语（一）

大学英语（三）

大学英语（四）

体 育（一）

体 育（二）

体 育（三）

体 育（四）

高等数学B（一）

高等数学B（二）

线性代数

概率论与

数理统计A

毕业设计(论文)

大学物理B（一）

大学物理B（二）

工程力学A

物理化学A（一）

二次资源综合

利用

无机化学实验

物理实验

物理化学实验A（二）

机械设计基础

课程设计

电工技术

工程训练B

大学计算机基础

计算机程序设计

基础

物理化学实验A（一）

分析化学实验B

大学计算机

基础

计算机程序

设计基础

环境工程导论

工程制图

环境工程

微生物学

环境化学

环境热点

案例讨论

大学英语（二）

环境生态工程

大气污染控制

工程课程设计

选修课程的课内实验

水污染控制

课程设计

水污染控制工程

环境监测

各类专业选修课

物理化学A（二）

无机化学B

环境影响评价

大气污染

控制工程

环境工程原理

机械设计基础

固体废物

处理与处置

噪声污染控制A

工程流体力学

生产实习

认识实习

暑期社会实践2

暑期社会实践1

毕业实习

专业英语

有机化学实验B

环境工程综合实验

**十、教学环节设置及学分分布表**

X.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** | **是否双学位** | **先修课程/备注** |
| **讲课** | **实验** | **上机** |
| 平台  平台 | 公共课程平台课程 | 公共基础课程 | 必修 | 5105001 | | 思想道德修养与法律基础  Moral Cultivation and Basics of Law | 3 | 48 | 42 |  |  | 6 | 1 |  |  |
| 5103001 | | 中国近现代史纲要  An Outline of Modern and Contemporary History of China | 3 | 48 | 42 |  |  | 6 | 2 |  |  |
| 5102001 | | 马克思主义基本原理  Fundamentals of Marxism | 3 | 48 | 44 |  |  | 4 | 3 |  |  |
| 5101001 | | 毛泽东思想与中国特色社会主义理论体系概论  Theoretical System of Socialism with Chinese Characteristics | 5 | 80 | 64 |  |  | 16 | 4 |  |  |
| 1401840 | | 大学英语（一）  College English (I) | 3 | 48 | 48 |  |  |  | 1 |  |  |
| 1401841 | | 大学英语（二）  College English(II) | 3 | 48 | 48 |  |  |  | 2 |  |  |
| 1401842 | | 大学英语（三）  College English (III) | 3 | 48 | 48 |  |  |  | 3 |  |  |
| 1401843 | | 大学英语（四）  College English(IV) | 3 | 48 | 48 |  |  |  | 4 |  |  |
| 1501882 | | 体育(一)  Physical Education (I) | 1 | 26 | 26 |  |  |  | 1 |  |  |
| 1501883 | | 体育(二)  Physical Education (II) | 1 | 34 | 34 |  |  |  | 2 |  |  |
| 1501884 | | 体育(三)  Physical Education (III) | 1 | 34 | 34 |  |  |  | 3 |  |  |
| 1501885 | | 体育(四)  Physical Education (IV) | 1 | 34 | 34 |  |  |  | 4 |  |  |
| 5106001 | | 形势与政策  World Affairs and State Policy | 2 | 64 | 64 |  |  |  | 1-8 |  | 分散进行 |
| 通识教育课程 | 必修 | 1306001 | | 大学计算机基础A  Introduction to Computer Science | 3 | 48 | 30 |  | 18 |  | 1 |  |  |
| 2501002 | | 公益劳动  Community Service | 1 | 16 |  |  |  | 16 | 4 |  |  |
| 2502006 | | 大学生心理健康教育  Mental Health Education | 2 | 32 | 24 |  |  | 8 | 1 |  |  |
| 2503001 | | 职业生涯规划与就业指导  Career Plan and Vocational Guidance | 1 | 16 | 16 |  |  |  | 2 |  |  |
| 2504003 | | 军事课  Military Course | 4 | 148 | 36 |  |  | 112 | 1,2 |  |  |
| 8001001 | | 创业学基础  Fundamentals of entrepreneurship | 1 | 16 | 16 |  |  |  | 2 |  |  |
| 选修 |  | | 人文社科类1学分  Humanity and Social Science 1 Academic Credit | | | | | | | | | |
|  | | 经济管理类1学分  Economic and Management 1 Academic Credit | | | | | | | | | |
|  | | 自然科学类1学分  Natural Science 1 Academic Credit（“Introduction to Metallurgy” is required） | | | | | | | | | |
|  | | 艺术体育类1学分  Artistic and Sports 1 Academic Credit | | | | | | | | | |
| 学科基础平台课程 | 专业学科基础课程 | 必修 | 0302609 | | 工程制图B  Engineering Drawing B | 3 | 48 | 40 | 0 | 8 | 0 | 2 |  |  |
| 0304602 | | 机械设计基础B  Basics of Mechanical Design B | 3.5 | 56 | 50 | 6 | 0 | 0 | 5 |  |  |
| 0702026 | | 线性代数  Linear Algebra | 2 | 32 | 32 | 0 | 0 | 0 | 3 |  |  |
| 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 |  |  |
| 0703605 | | 大学物理B(一)  College Physics B(I) | 2.5 | 40 | 40 | 0 | 0 | 0 | 2 |  |  |
| 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 | 1.5 | 24 | 0 | 24 | 0 | 0 | 3 |  |  |
| 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 |  |  |
| 2206667 | | 物理化学A(一)  Physical Chemistry A(I) | 2.5 | 40 | 40 | 0 | 0 | 0 | 3 |  |  |
| 2206668 | | 物理化学A(二)  Physical Chemistry A (II) | 2 | 32 | 32 | 0 | 0 | 0 | 4 |  |  |
| 2253021 | | 物理化学实验A(一)  Experiments in Physical Chemistry A(I) | 2 | 32 | 0 | 32 | 0 | 0 | 3 |  |  |
| 2253022 | | 物理化学实验A(二)  Experiments in Physical Chemistry A(II) | 1.5 | 24 | 0 | 24 | 0 | 0 | 4 |  |  |
| 2206679 | | 有机化学B  Organic Chemistry B | 2.5 | 40 | 40 | 0 | 0 | 0 | 3 |  |  |
| 2253027 | | 有机化学实验B  Organic Chemical Experiment B | 1.5 | 24 | 0 | 24 | 0 | 0 | 3 |  |  |
| 2206681 | | 分析化学B  Analytical Chemistry B | 2 | 32 | 32 | 0 | 0 | 0 | 3 |  |  |
| 2253028 | | 分析化学实验B  Analytical Chemical Experiment B | 1.5 | 24 | 0 | 24 | 0 | 0 | 3 |  |  |
| 选修 | 0401001 | | 电工技术  Electrotechnics | 2 | 32 | 24 | 8 | 0 | 0 | 3 |  |  |
| 0701605 | | 工程力学A  Engineering Mechanics A | 4.5 | 72 | 66 | 6 | 0 | 0 | 4 |  |  |
| 0702303 | | 概率论与数理统计A  Probability and Mathematical Statistics(A) | 3 | 48 | 48 | 0 | 0 | 0 | 4 |  |  |
| 1306008 | | C语言程序设计基础  Basics of C Programming Language | 4 | 64 | 40 | 0 | 24 | 0 | 2 |  |  |
| 1306005 | | 数据库技术及应用  Database Technology and Applications | 3 | 48 | 24 | 0 | 24 | 0 | 3 |  |  |
| 1601004 | | 信息检索与利用  Information Retrieval | 1 | 16 | 6 | 0 | 10 | 0 | 4 |  |  |
| 模块  模块  模块 | 专业课程模块  专业课程模块 | 专业必修课程 | 必修 | 0106081 | | 环境工程导论  Introduction to Environmental Engineering | 1 | 16 | 16 | 0 | 0 | 0 | 2 |  |  |
| 0106063 | | 环境工程原理  Principles of Environmental Engineering | 3 | 48 | 48 | 0 | 0 | 0 | 5 |  |  |
| 0106086 | | 工程流体力学  Engineering Fluid Mechanics | 3 | 48 | 48 | 0 | 0 | 0 | 5 |  |  |
| 0106011 | | 环境工程微生物学  Environmental Engineering  Microbiology | 2.5 | 40 | 40 | 0 | 0 | 0 | 5 |  |  |
| 0106014 | | 环境化学  Environmental Chemistry | 2.5 | 40 | 40 | 0 | 0 | 0 | 5 |  |  |
| 0106082 | | 水污染控制工程（一）  Water Polution Control Engineeing(I) | 2 | 32 | 32 | 0 | 0 | 0 | 5 |  |  |
| 0106083 | | 水污染控制工程（二）  Water Polution Control Engineeing(II) | 4 | 64 | 64 | 0 | 0 | 0 | 6 |  |  |
| 0106054 | | 噪声污染控制 A  Noise Pollution Control A | 2 | 32 | 32 | 0 | 0 | 0 | 5 |  |  |
| 0106075 | | 固体废物处理与处置  Solid Waste Treatment and Disposal | 3 | 48 | 48 | 0 | 0 | 0 | 5 |  |  |
| 0106028 | | 环境影响评价  Environmental Assessment | 2.5 | 40 | 34 | 0 | 6 | 0 | 6 |  |  |
| 0106060 | | 环境监测  Environmental Monitoring | 2.5 | 40 | 40 | 0 | 0 | 0 | 6 |  |  |
| 0106080 | | 环境热点案例讨论  Discussion of Environmental Case | 1.5 | 24 | 24 | 0 | 0 | 0 | 6 |  |  |
| 0106070 | | 环境仪器分析  Environmental Instrument Analysis | 1.5 | 24 | 24 | 0 | 0 | 0 | 6 |  |  |
| 0106001 | | 大气污染控制工程  Air Pollution Control Engineering | 4 | 64 | 54 | 10 | 0 | 0 | 7 |  |  |
| 0106055 | | 环境工程综合实验（一）  Comprehensive experiment of Environmental Engineering(Ⅰ) | 2 | 32 | 0 | 32 | 0 | 0 | 5 |  |  |
| 0106065 | | 环境工程综合实验（二）  Comprehensive experiment of Environmental Engineering(Ⅱ) | 2 | 32 | 0 | 32 | 0 | 0 | 6 |  |  |
| 专业选修课程 | 选修 | 0106073 | | 环境生态工程  Ecological Engineering | 2 | 32 | 32 | 0 | 0 | 0 | 4 |  |  |
| 0106067 | | 环境法  Environment Law | 2 | 32 | 32 | 0 | 0 | 0 | 4 |  |  |
| 0106034 | | 专业英语  Specialized English | 2 | 32 | 32 | 0 | 0 | 0 | 5 |  |  |
| 0106077 | | 环境材料基础  Basics of Environmental Materials | 2 | 32 | 32 | 0 | 0 | 0 | 5 |  |  |
| 0106012 | | 环境管理  Environmental Management | 2.5 | 40 | 32 | 0 | 8 | 0 | 6 |  |  |
| 0106045 | | 清洁生产  Clean Production | 2 | 32 | 32 | 0 | 0 | 0 | 6 |  |  |
| 0107050 | | 矿物化学提取  Chemical Extraction of Mineral | 2 | 32 | 32 | 0 | 0 | 0 | 6 |  |  |
| 0106087 | | 二次资源综合利用  Comprehensive Utilization of Secondary Resources | 2 | 32 | 28 | 0 | 4 | 0 | 6 |  |  |
| 0107070 | | 废水资源化综合利用  Comprehensive Utilization of Wastewater | 2 | 32 | 32 | 0 | 0 | 0 | 6 |  |  |
| 0106050 | | 大气污染控制设备与设计  Air Pollution Control: Equipment and Design | 2 | 32 | 32 | 0 | 0 | 0 | 7 |  |  |
| 0106066 | | 环保设施运营管理  Operation and Management of Environmental Protection Facilities | 2 | 32 | 32 | 0 | 0 | 0 | 7 |  |  |
| 0106072 | | 工业水污染控制技术与设备  Industrial Water Pollution Control Technology and Equipment | 2 | 32 | 32 | 0 | 0 | 0 | 7 |  |  |
| 0101051 | | CAD技术  CAD Technology | 2 | 32 | 16 | 0 | 16 | 0 | 7 |  |  |
| 0101078 | | 地理信息系统  Geographic Information System | 2 | 32 | 24 | 0 | 8 | 0 | 7 |  |  |
| 0101122 | | 建设项目管理  Management of Construction Project | 2.5 | 40 | 40 | 0 | 0 | 0 | 7 |  |  |
| 0106074 | | 环境工程土建施工  Environmental Civil Engineering | 2 | 32 | 32 | 0 | 0 | 0 | 6 |  |  |
| 0101149 | | 工程概预算  Project Budget | 2.5 | 40 | 40 | 0 | 0 | 0 | 7 |  |  |
| 实践教学模块 | 专业实践课程 | 必修 | 0106088 | | 认识实习  Introductory Practice Experience | 2 | 2周 | 0 | 0 | 0 | 2周 | 5 |  |  |
| 0106089 | | 生产实习  Production Practice | 2 | 2周 | 0 | 0 | 0 | 2周 | 7 |  |  |
| 0106090 | | 毕业实习  Pre-graduation Internship | 2 | 2周 | 0 | 0 | 0 | 2周 | 8 |  |  |
| 0106091 | | 毕业设计（论文）  Undergraduate Project (Thesis) | 8 | 15周 | 0 | 0 | 0 | 15周 | 8 |  |  |
| 0106061 | | 大气污染控制工程课程设计  Design on Air Pollution Control | 1 | 2周 | 0 | 0 | 0 | 2周 | 7 |  |  |
| 0106062 | | 水污染控制课程设计  Design on Water Pollution Control | 1 | 2周 | 0 | 0 | 0 | 2周 | 6 |  |  |
| 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 |  |  |
| 1701008 | | 工程训练B  [Engineering](javascript:;) [Training](javascript:;) B | 1.5 | 48 | 0 | 0 | 0 | 48 | 3 |  |  |
| 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 | | | | | | | | | | |
| 第二课程 |  | 第二课堂3学分  Second Classroom 3 Academic Credits | | | | | | | | | | |

**十一、教学进程安排表**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 学期 | 周 次 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 1 | ♀ | ♀/★ | ⊙/★ | ★ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | ● |  |  |  |  |  |  |  |  |  |
| 2 | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | ● |  |  |  |  |  |  |  |  |  |
| 3 | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | ● |  |  |  |  |  |  |  |  |  |
| 4 | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | ● |  |  |  |  |  |  |  |  |  |
| 5 | ╬ | ╬ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | × | × | ● |  |  |  |  |  |  |  |  |  |
| 6 | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | × | × | ● |  |  |  |  |  |  |  |  |  |
| 7 | ∕ | ∕ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | □ | × | × | ● |  |  |  |  |  |  |  |  |  |
| 8 | ＃ | ＃ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | ※ | √ | ┼ |  |  |  |  |  |  |  |  |  |

符号说明：

1、♀ 入学前机动 2、⊙ 入学教育 3、★ 军训 4、□理论教学 5、√ 机动时间 6、●考试 7、×课程设计 8、Ε专业实验或实习 9、—假期

10、▲ 学年论文 11、Ｇ技能训练 12、※ 毕业设计（论文） 13、┼毕业鉴定 14、＃毕业实习 15、Ｓ写生 16、∕ 生产实习(金工实习)

17、Τ教材教法 18、☆ 教育实习 19、○技能教育实习 20、◎ 专题讲座 21、◆ 公益劳动 22、△ 社会调查 23、╬ 认识实习