

# 给排水科学与工程 2021 版本本科培养方案

## Undergraduate Education Plan for Specialty in Water Supply and Drainage Science and Engineering (2021)

|              |                                                   |                   |                              |
|--------------|---------------------------------------------------|-------------------|------------------------------|
| 专业名称         | 给排水科学与工程                                          | 主干学科              | 土木工程、化学                      |
| Major        | Water Supply and Drainage Science and Engineering | Major Disciplines | Civil Engineering, Chemistry |
| 计划学制         | 四年                                                | 授予学位              | 工学学士                         |
| Duration     | 4 Years                                           | Degree Granted    | Bachelor of Engineering      |
| 所属大类         | 土木类                                               | 大类培养年限            | 1 年                          |
| Disciplinary | Civil Engineering                                 | Duration          | 1 year                       |

### 最低毕业学分规定

#### Graduation Credit Criteria

| 课程分类<br>Course Classification<br>课程性质<br>Course Nature | 公共基础课程<br>Public Basic Courses | 通识教育课程<br>Public Courses | 大类课程<br>Basic Courses in General Discipline | 专业教育课程<br>Specialized Courses | 个性课程<br>Personalized Course | 集中性实践教学环节<br>Specialized Practice Schedule | 课外学分<br>Study Credit after Class | 总学分<br>Total Credits |
|--------------------------------------------------------|--------------------------------|--------------------------|---------------------------------------------|-------------------------------|-----------------------------|--------------------------------------------|----------------------------------|----------------------|
| 必修课<br>Required Courses                                | 31                             | \                        | 35                                          | 28.5                          | \                           | 25                                         | 10                               | 180.0                |
| 选修课<br>Elective Courses                                | \                              | 9                        | \                                           | 25.5                          | 6                           | \                                          | 10                               |                      |

### 一、培养目标与毕业要求

#### I Educational Objectives & Requirement

##### (一) 培养目标

本专业通过人文素养、职业规范、专业知识、实践能力和职业发展能力的专业教育和综合训练，培养适应我国社会主义现代化建设需要，德、智、体、美、劳全面发展，适应能力强、实干精神强、创新意识强，以及具有卓越追求、卓越能力的卓越人才，能够在市政及相关行业从事给排水系统设计、研发制造、施工安装、运行管理及智慧水务城市设计、评估、管理等工作。

本专业期待毕业生五年后能达成下列目标：

- (1) 身心健康，具备良好的敬业精神、社会责任感和工程职业道德，关注当代全球和社会问题，具有质量意识、环境意识和安全意识，成为“适应能力强、实干精神强、创新能力强”的人才。
- (2) 具备城市给水排水工程、建筑给水排水工程、工业给水排水工程、水污染控制规划、水资源保护及利用、水环境生态修复等方面的知识。

(3) 能在政府部门、规划部门、经济管理部门、环保部门、设计单位、工矿企业、科研单位、高等院校等从事规划、设计、施工、管理、教育和研究开发方面工作的给水排水工程学科的高级工程技术人才。

(4) 能适应社会发展及变革，注重给排水工程行业与社会、环境和可持续发展的关系，具有国际化视野，富有创新精神和创新能力，能推动给排水科学与工程行业的创新发展。

## **I Education Objectives**

Through the professional education and comprehensive training of humanistic quality, professional norms and knowledge as well as practical and professional development ability, this major cultivates excellent talents who can adapt to the requirements for China's socialist modernization construction. With all-round development of morality, intelligence, physical education, beauty and labor, students will have strong adaptability, practical spirit, innovative sense, excellent pursuit and excellent ability. These professionals can be engaged in the design, research and development, manufacturing, construction, installation and operation management of water supply and drainage system.

Students of this program are expected to achieve the following objectives 5 years after graduation:

(1) Keep in good physical and mental health, have professional spirit, the sense of social responsibility and engineering professional ethics, pay attention to contemporary global and social issues, have awareness of quality, environment and safety, and become a talent with "strong adaptability, strong practical spirit and strong innovation ability".

(2) Have the knowledge of water supply and drainage engineering for city, building and industry, water pollution control, utilization and protection of water resources, ecological restoration of water environment, etc.

(3) Become the senior engineering and technical personnel of planning, design, construction, management, education and research and development in the government, planning departments, economic management departments, environmental protection departments, design companies, industrial and mining enterprises, scientific institutions and universities.

(4) Adapt to social development and reform, fully understand the relationship among the water supply and sewerage engineering industry, environment and society; have an international perspective and promote the innovation and development of the industry with creative spirit and ability.

## （二）毕业要求

- (1) **工程知识:** 具有一定的人文社科、国防和体育运动基础知识, 掌握本专业所需的数学、自然科学等基础知识并能够用于解决给排水领域复杂工程问题。
- (2) **问题分析:** 能够应用数学、自然科学与工程科学的基本原理, 认识、发现并通过文献和图书资料研究分析给排水领域复杂工程问题, 且得到有效结论。
- (3) **解决方案:** 能够针对给排水领域复杂工程问题, 设计、开发合理的解决方案, 并在设计环节运用创新思维, 综合考虑社会、健康、安全、法律以及文化等因素。
- (4) **研究:** 能够基于科学原理和方法, 对给排水复杂工程问题设计实验、分析与解释数据, 并通过信息综合得到合理有效的结论。
- (5) **工具使用:** 能够针对给排水工程专业领域的复杂问题, 开发、选择与使用恰当的技术、资源、现代工具和信息技术工具, 并能够理解其局限性。
- (6) **工程与社会:** 能够应用专业知识进行合理分析、评价给排水复杂工程问题的解决方案对社会、健康、安全、法律以及文化等的影响, 并认识所需承担的责任。
- (7) **环境和可持续发展:** 具有环境保护和可持续发展意识, 并正确评价给排水专业工程实践对社会、健康、安全以及环境的影响。
- (8) **职业规范:** 热爱祖国, 具有社会责任感。愿为社会主义现代化建设服务, 具有爱岗敬业和团队协作的意识, 拥有良好的职业道德并遵守职业规范。
- (9) **个人和团队:** 同时兼具独立工作和团队合作能力, 能够在多学科背景的团队中承担个体、团队成员以及负责人的角色。
- (10) **沟通:** 能够就给排水领域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, 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:** 具备较丰富的工程管理学知识和经济决策方法, 能够建立并使用合适的管理体系, 协调组织任务, 并能在复杂环境中应用。
- (12) **终身学习:** 具有自主学习、终身学习的意识, 有不断学习和适应社会发展的能力。

## II Graduation Requirement

- (1) **Engineering knowledge:** Have a certain basic knowledge of humanities and social sciences, national defense and sports, master the basic knowledge such as mathematics and natural science, and can solve complex engineering problems in the field of water supply and sewerage.
- (2) **Problem analysis:** Apply the basic principles of mathematics, natural sciences and engineering sciences to recognize, discover and analyze complex engineering problems in the field of water supply and sewerage through literatures and books, and draw effective conclusions.

- (3) **Design/development solution:** Design and develop reasonable solutions to complex engineering problems in water supply and sewerage engineering. Use innovative thinking in the design process, taking into account social, health, safety, legal and cultural factors.
- (4) **Research:** Design experiments, analyze and interpret data for complex problems of water supply and sewerage engineering based on scientific principles and methods. Draw reasonable and effective conclusions through information synthesis.
- (5) **Usage of modern tools:** Develop, select and use appropriate technologies, resources, modern tools and information technology tools for complex problems in the professional field of water supply and sewerage engineering, and can understand their limitations.
- (6) **Engineering and society:** Apply professional knowledge to reasonably analyze and evaluate the impact of solutions to complex problems of water supply and sewerage engineering on society, health, safety, law, and culture, and recognize the responsibilities.
- (7) **Environment and sustainable development:** Be aware of environmental protection and sustainable development and evaluate the impact of professional practices of water supply and sewerage engineering on society, health, safety and the environment correctly.
- (8) **Professional standards:** Love the motherland and have a sense of social responsibility. Be willing to serve the socialist modernization construction, have a sense of dedication and cooperation, have good professional ethics and abide by professional norms.
- (9) **Individual and team:** Have ability to handle both independent work and teamwork, can play key roles as individuals, team members and leaders in multidisciplinary backgrounds.
- (10) **Communication:** Communicate with colleagues and the public on complex engineering issues effectively in the field of water supply and sewerage, and have a certain international perspective for intercultural communications.
- (11) **Project management:** Possess rich knowledge of engineering management and economic decision-making methods, establish and use a suitable management system, coordinate organizational tasks, and apply in complex environments.
- (12) **Life-long learning:** Have the consciousness of independent learning and lifelong learning, and have the ability to continuous learning and adaptation to social development.

表 1 培养目标的矩阵关系毕业要求支撑

| 毕业要求    | 培养目标 1 | 培养目标 2 | 培养目标 3 | 培养目标 4 |
|---------|--------|--------|--------|--------|
| 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 | √      | √      |        |        |

毕业要求的达成需以课程（教学环节）的教学活动为支撑。本专业为合理设置课程体系、落实对毕业要求的支撑课程，对各项毕业要求进行了解。每项毕业要求（一级指标）被分解为若干层层递进的指标点（二级指标），前一指标点的达成是下一指标点达成的基础，而下一指标点的达成是前一指标点的升华，所有指标点一起，支撑了该毕业要求的达成。根据上述分解方法，本专业各项毕业要求的指标点分解如下表所示。

表 2 毕业要求指标点的分解

| 毕业要求                                                                      | 指标点                                               |
|---------------------------------------------------------------------------|---------------------------------------------------|
| 毕业要求 1.工程知识:具有一定的人文社科、国防和体育运动基础知识，掌握本专业所需的数学、自然科学等基础知识并能够用于解决给排水领域复杂工程问题。 | 1.1 能够将所学数学、自然科学、工程基础等知识用于解决给排水工程中的复杂工程问题。        |
|                                                                           | 1.2 能够用数学、自然科学与工程科学的基本原理对给排水相关的复杂工程问题建立相关数学模型并求解。 |
|                                                                           | 1.3 能够运用数学、自然科学与工程科学相关知识和数学模型方法等推演、分析给排水工程实践中的问题。 |
|                                                                           | 1.4 能够用数学、自然科学与工程科学相关知识用于分析给排水设计方案的处理效果、经济成本比选。   |

|                                                                                      |                                                                       |
|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <p>毕业要求 2.问题分析:能够应用数学、科学与工程科学的基本原理,认识、发现并通过文献和图书资料研究分析给排水领域复杂工程问题,且得到有效结论。</p>       | <p>2.1 能够运用数学、自然科学和工程科学的基本原理,识别和判断给排水工程实践中的基本科学问题与技术问题。</p>           |
|                                                                                      | <p>2.2 能够基于数学、自然科学和工程的基本原理和方法,结合数学模型方法,对给排水工程中的复杂工况,进行正确表达。</p>       |
|                                                                                      | <p>2.3 能够基于数学、自然科学和工程的基本原理和方法认识到解决给排水工程问题方案的多样性,会通过文献研究遴选并确定解决方案。</p> |
|                                                                                      | <p>2.4 能够运用数学、自然科学和工程的基本原理,结合文献研究,分析影响因素,得出有效结论。</p>                  |
| <p>毕业要求 3.解决方案:能够针对给排水领域复杂工程问题,设计、开发合理的解决方案,并在设计环节运用创新思维,综合考虑社会、健康、安全、法律以及文化等因素。</p> | <p>3.1 掌握水处理方案设计的方法和技术,了解影响设计目标和技术方案的各种因素。</p>                        |
|                                                                                      | <p>3.2 能够对水处理方案进行设计。</p>                                              |
|                                                                                      | <p>3.3 能够针对任务需要,对水处理工艺构筑物和处理单元进行创新设计。</p>                             |
|                                                                                      | <p>3.4 能够设计、开发合理的水处理解决方案,并能综合考虑社会、健康、安全、法律以及文化等因素。</p>                |
| <p>毕业要求 4.研究:能够基于科学原理和方法,对给排水复杂工程问题设计实验、分析与解释数据,并通过信息综合得到合理有效的结论。</p>                | <p>4.1 能够基于科学原理和方法,根据给排水工程的研究目标,开展相关调研分析。</p>                         |
|                                                                                      | <p>4.2 能够基于科学原理和方法,针对给排水复杂工程问题的研究目标,设计合理可行的研究方案。</p>                  |
|                                                                                      | <p>4.3 能够基于科学原理和方法,对给排水复杂工程问题制定相关数据采集方案。</p>                          |
|                                                                                      | <p>4.4 能够基于科学原理和方法,对所采集的数据进行分析与解释,并得到合理有效的结</p>                       |

|                                                                              |                                                                     |
|------------------------------------------------------------------------------|---------------------------------------------------------------------|
|                                                                              | 论。                                                                  |
| 毕业要求 5.工具使用:能够针对给排水工程专业领域的复杂问题,开发、选择与使用恰当的技术、资源、现代工具和信息技术工具,并能够理解其局限性。       | 5.1 了解解决给排水工程专业领域复杂工程问题可采用的技术、资源、现代工具和信息技术工具。                       |
|                                                                              | 5.2 能够针对给排水工程专业领域复杂工程问题,选择恰当的技术、资源、现代工具和信息技术工具。                     |
|                                                                              | 5.3 能够针对给排水工程专业领域复杂工程问题,开发现代工具和信息技术工具,并能够理解其局限性。                    |
| 毕业要求 6.工程与社会:能够应用专业知识进行合理分析、评价给排水复杂工程问题的解决方案对社会、健康、安全、法律以及文化等的影响,并认识所需承担的责任。 | 6.1 能够应用专业知识,了解给排水复杂工程问题的解决方案对社会、健康、安全、法律以及文化等的影响。                  |
|                                                                              | 6.2 能够应用专业知识进行合理分析、评价给排水复杂工程问题的解决方案对社会、健康、安全、法律以及文化等的影响,并认识所需承担的责任。 |
| 毕业要求 7.环境和可持续发展:具有环境保护和可持续发展意识,并正确评价给排水专业工程实践对社会、健康、安全以及环境的影响。               | 7.1 知晓给排水工程专业领域相关的环境保护和可持续发展理念。                                     |
|                                                                              | 7.2 能够基于环境保护和可持续发展意识,正确评价给排水专业工程实践对社会、健康、安全以及环境的影响。                 |
| 毕业要求 8.职业规范:热爱祖国,具有社会责任感。愿为社会主义现代化建设服务,具有爱岗敬业和团队协作的意识,拥有良好的职业道德并遵守职业规范。      | 8.1 具有社会主义核心价值观,理解个人和社会的关系,了解中国国情,制定自己的职业规划。                        |
|                                                                              | 8.2 理解诚实公正、诚信守则的工程职业道德和规范,并能在工程实践中自觉遵守。                             |
|                                                                              | 8.3 理解工程师对公众的安全、健康、福祉以及环境保护的社会责任,能够在给排水工程实践中自觉履行责任。                 |

|                                                                           |                                                             |
|---------------------------------------------------------------------------|-------------------------------------------------------------|
| 毕业要求 9.个人和团队:同时兼具独立工作和团队合作能力,能够在多学科背景的团队中承担个体、团队成员以及负责人的角色。               | 9.1 具有团队意识和协作能力,能够与团队成员有效沟通,理解团队的重要性,与其他成员共享信息,合作共事。        |
|                                                                           | 9.2 能够在多学科背景下的团队中,独立完成团队分配的工作,能胜任在团队中承担的责任。                 |
|                                                                           | 9.3 能够在多学科背景下的团队中,开展组织协调工作。                                 |
| 毕业要求 10.沟通:能够就给排水领域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,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 针对具体任务和专业需求,通过口头、书面等方式与团队成员、业界同行及社会公众进行有效的沟通和交流。       |
|                                                                           | 10.2 具备国际视野,了解给排水行业的国内外现状、技术动态和发展趋势。                        |
|                                                                           | 10.3 掌握一门外语,能够在跨文化背景下针对给排水专业相关领域的复杂工程问题,进行沟通和交流。            |
| 毕业要求 11.项目管理:具备较丰富的工程管理学知识和经济决策方法,能够建立并使用合适的管理体系,协调组织任务,并能在复杂环境中应用。       | 11.1 掌握工程项目管理与经济决策方法,理解水处理工艺设计与施工过程中管理与经济决策的重要性。            |
|                                                                           | 11.2 能够理解水处理工艺设计与施工过程中项目管理的关键问题。                            |
|                                                                           | 11.3 能够在水处理工艺设计与施工项目管理过程中选用合适的管理体系,协调组织任务,并能在复杂环境中应用。。      |
| 毕业要求 12.终身学习:具有自主学习、终身学习的意识,有不断学习和适应社会发展的能力。                              | 12.1 具备自主学习的思维,掌握自主学习的方法,能认识不断探索和自主学习的必要性,具备创新意识和终身学习的意识。   |
|                                                                           | 12.2 具有批判性思维,知晓拓展知识和能力的途径,身心健康,能针对个人或职业发展的需求,进行自主学习,适应社会发展。 |



## 二、专业核心课程与专业特色课程

### II Core Course and Characteristic Courses

#### (一) 专业核心课程

给排水管道系统 B,水资源利用与保护,水质工程学 B1,水质工程学 B2,建筑给水排水工程 A

Water Supply and Drainage Piping System, Water Resources Utilization and Protection, Water Quality Engineering I, Water Quality Engineering II, Water Supply and Drainage Engineering of Buildings

#### (二) 专业特色课程

水质工程学 B1,水质工程学 B2,建筑给水排水工程 A

Water Quality Engineering I, Water Quality Engineering II, Water Supply and Drainage Engineering of Buildings

附：毕业要求实现矩阵

## 三、教学建议进程表

| 专业<br>核心<br>课程 | 专业<br>特色<br>课程 | 课程名称                         | 给排水科学与工程专业毕业要求 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |   |    |   |   |    |
|----------------|----------------|------------------------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|---|----|---|---|----|
|                |                |                              | 1              |   |   |   | 2 |   |   |   | 3 |   |   |   | 4 |   |   |   | 5 |   |   | 6 | 7 |   | 8 |   |   | 9 |   |   | 10 |   |   | 11 |   |   | 12 |
|                |                |                              | 1              | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3  | 1 | 2 | 3  | 1 | 2 |    |
|                |                | 思想道德与法治                      |                |   |   |   | √ | √ |   |   |   |   |   |   |   |   |   |   |   | √ |   |   |   | √ |   |   |   |   |   |   |    |   |   |    | √ |   |    |
|                |                | 中国近现代史纲要                     |                |   |   | √ |   |   |   |   |   | √ | √ |   |   |   |   |   |   | √ |   |   | √ | √ |   |   |   |   |   |   |    |   |   | √  |   |   |    |
|                |                | 毛泽东思想和中国特色<br>社会主义理论体系<br>概论 |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ |   |   |   |   |   |   |    | √ | √ | √  |   |   |    |
|                |                | 马克思主义基本原理                    |                |   |   | √ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √  |   |   |    | √ |   |    |
|                |                | 军事理论                         |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √ |   |   |    |   |   |    |   |   |    |
|                |                | 军事技能训练                       |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √ |   |   |    |   |   |    |   |   |    |
|                |                | 体育 1                         |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √ | √ | √ | √  |   |   |    | √ | √ |    |
|                |                | 体育 2                         |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √ | √ | √ | √  |   |   |    | √ | √ |    |
|                |                | 体育 3                         |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √ | √ | √ | √  |   |   |    | √ | √ |    |
|                |                | 体育 4                         |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √ | √ | √ | √  |   |   |    | √ | √ |    |
|                |                | 大学英语 1                       |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ |   |   |   |   |   | √ |   | √ |   |   | √  |   |   |    |   |   |    |
|                |                | 大学英语 2                       |                |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ |   |   |   |   |   | √ |   | √ |   |   | √  |   |   |    |   |   |    |

|   |   |                     |   |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|---|---|---------------------|---|---|--|---|---|---|---|---|---|---|---|--|--|--|--|---|---|---|--|---|---|---|--|--|---|
|   |   | 大学英语 3              |   |   |  |   |   |   |   |   |   |   |   |  |  |  |  | √ |   |   |  | √ | √ | √ |  |  |   |
|   |   | 大学英语 4              |   |   |  |   |   |   |   |   |   |   |   |  |  |  |  | √ |   |   |  | √ | √ | √ |  |  |   |
|   |   | C 程序设计基础 B          |   |   |  | √ |   | √ |   |   |   |   |   |  |  |  |  | √ | √ |   |  |   |   |   |  |  |   |
|   |   | 计算机基础与 C 程序设计综合实验 B |   |   |  | √ |   | √ |   |   |   |   |   |  |  |  |  | √ | √ |   |  |   |   |   |  |  |   |
|   |   | 专业导论                | √ | √ |  |   |   |   |   |   |   | √ | √ |  |  |  |  |   |   |   |  | √ |   |   |  |  | √ |
|   |   | 环境科学概论              |   |   |  |   |   |   |   |   | √ |   |   |  |  |  |  |   | √ | √ |  |   |   |   |  |  |   |
|   |   | 工程与建筑制图             |   |   |  | √ | √ |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 高等数学 A 上            | √ |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 高等数学 A 下            | √ |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 线性代数                | √ |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 普通化学 B              |   |   |  |   |   | √ |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 普通化学实验 B            |   |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  | √ |
|   |   | 工程测量 C              |   |   |  | √ | √ |   |   |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
|   |   | 大学物理 A 上            | √ | √ |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  | √ |
|   |   | 物理实验 A 上            | √ | √ |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 概率论与数理统计 B          | √ |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 水泵与水泵站 B            |   |   |  |   |   | √ | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
|   |   | 水处理生物学 C            |   |   |  | √ | √ |   |   |   |   |   |   |  |  |  |  |   |   |   |  | √ |   |   |  |  |   |
|   |   | 水力学 A               |   |   |  | √ |   |   |   |   |   | √ |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 水分析化学 E             |   |   |  | √ |   |   |   |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
| √ |   | 给排水管道系统 B           |   |   |  |   | √ | √ |   |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
|   |   | 给排水物理化学 A           |   |   |  |   | √ |   |   | √ |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 水文学与水文地质            |   |   |  | √ |   |   |   | √ |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
| √ |   | 水资源利用与保护            |   |   |  | √ |   | √ |   |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
| √ | √ | 水质工程学 B1            |   |   |  | √ | √ | √ | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
| √ | √ | 水质工程学 B2            |   |   |  | √ | √ | √ | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
| √ | √ | 建筑给水排水工程 A          |   |   |  |   |   | √ | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
|   |   | 水处理实验               |   |   |  |   |   |   |   |   |   | √ |   |  |  |  |  |   |   |   |  | √ | √ |   |  |  |   |
|   |   | 电工与电子技术基础 D         | √ |   |  |   |   |   |   |   |   |   |   |  |  |  |  |   |   |   |  |   |   |   |  |  |   |
|   |   | 水工艺设备基础             |   |   |  | √ |   |   | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
|   |   | 工业废水处理技术            |   |   |  |   |   |   | √ |   |   |   |   |  |  |  |  |   |   | √ |  |   |   |   |  |  |   |
|   |   | 工业给水处理技术            |   |   |  |   |   |   | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  |   |
|   |   | 水工程经济               |   |   |  |   |   |   | √ |   |   |   |   |  |  |  |  | √ |   |   |  |   |   |   |  |  | √ |

|  |              |   |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |  |
|--|--------------|---|---|---|---|---|---|---|---|--|--|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|--|
|  | 水工艺仪表与控制     |   |   |   |   |   | √ |   |   |  |  |   |   | √ |   |   |   |   |   |   |  |   |   | √ |   |   |  |
|  | 给排水工程结构      |   |   | √ |   |   | √ |   |   |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 工程力学 A       |   | √ |   | √ |   |   |   |   |  |  |   |   |   |   |   |   | √ |   |   |  |   |   |   |   | √ |  |
|  | 计算机辅助设计基础    |   |   |   |   |   |   |   |   |  |  |   | √ |   |   |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 有机化学 B1      |   |   |   |   |   | √ |   |   |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 水环境化学 A      |   |   |   | √ |   |   |   |   |  |  |   | √ |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 环境生态学 C      |   |   |   | √ |   | √ |   |   |  |  |   |   |   |   | √ |   |   |   |   |  |   |   |   |   |   |  |
|  | 给排水化工基础 A    |   |   |   |   |   | √ |   |   |  |  | √ |   |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 高层建筑给排水      |   |   |   |   |   | √ |   |   |  |  |   |   |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 工程项目管理 C     |   |   |   |   |   |   |   |   |  |  |   | √ |   |   | √ |   |   |   |   |  |   | √ | √ | √ |   |  |
|  | 海绵城市与地下综合管廊  |   |   |   |   |   |   | √ |   |  |  | √ |   |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 排水工程总论       |   |   | √ |   |   | √ |   |   |  |  |   |   |   |   |   |   |   |   |   |  |   |   | √ |   |   |  |
|  | 人工湿地技术       |   |   |   |   |   | √ |   |   |  |  | √ |   |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 废水厌氧生物处理技术   |   |   |   |   |   | √ |   |   |  |  |   | √ |   |   |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 建筑暖通空调 B     |   |   |   |   |   | √ |   |   |  |  |   |   |   | √ |   | √ |   |   |   |  |   |   |   |   |   |  |
|  | 环境监测与评价 A    |   |   |   |   |   |   |   |   |  |  |   |   |   |   | √ | √ | √ |   |   |  |   |   | √ |   |   |  |
|  | 城市工程系统规划     |   |   |   |   |   | √ |   |   |  |  |   | √ |   |   |   |   |   |   |   |  |   | √ |   |   |   |  |
|  | 城市给排水工程规划    |   |   |   |   |   | √ |   |   |  |  |   |   |   | √ |   |   | √ |   |   |  |   | √ |   |   |   |  |
|  | 水工程新技术与新材料   |   |   |   |   |   |   |   |   |  |  | √ |   |   | √ |   |   |   |   |   |  | √ |   |   |   |   |  |
|  | 专业英语阅读与写作    |   |   | √ |   |   | √ |   |   |  |  |   |   |   |   | √ |   |   |   |   |  |   |   |   |   |   |  |
|  | 智慧水务         |   |   |   |   |   | √ |   |   |  |  |   | √ |   |   |   |   |   |   |   |  |   | √ |   |   |   |  |
|  | 给排水科学与工程概论   | √ |   | √ |   |   |   |   | √ |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 测量实习 C       |   |   |   |   |   |   |   |   |  |  | √ |   |   |   |   |   | √ | √ |   |  |   |   |   |   |   |  |
|  | 给排水认识实习      | √ |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   |   |   |   |  |   |   |   | √ |   |  |
|  | 电工电子实习 B     |   |   |   |   |   |   |   |   |  |  |   |   |   |   |   |   | √ | √ | √ |  |   |   |   |   |   |  |
|  | 机械制造工程实训 D   |   | √ |   |   |   | √ |   |   |  |  |   | √ |   |   |   |   | √ | √ | √ |  |   |   |   |   | √ |  |
|  | 水泵与水泵站课程设计 B |   |   | √ |   |   | √ |   |   |  |  |   |   |   |   |   |   | √ |   |   |  |   |   |   |   |   |  |
|  | 给排水管道系统设计 B  |   |   |   |   | √ | √ |   |   |  |  |   |   |   |   |   |   | √ |   |   |  |   |   |   |   |   |  |
|  | 水质工程学I课程设计   |   |   |   |   | √ | √ |   |   |  |  |   |   |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |
|  | 水质工程学II课程设计  |   |   |   |   | √ | √ |   |   |  |  |   |   |   | √ |   |   |   |   |   |  |   |   |   |   |   |  |



|                                      |                                                                                                                                                                                                                                                                        |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------|-----|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|----|---|--------|
|                                      |                                                                                                                                                                                                                                                                        | Modern Chinese History                                                           |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 马克思主义学院                              | 4220003180                                                                                                                                                                                                                                                             | 毛泽东思想和中国特色社会主义理论体系概论                                                             | 4.5  | 66  | 66  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 4 |        |
|                                      |                                                                                                                                                                                                                                                                        | Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics    |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 马克思主义学院                              | 4220005180                                                                                                                                                                                                                                                             | 马克思主义基本原理                                                                        | 2.5  | 42  | 42  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 3 |        |
|                                      |                                                                                                                                                                                                                                                                        | Marxism Philosophy                                                               |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 学工部                                  | 1050002210                                                                                                                                                                                                                                                             | 军事理论                                                                             | 2    | 32  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 2 |        |
|                                      |                                                                                                                                                                                                                                                                        | Military Theory                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 学工部                                  | 1050001210                                                                                                                                                                                                                                                             | 军事技能训练                                                                           | 2    | 136 | 0   | 0                                                                                                                                                                                                                                                                                            | 0 | 136 | 0  | 1 |        |
|                                      |                                                                                                                                                                                                                                                                        | Military Skills Training                                                         |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 体育学院                                 | 4210001170                                                                                                                                                                                                                                                             | 体育 1                                                                             | 1    | 32  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 1 |        |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education I                                                             |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 体育学院                                 | 4210002170                                                                                                                                                                                                                                                             | 体育 2                                                                             | 1    | 32  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 2 |        |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education II                                                            |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 体育学院                                 | 4210003170                                                                                                                                                                                                                                                             | 体育 3                                                                             | 1    | 32  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 3 |        |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education III                                                           |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 体育学院                                 | 4210004170                                                                                                                                                                                                                                                             | 体育 4                                                                             | 1    | 32  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 4 |        |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education IV                                                            |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 外语学院                                 | 4030001210                                                                                                                                                                                                                                                             | 大学英语 1                                                                           | 2    | 48  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 16 | 1 |        |
|                                      |                                                                                                                                                                                                                                                                        | College English I                                                                |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 外语学院                                 | 4030002210                                                                                                                                                                                                                                                             | 大学英语 2                                                                           | 2    | 48  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 16 | 2 | 大学英语 1 |
|                                      |                                                                                                                                                                                                                                                                        | College English II                                                               |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 外语学院                                 | 4030003210                                                                                                                                                                                                                                                             | 大学英语 3                                                                           | 2    | 48  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 16 | 3 | 大学英语 2 |
|                                      |                                                                                                                                                                                                                                                                        | College English III                                                              |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 外语学院                                 | 4030004210                                                                                                                                                                                                                                                             | 大学英语 4                                                                           | 2    | 48  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 16 | 4 | 大学英语   |
|                                      |                                                                                                                                                                                                                                                                        | College English IV                                                               |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 计算机智能学院                              | 4120002210                                                                                                                                                                                                                                                             | C 程序设计基础 B                                                                       | 2    | 32  | 32  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 2 |        |
|                                      |                                                                                                                                                                                                                                                                        | Foundations of C Language Programming A                                          |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 计算机智能学院                              | 4120006210                                                                                                                                                                                                                                                             | 计算机基础与 C 程序设计综合实验 B                                                              | 1    | 32  | 0   | 32                                                                                                                                                                                                                                                                                           | 0 | 0   | 0  | 2 |        |
|                                      |                                                                                                                                                                                                                                                                        | Comprehensive Experiments of Foundation of Computer and C Language Programming B |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 小 计 Subtotal                         |                                                                                                                                                                                                                                                                        |                                                                                  | 31.0 | 744 | 512 | 32                                                                                                                                                                                                                                                                                           | 0 | 136 | 64 |   |        |
| (二)通识教育选修课程                          |                                                                                                                                                                                                                                                                        |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 2 General Education Elective Courses |                                                                                                                                                                                                                                                                        |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 核心选修<br>Core elective<br>courses     | 文明与传统 Civilization and Tradition Courses                                                                                                                                                                                                                               |                                                                                  |      |     |     | 通识课程应修满至少 9 学分。自主选修课程中，至少在艺术与审美、创新与创业两个领域各选修 1 门课程。核心选修课程必选《生命科学概论》。 Minimum subtotal credits: 9. Self-selected courses, at least 1 course in art and aesthetics and 1 course in innovation and entrepreneurship. 《Introduction to Life Sciences》 must be selected as Core elective courses. |   |     |    |   |        |
|                                      | 社会与发展类 Society and Development Courses                                                                                                                                                                                                                                 |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
|                                      | 艺术与人文类 Art and Humanities Courses                                                                                                                                                                                                                                      |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
|                                      | 自然与方法类 Nature and methods Courses                                                                                                                                                                                                                                      |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 自主选修<br>Core elective<br>courses     | 数学与自然科学,哲学与心理学,法学与社会科学,经济与管理,历史与文化,语言与文学,艺术与审美,创新与创业<br>Mathematics and Natural Sciences,Philosophy and Psychology,Science and Social Sciences,Economics and Management,History and Culture,Language and Literature,Art and Aesthetics,Innovation and Entrepreneurship |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| (三)大类必修课程                            |                                                                                                                                                                                                                                                                        |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 3 Basic Discipline Required Courses  |                                                                                                                                                                                                                                                                        |                                                                                  |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 土建学院                                 | 4130369130                                                                                                                                                                                                                                                             | 专业导论                                                                             | 1.5  | 24  | 24  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 1 |        |
|                                      |                                                                                                                                                                                                                                                                        | Introduction to Specialty                                                        |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 土建学院                                 | 4130568170                                                                                                                                                                                                                                                             | 环境科学概论                                                                           | 1    | 16  | 16  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 1 |        |
|                                      |                                                                                                                                                                                                                                                                        | Introduction to Environmental Science                                            |      |     |     |                                                                                                                                                                                                                                                                                              |   |     |    |   |        |
| 土建学院                                 | 4130567170                                                                                                                                                                                                                                                             | 工程与建筑制图                                                                          | 3    | 48  | 48  | 0                                                                                                                                                                                                                                                                                            | 0 | 0   | 0  | 1 |        |

|                                |            |                                            |      |     |     |    |   |   |   |   |                          |
|--------------------------------|------------|--------------------------------------------|------|-----|-----|----|---|---|---|---|--------------------------|
|                                |            | Engineering and Building Cartography       |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050001210 | 高等数学 A 上                                   | 4.5  | 72  | 72  | 0  | 0 | 0 | 0 | 1 |                          |
|                                |            | Advanced Mathematics AI                    |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050002210 | 高等数学 A 下                                   | 5.5  | 88  | 88  | 0  | 0 | 0 | 0 | 2 | 高等数学 A 上                 |
|                                |            | Advanced Mathematics AII                   |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050229110 | 线性代数                                       | 2.5  | 40  | 40  | 0  | 0 | 0 | 0 | 2 |                          |
|                                |            | Linear Algebra                             |      |     |     |    |   |   |   |   |                          |
| 化生学院                           | 4200362170 | 普通化学 B                                     | 2.5  | 40  | 40  | 0  | 0 | 0 | 0 | 2 |                          |
|                                |            | General Chemistry                          |      |     |     |    |   |   |   |   |                          |
| 化生学院                           | 4200363170 | 普通化学实验 B                                   | 0.5  | 16  | 0   | 16 | 0 | 0 | 0 | 2 |                          |
|                                |            | General Chemistry Experiment               |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130047110 | 工程测量 C                                     | 2    | 32  | 24  | 8  | 0 | 0 | 0 | 2 |                          |
|                                |            | Engineering Survey                         |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050021110 | 大学物理 A 上                                   | 3.5  | 56  | 56  | 0  | 0 | 0 | 0 | 2 |                          |
|                                |            | College Physics I                          |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050466130 | 物理实验 A 上                                   | 1    | 32  | 0   | 32 | 0 | 0 | 0 | 3 | 大学物理 A 上                 |
|                                |            | Physics Experiment I                       |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050058110 | 概率论与数理统计 B                                 | 3    | 48  | 48  | 0  | 0 | 0 | 0 | 4 |                          |
|                                |            | Probability and Mathematical Statistics    |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050022110 | 大学物理 A 下                                   | 3.5  | 56  | 56  | 0  | 0 | 0 | 0 | 2 | 大学物理 A 上                 |
|                                |            | College Physics II                         |      |     |     |    |   |   |   |   |                          |
| 理学院                            | 4050467130 | 物理实验 A 下                                   | 1    | 32  | 0   | 32 | 0 | 0 | 0 | 4 | 大学物理 A 下                 |
|                                |            | Physics Experiment II                      |      |     |     |    |   |   |   |   |                          |
| 小 计 Subtotal                   |            |                                            | 35.0 | 600 | 512 | 88 | 0 | 0 | 0 |   |                          |
| (四)专业必修课程                      |            |                                            |      |     |     |    |   |   |   |   |                          |
| 4 Specialized Required Courses |            |                                            |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130595170 | 水泵与水泵站 B                                   | 2    | 32  | 30  | 2  | 0 | 0 | 0 | 5 | 水力学 A                    |
|                                |            | Water Pump and Water Pump Station          |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130048220 | 水处理生物学 C                                   | 1.5  | 24  | 24  | 0  | 0 | 0 | 0 | 3 |                          |
|                                |            | Water Treatment Biology A                  |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130186110 | 水力学 A                                      | 4    | 64  | 46  | 18 | 0 | 0 | 0 | 4 |                          |
|                                |            | Hydraulics                                 |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130046220 | 水分析化学 E                                    | 1.5  | 24  | 24  | 0  | 0 | 0 | 0 | 4 | 普通化学 B,有机化学 B1,给排水物理化学 A |
|                                |            | Water Analytical Chemistry                 |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130594170 | 给排水管道系统 B                                  | 3    | 48  | 48  | 0  | 0 | 0 | 0 | 5 |                          |
|                                |            | Water Supply and Drainage Piping System    |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130061210 | 水文学与水文地质                                   | 2    | 32  | 32  | 0  | 0 | 0 | 0 | 5 |                          |
|                                |            | Hydrology and Hydrogeology                 |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130222110 | 水资源利用与保护                                   | 2.0  | 32  | 32  | 0  | 0 | 0 | 0 | 6 |                          |
|                                |            | Water Resources Utilization and Protection |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130338120 | 水质工程学 B1                                   | 3.0  | 48  | 48  | 0  | 0 | 0 | 0 | 6 |                          |
|                                |            | Water Quality Engineering I                |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130339120 | 水质工程学 B2                                   | 4.0  | 64  | 64  | 0  | 0 | 0 | 0 | 6 |                          |
|                                |            | Water Quality Engineering II               |      |     |     |    |   |   |   |   |                          |
| 土建学院                           | 4130098110 | 建筑给水排水工程 A                                 | 2.5  | 40  | 40  | 0  | 0 | 0 | 0 | 5 |                          |

|                                |            |                                                                |      |     |     |     |   |   |   |   |                |
|--------------------------------|------------|----------------------------------------------------------------|------|-----|-----|-----|---|---|---|---|----------------|
|                                |            | Water Supply and Drainage Engineering of Buildings             |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130178110 | 水处理实验                                                          | 1.0  | 32  | 0   | 32  | 0 | 0 | 0 | 6 |                |
|                                |            | Water Treatment Experiments                                    |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130053220 | 水分析化学实验 B                                                      | 0.5  | 16  | 0   | 16  | 0 | 0 | 0 | 4 |                |
|                                |            | Experiment of Water Analytical Chemistry                       |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130049220 | 水处理生物学实验                                                       | 0.5  | 16  | 0   | 16  | 0 | 0 | 0 | 3 |                |
|                                |            | Water and Wastewater Microbiology Experiment                   |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130059220 | 给排水水质检测实验                                                      | 1    | 32  | 0   | 32  | 0 | 0 | 0 | 7 |                |
|                                |            | Water Quality Testing Experiment                               |      |     |     |     |   |   |   |   |                |
| 小 计 Subtotal                   |            |                                                                | 28.5 | 504 | 388 | 116 | 0 | 0 | 0 |   |                |
| (五)专业选修课程                      |            |                                                                |      |     |     |     |   |   |   |   |                |
| 5 Specialized Elective Courses |            |                                                                |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130060210 | 给排水物理化学 A *                                                    | 2    | 32  | 32  | 0   | 0 | 0 | 0 | 4 | 有机化学 B1,普通化学 B |
|                                |            | Physical Chemistry of Water Supply and Drainage                |      |     |     |     |   |   |   |   |                |
| 自动化学院                          | 4100214170 | 电工与电子技术基础 D *                                                  | 3    | 48  | 48  | 0   | 0 | 0 | 0 | 4 |                |
|                                |            | Fundamentals of Electrical and Electronic Technology           |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130183110 | 水工艺设备基础 *                                                      | 1.5  | 24  | 24  | 0   | 0 | 0 | 0 | 7 |                |
|                                |            | Fundamentals of Water Technical Equipment                      |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130070110 | 工业废水处理技术 *                                                     | 1.5  | 24  | 24  | 0   | 0 | 0 | 0 | 6 |                |
|                                |            | Industrial Wastewater Treatment                                |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130071110 | 工业给水处理技术 *                                                     | 1.5  | 24  | 24  | 0   | 0 | 0 | 0 | 6 |                |
|                                |            | Industrial Water Supply Treatment                              |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130180110 | 水工程经济 *                                                        | 1.5  | 24  | 24  | 0   | 0 | 0 | 0 | 7 |                |
|                                |            | Water Engineering Economics                                    |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130184110 | 水工艺仪表与控制 *                                                     | 1.0  | 16  | 16  | 0   | 0 | 0 | 0 | 7 |                |
|                                |            | Water Instrument and Control                                   |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130040110 | 给排水工程结构 *                                                      | 2    | 32  | 32  | 0   | 0 | 0 | 0 | 5 |                |
|                                |            | Water Supply and Sewerage Engineering                          |      |     |     |     |   |   |   |   |                |
| 理学院                            | 4050071110 | 工程力学 A *                                                       | 4    | 64  | 60  | 4   | 0 | 0 | 0 | 3 |                |
|                                |            | Engineering Mechanics                                          |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130051220 | 计算机辅助设计基础 *                                                    | 1    | 16  | 16  | 0   | 0 | 0 | 0 | 4 |                |
|                                |            | Foundation of CAD                                              |      |     |     |     |   |   |   |   |                |
| 化生学院                           | 4200385170 | 有机化学 B1 *                                                      | 2.5  | 40  | 40  | 0   | 0 | 0 | 0 | 3 |                |
|                                |            | Organic Chemistry I                                            |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130185110 | 水环境化学 A                                                        | 1.5  | 24  | 24  | 0   | 0 | 0 | 0 | 6 |                |
|                                |            | Water Environmental Chemistry                                  |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130441120 | 环境生态学 C                                                        | 2    | 32  | 32  | 0   | 0 | 0 | 0 | 5 |                |
|                                |            | Environmental Ecology                                          |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130042110 | 给排水化工基础 A                                                      | 2.0  | 32  | 32  | 0   | 0 | 0 | 0 | 6 |                |
|                                |            | Fundamentals of Water Supply and Sewerage Chemical Engineering |      |     |     |     |   |   |   |   |                |
| 土建学院                           | 4130036110 | 高层建筑给排水                                                        | 1.5  | 24  | 24  | 0   | 0 | 0 | 0 | 6 |                |
|                                |            | Water Supply and Drainage of High-Rise                         |      |     |     |     |   |   |   |   |                |

|      |            |                                                                   |     |    |    |   |    |   |   |   |                   |
|------|------------|-------------------------------------------------------------------|-----|----|----|---|----|---|---|---|-------------------|
| 土建学院 | 4130065110 | 工程项目管理 C                                                          | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | Engineering Project Management                                    |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130732170 | 海绵城市与地下综合管廊                                                       | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 5 |                   |
|      |            | Cavernous City and Underground Integrated Corridor                |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130159110 | 排水工程总论                                                            | 1.0 | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | Overview of Sewerage Engineering                                  |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130166110 | 人工湿地技术                                                            | 1.0 | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | Artificial Wetland Technology                                     |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130033110 | 废水厌氧生物处理技术                                                        | 1.0 | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | Anaerobic Treatment Technology of Wastewater                      |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130122110 | 建筑暖通空调 B                                                          | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | Heat, Ventilation and Air-conditioning System of Buildings        |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130077110 | 环境监测与评价 A                                                         | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 5 |                   |
|      |            | Environmental Monitoring and Assessment                           |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130006210 | 城市工程系统规划                                                          | 1.5 | 24 | 24 | 0 | 0  | 0 | 0 | 6 |                   |
|      |            | Urban Engineering System Planning                                 |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130472130 | 城市给排水工程规划                                                         | 2   | 32 | 32 | 0 | 0  | 0 | 0 | 6 |                   |
|      |            | Urban Water Supply and Sewerage Engineering Planning              |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130182110 | 水工程新技术与新材料                                                        | 1.0 | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | New Technology and Materials for Water Engineering                |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130056220 | 给排水科学与工程概论 *                                                      | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 3 |                   |
|      |            | Introduction to Water Science and Engineering                     |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130012220 | 建筑力学 D3                                                           | 3   | 48 | 48 | 0 | 0  | 0 | 0 | 3 |                   |
|      |            | Engineering Mechanics                                             |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130731170 | 给排水新技术与创新创业 *                                                     | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 6 | 水质工程学 B1,水质工程学 B2 |
|      |            | Innovation Technique and Application in Water Supply and Sewerage |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130052220 | 水工程计算机辅助设计                                                        | 0.5 | 16 | 0  | 0 | 16 | 0 | 0 | 4 |                   |
|      |            | Computer Aided Design of Water Engineering                        |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130058220 | 水环境化学 (英)                                                         | 1.5 | 24 | 24 | 0 | 0  | 0 | 0 | 6 |                   |
|      |            | Water Environmental Chemistry                                     |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130067110 | 工程造价软件应用                                                          | 1.5 | 24 | 24 | 0 | 0  | 0 | 0 | 7 | 水工程经济             |
|      |            | Engineering Cost Software Utilization                             |     |    |    |   |    |   |   |   |                   |
| 理学院  | 4050130110 | 理论力学 B                                                            | 3.0 | 48 | 48 | 0 | 0  | 0 | 0 | 3 |                   |
|      |            | Theoretical Mechanics                                             |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130060220 | 水工程施工 *                                                           | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 7 |                   |
|      |            | Water Project Construction                                        |     |    |    |   |    |   |   |   |                   |
| 土建学院 | 4130030110 | 房屋建筑概论                                                            | 1   | 16 | 16 | 0 | 0  | 0 | 0 | 5 | 建筑力学 D3           |



|                                                                                                                                                                                                                                                                                               |            |                                                                     |      |     |     |   |    |    |   |   |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------|------|-----|-----|---|----|----|---|---|--|
|                                                                                                                                                                                                                                                                                               |            | Introduction to Houses and Buildings                                |      |     |     |   |    |    |   |   |  |
| 小 计 Subtotal                                                                                                                                                                                                                                                                                  |            |                                                                     | 53.5 | 864 | 844 | 4 | 16 | 0  | 0 |   |  |
| 专业任选课程中至少选修 1 学分，专业限选课程至少选修 24.5 学分，总共至少选修 25.5 学分。<br>Minimum subtotal credits 1 for specialized limited courses, and 24.5 credits for specialized optional courses. In total, minimum subtotal 25.5 credits for specialized elective courses.                                               |            |                                                                     |      |     |     |   |    |    |   |   |  |
| (六)个性课程                                                                                                                                                                                                                                                                                       |            |                                                                     |      |     |     |   |    |    |   |   |  |
| 6 Personalized Elective Courses                                                                                                                                                                                                                                                               |            |                                                                     |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130462130 | 专业英语阅读与写作                                                           | 1.5  | 24  | 24  | 0 | 0  | 0  | 0 | 7 |  |
|                                                                                                                                                                                                                                                                                               |            | Academic English Reading and Writing                                |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130045220 | 智慧水务                                                                | 2    | 32  | 32  | 0 | 0  | 0  | 0 | 6 |  |
|                                                                                                                                                                                                                                                                                               |            | Smart Water                                                         |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130003990 | 环境监测与评价 B                                                           | 1    | 16  | 16  | 0 | 0  | 0  | 0 | 4 |  |
|                                                                                                                                                                                                                                                                                               |            | Environmental Monitoring and Assessment                             |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130004990 | 环境生态学 E                                                             | 2    | 32  | 32  | 0 | 0  | 0  | 0 | 5 |  |
|                                                                                                                                                                                                                                                                                               |            | Environmental Ecology                                               |      |     |     |   |    |    |   |   |  |
| 小 计 Subtotal                                                                                                                                                                                                                                                                                  |            |                                                                     | 6.5  | 104 | 104 | 0 | 0  | 0  | 0 |   |  |
| 学生从以上个性课程和学校发布的其它个性课程目录中选课，要求至少选修 6 学分，其中本专业所列个性课程至少选修 5 学分。<br>Students can select courses from above and the other personalized courses in catalog, and are required to obtain at least 6 credits. In addition, students must achieve 5 credits by taking courses in their major direction. |            |                                                                     |      |     |     |   |    |    |   |   |  |
| (七)专业教育集中性实践教育环节                                                                                                                                                                                                                                                                              |            |                                                                     |      |     |     |   |    |    |   |   |  |
| 7 Specialized Practice Schedule                                                                                                                                                                                                                                                               |            |                                                                     |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130234110 | 测量实习 C                                                              | 1.5  | 24  | 0   | 0 | 0  | 24 | 0 | 3 |  |
|                                                                                                                                                                                                                                                                                               |            | Survey Practice                                                     |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130734170 | 给排水认识实习                                                             | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 3 |  |
|                                                                                                                                                                                                                                                                                               |            | Cognition Practice of Water Supply and Sewerage                     |      |     |     |   |    |    |   |   |  |
| 自动化学院                                                                                                                                                                                                                                                                                         | 4100069110 | 电工电子实习 B                                                            | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 4 |  |
|                                                                                                                                                                                                                                                                                               |            | Practice of Electrical Engineering & Electronics                    |      |     |     |   |    |    |   |   |  |
| 机电学院                                                                                                                                                                                                                                                                                          | 4080152110 | 机械制造工程实训 D                                                          | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 4 |  |
|                                                                                                                                                                                                                                                                                               |            | Training on Mechanical Manufacturing Engineering D                  |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130065210 | 水泵与水泵站课程设计 B                                                        | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 5 |  |
|                                                                                                                                                                                                                                                                                               |            | Course Design on Water Pump and Water Pump Station                  |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130488130 | 给排水管道系统课程设计 B                                                       | 2    | 32  | 0   | 0 | 0  | 32 | 0 | 5 |  |
|                                                                                                                                                                                                                                                                                               |            | Course Design on Water Supply and Sewerage Piping System            |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130293110 | 水质工程学I课程设计                                                          | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 6 |  |
|                                                                                                                                                                                                                                                                                               |            | Course Design on Water Quality Engineering I                        |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130294110 | 水质工程学II课程设计                                                         | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 6 |  |
|                                                                                                                                                                                                                                                                                               |            | Course Design on Water Quality Engineering II                       |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130599170 | 建筑给水排水工程课程设计 B                                                      | 1    | 16  | 0   | 0 | 0  | 16 | 0 | 5 |  |
|                                                                                                                                                                                                                                                                                               |            | Course Design on Water Supply and Sewerage Engineering of Buildings |      |     |     |   |    |    |   |   |  |
| 土建学院                                                                                                                                                                                                                                                                                          | 4130247110 | 给水厂与污水厂生产实习 A                                                       | 3    | 48  | 0   | 0 | 0  | 48 | 0 | 7 |  |
|                                                                                                                                                                                                                                                                                               |            | Production Practice of Water Supply Plant and Wastewater Plant      |      |     |     |   |    |    |   |   |  |

|              |            |                                                               |      |     |   |   |   |     |   |   |  |
|--------------|------------|---------------------------------------------------------------|------|-----|---|---|---|-----|---|---|--|
| 土建学院         | 4130262110 | 建筑给排水生产实习                                                     | 1    | 16  | 0 | 0 | 0 | 16  | 0 | 7 |  |
|              |            | Production Practice of Water Supply and Sewerage of Buildings |      |     |   |   |   |     |   |   |  |
| 土建学院         | 4130064210 | 给排水毕业实习 A                                                     | 2    | 32  | 0 | 0 | 0 | 32  | 0 | 8 |  |
|              |            | Graduate Practice of Water Supply and Sewerage                |      |     |   |   |   |     |   |   |  |
| 土建学院         | 4130050210 | 毕业设计(论文)                                                      | 8.5  | 272 | 0 | 0 | 0 | 272 | 0 | 8 |  |
|              |            | Graduation Design(Thesis)                                     |      |     |   |   |   |     |   |   |  |
| 小 计 Subtotal |            |                                                               | 25.0 | 536 | 0 | 0 | 0 | 536 | 0 |   |  |

#### 四、 修读指导

#### IV Recommendations on Course Studies

课外培养方案详见《武汉理工大学第二课堂课外学分实施办法》。《形势与政策》和《心理健康教育》课程为课外必修课程，分别计 2 个课外学分。

Please refer to the cultivation plan of the second class-Implementation Measures for Extracurricular Credits of the Second Class of Wuhan University of Technology. Situation & Policy (2 credits) and Mental Health Education (2 credits) are the required extracurricular courses.

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专业培养方案负责人：张翔凌,程静