

水资源与环境工程(实验班)专业培养方案

专业名称与代码:水资源与环境工程 081102-082502

专业培养目标:培养以地球系统科学理论为基础的,具有地学特色的,兼备水资源、环境科学与工程专业知识的,品德高尚、崇尚科学的复合学术型拔尖人才。

专业培养要求:本专业学生将在牢固掌握理科基础、外语、计算机技能的基础上,主要学习地下水资源开发、利用、保护与管理等方面的基本理论和基本方法,培养野外水文地质调查、测绘、制图、实验、测试及数据处理等方面的基本技能,具有应用所学专业分析实际问题、科学研究、组织管理的基本能力。

毕业生应获得以下几个方面的知识和能力

1. 具有浓厚的爱国情结和民族自尊心、自豪感。
2. 热爱科学,具有为科学事业献身的精神。
3. 具有求“科学之真、人文之善、艺术之美”的高尚品质。
4. 具有较强的团队协作精神和组织管理能力。
5. 具有宽厚的数学、物理、化学和生物学基础知识。
6. 具有扎实的地质学基础。
7. 具有地球系统科学理念。
8. 具备系统的水文地质、工程地质、环境地质等专业知识。
9. 具备过硬的外语、计算机、文字表达能力和野外调查、室内实验、仪器分析及数据处理分析技能。

毕业要求及实现途径

序号	毕业要求	实现途径(教学过程)
1	掌握地质基础理论、技能和工作方法	①课堂教学:普通地质学、构造地质学 B、矿物岩石学、地貌学及第四纪地质学 ②课外学习:地质认识实习(北戴河)、地质教学实习(周口店)B、地下水井流试验设计与实践、测量教学实习 A
2	初步掌握地下水有关的基本原理、主要的实验、测试方法和分析技术	①课堂教学:水力学、水文地质学基础 A、地下水动力学 A、水文地球化学(附水分析)、包气带水文地质学、环境同位素原理与技术 ②课外学习:通过开展教学实验,引导学生思考问题,增强学生的动手能力,深化专业知识的理解,掌握基本的测试方法和分析技术
3	具备对地下水形成、埋藏、分布和运移规律等进行调查、评价和综合分析的基本能力	①课堂教学:水资源开发与保护、水文地质工程地质勘察方法、水文地质学基础 A、地下水动力学 A、GIS 原理与应用、钻探与成井工艺、工程物探 ②课外学习:水资源开发与保护课程设计、专业教学实习(三峡)、地下水数值模拟基础课程设计

序号	毕业要求	实现途径(教学过程)
4	具备对地下水资源与环境进行综合评价和开发设计方面的基本能力	①课堂教学:水资源开发与保护、地下水动力学 A、地下水数值模拟基础、地下水环境影响评价方法、地下水污染与防治、土壤污染和防治、水污染控制工程 ②课外学习:专业教学实习(三峡)、水资源开发与保护课程设计、地下水井流试验设计与实践、地下水数值模拟基础课程设计
5	具备解决因地下水所引起的有关地质工程、地质环境问题的基本能力	①课堂教学:地下水防治技术与方法、环境地质学 A、地质灾害防治工程、地下水数值模拟基础、GIS 原理与应用、工程地质学、岩体力学、土力学、环境微生物学等 ②课外学习:引导大学生参加大学生科研立项、大学生科技论文报告会等活动
6	熟悉国家有关水资源的方针、政策和法规;具有一定的管理知识和能力	①课堂教学:环境法规、地下水环境影响评价方法、注册岩土工程师职业技能培训、工程招标投标与概预算 ②课外学习:引导学生关注社会环境问题及国家相关法律政策,鼓励学生参加职业技能培训及资格考试
7	掌握资料查询以及获取信息的基本方法,具有资料归纳、整理和综合分析并加以正确表达的能力	课外学习:测量学教学实习、地质认识实习(北戴河)、地质教学实习(周口店)、专业教学实习(三峡)、专业课程设计、毕业生产实习、毕业设计等

主干学科:地质工程、水利工程、环境科学与工程。

核心课程:地质学基础、水文地质学基础、地下水动力学、水文地球化学、环境微生物学、水文地质工程地质勘察方法、环境地质、地下水污染与防治、水资源开发与保护、生态学等,并设置了不同方向的专业选修课、专题讲座、公共选修课以及科研训练等。

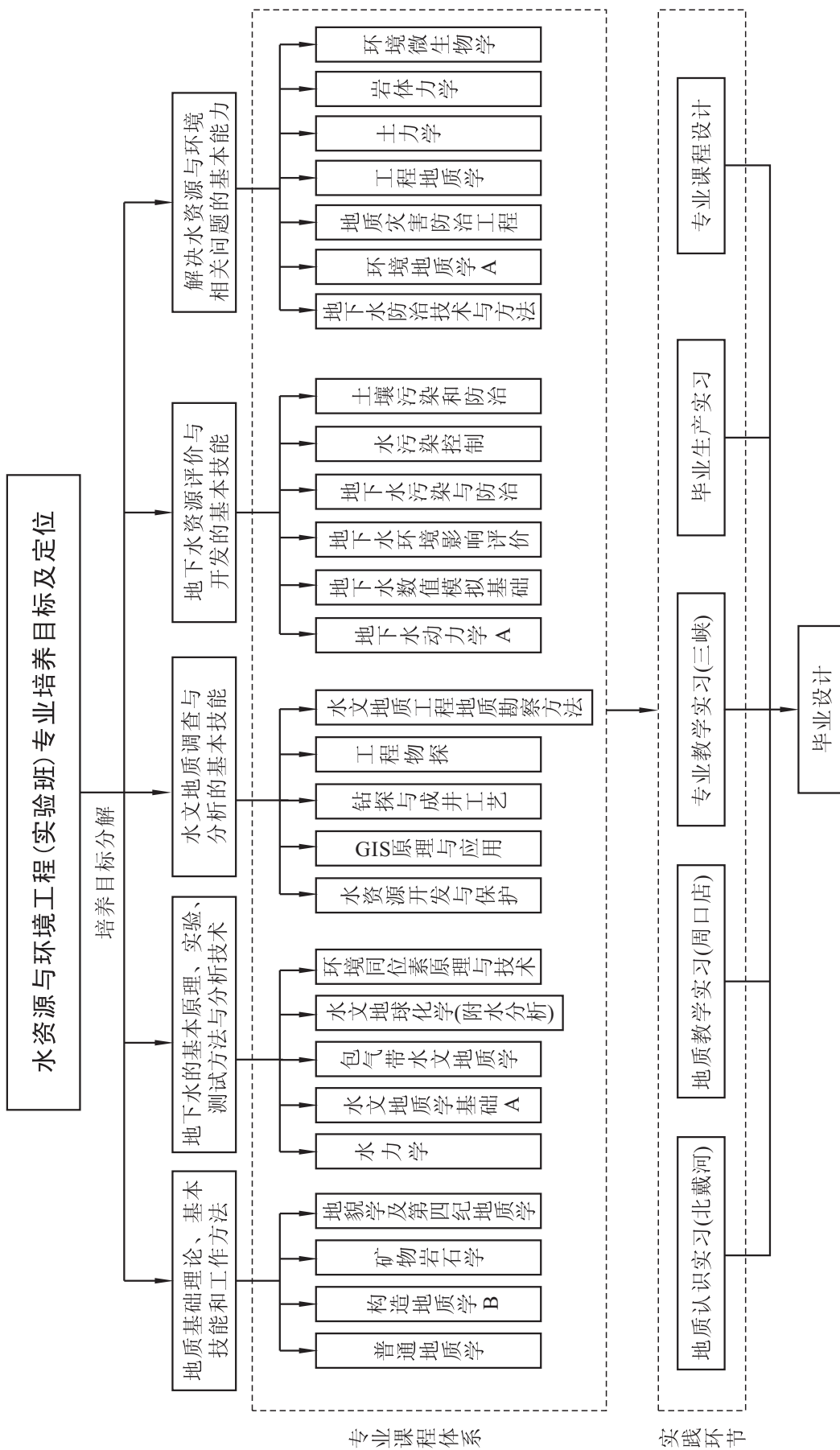
主要专业实验:水力学实验、水文地质学基础实验、地下水动力学实验、水分析化学实验等。

主要实践性教学环节:计算机程序课程设计、工程测量实习、地质基础实习、专业基础教学实习、专业教学实习、毕业实习与毕业设计等。

修业年限:四年。

授予学位:工学学士。

相近专业:环境工程、水文与水资源工程、地下水科学与工程、地质工程。



Program for Water Resources and Environmental Engineering (Experimental Class)

Specialty and Code: Water Resources and Environmental Engineering 081102 - 082502

Education Objective: The program aims at cultivating top-notch interdisciplinary talents who are noble and devoted to science. Students will focus on knowledge of geosciences with solid background in water resources and environmental science and engineering.

Education Requirements: Students will acquire the knowledge and technology for the data collecting and processing of hydrology and water resources, aquatic environment, forecasting of floods and droughts, water resources planning, groundwater seepage and others related skills based on the mastery knowledge of natural science, a foreign language and computer applications. Students should have the ability to solve practical engineering problems, being actively engaged in undertaking, organizing and managing scientific projects.

Graduation Requirements

1. To be inspired by strong patriotism and national pride.
2. To be devoted to science.
3. To be committed to "Truth of science, Kindness of humanities, and Beauty of art".
4. To have strong team spirit, organization and management ability.
5. To have profound knowledge of mathematics, physics, chemistry and biology, etc.
6. To have solid basic knowledge of geology.
7. To have outstanding competence in geosciences.
8. To have comprehensive professional knowledge of Hydrogeology, Engineering Geology and Environmental Geology.
9. To be proficient computer programming and operation, and skillful in data processing with graphics, data, and words for research and application.

Graduation Requirements and Ways to Achieve

No.	Graduation Requirements	Ways to Achieve(Teaching Process)
1	To master theoretical knowledge and skills pertaining to geosciences	①Classroom Teaching: Physical Geology, Structural Geology B, Mineralogy and Petrology, Geomorphology and Quaternary Geology ② Out-of-class Learning: Primary Field Practice (Beidaihe), Geological Field Training (Zhoukoudian) B, Design and Practice of Groundwater Well Tests, Surveying Practice A
2	To have proficiency in experimental techniques, measurement methodology and analytical technology on groundwater resources	①Classroom Teaching: Hydraulics, Fundamental Hydrogeology A, Groundwater Dynamics, Hydro-geochemical Analysis, Vadose Hydrogeology, Environment Isotope Principles and Technology ② Out-of-class Learning: Experiments of Basic Testing Methods and Analysis Techniques

No.	Graduation Requirements	Ways to Achieve(Teaching Process)
3	To have scientific analytical abilities to assess groundwater formation, embedding, distribution and laws of movement	①Classroom Teaching: Water Resources Exploitation and Protection, Investigation and Survey Skills for Groundwater and Geoenvironment, Fundamental Hydrogeology A, Groundwater Dynamics A, Principles and Applications of GIS, Drilling and Well Completion, Engineering Geophysical Exploration ②Out-of-class Learning: Curriculum Design of Water Resources Exploitation and Protection, Professional Teaching Practice (The Three Gorges), Curriculum Design of Groundwater Numerical Simulation
4	To have basic ability in evaluation and exploitation of groundwater resources	①Classroom Teaching: Water Resources Exploitation and Protection, Groundwater Dynamics A, Groundwater Numerical Simulation, Environmental Assessment of Groundwater, Groundwater Pollution and Prevention, Soil Pollution and Prevention, Water Pollution Control Engineering ② Out-of-class Learning: Professional Teaching Practice (The Three Gorges), Curriculum Design of Water Resources Exploitation and Protection, Design and Practice of Groundwater Well Testing, Curriculum Design of Groundwater Numerical Simulation
5	To have the ability to solve basic problems caused by groundwater engineering	①Classroom Teaching: Technology on Groundwater Prevention and Control, Environmental Geology A, Prevention and Treatment Engineering on Geological Disaster, Groundwater Numerical Simulation, Principles and Applications of GIS, Engineering Geology, Soil Mechanics, Rock Mechanics, Environmental Microbiology, etc ② Out-of-class Learning: Guide College Students to Participate in College Students' Scientific Research Project and Scientific Papers Report and so on
6	To be familiar with policies and regulations about water resources, and sufficient knowledge and ability of management	① Classroom Teaching: Environmental Legislation, Assessment Methods on Groundwater Environment Impact, Vocational Skills Training on Registered Geotechnical Engineer, Engineering Bidding and Budget ② Out-of-class Learning: Vocational Skills Trainings and Qualification Examinations
7	To master the basic methods of literature search and information collection, possess the essential ability of understanding, organizing, analyzing interpreting and processing of information	Out-of-class Learning: Surveying Practice, Primary Field Training (Beidaihe), Geological Field Training (Zhoukouidian), Professional Teaching Practice (The Three Gorges), Course Projects, Graduation Practice and Design, etc

Major Disciplines: Geological Engineering, Hydraulic Engineering, Environmental Sciences and Engineering.

Main Courses: Fundamentals of Geology, The Principles of Hydrogeology, Groundwater Hydraulics, Hydro-geochemistry, Environmental Microbiology, Investigation and Survey Skills for Groundwater and Geoenvironment, Environmental Geology, Groundwater Contamination and Prevention, Water Resources Exploitation and Protection, Ecology. In Addition, a wide range of selective courses, lectures, and training programs are available.

Lab Experiments: Hydraulics Experiments, Hydrodynamics Experiments, Hydrogeology Experiments, Hydrochemical Analysis Experiments, etc.

Practical Work: Instructive Practice for Technical Drawing, Cognitive Geological Field Practice, Field Induction in Geology, Course Project Design for Computer Programming, Professional Teaching Practice, Graduation Practice and Design, etc.

Duration: four years.

Degree Granted: Bachelor of Science.

Related Specialties: Environmental Engineering, Hydrological and Water Resources Engineering, Groundwater Sciences and Engineering, Geology Engineering.

水资源与环境工程(实验班)专业课程教学计划表

Course Descriptions of Water Resources and Environmental Engineering(Experimental Class)

课程类别 Course Classification	课程编号 Course Code	课程名称 Course Name	学分 Crts	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分分配 Semester Credits																																																																																																																																																																																																																																																																																		
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th																																																																																																																																																																																																																																																																											
					通识教育课 Liberal Education Courses													必修 Compulsory	11706200	马克思主义基本原理 Principles of Marxism	3	48	48			3										11706500	毛泽东思想与中国特色社会主义理论体系概论 Introduction to Mao Tse-tung Thought and the Theoretical System of Socialism with Chinese Characteristics	4	64	64					4								11711800	中国近现代史纲要 The Essentials of Modern Chinese History	2	32	32						2							120002 * 0	思想道德修养与法律基础 Morality Education and Fundamentals of Law	3	48	48				1.5	1.5								113076 * 0	体育 Physical Education	4	144	144				1	1	1	1						109116 * 0	大学英语 College English	12	192	192				3	3	3	3						11918901	C 语言程序设计 A C Language Programming A	3.5	56	40	16				3.5								20413200	水资源与环境专业导论 Introduction to Groundwater and Environmental Sciences	1	16	16				1									14300100	军事理论 Military Theory	2	32	32				2									选修 Elective		总计 12 学分,含创新创业选修课学分,跨学科选修课不低于 6 学分。“形势与政策”课程作为限选课,由马克思主义学院实施		12	192													小计 Sum			46.5	824	616	16			11.5	9	8	6	0	0	0	0	0	学科基础课 Disciplinary Fundamental Courses													212127 * 1	高等数学 A Advanced Mathematics A	11.5	184	184			5	6.5								21212801	线性代数 A Linear Algebra A	3.5	56	56					3.5								21213501	概率论与数理统计 A Probability and Mathematics Statistics A	3.5	56	56					3.5								21206300	数学实验 Mathematic Experiments	1	16	4	12				1		
11706200	马克思主义基本原理 Principles of Marxism	3	48	48																3																																																																																																																																																																																																																																																																						
11706500	毛泽东思想与中国特色社会主义理论体系概论 Introduction to Mao Tse-tung Thought and the Theoretical System of Socialism with Chinese Characteristics	4	64	64																		4																																																																																																																																																																																																																																																																				
11711800	中国近现代史纲要 The Essentials of Modern Chinese History	2	32	32																			2																																																																																																																																																																																																																																																																			
120002 * 0	思想道德修养与法律基础 Morality Education and Fundamentals of Law	3	48	48																	1.5	1.5																																																																																																																																																																																																																																																																				
113076 * 0	体育 Physical Education	4	144	144																	1	1	1	1																																																																																																																																																																																																																																																																		
109116 * 0	大学英语 College English	12	192	192																	3	3	3	3																																																																																																																																																																																																																																																																		
11918901	C 语言程序设计 A C Language Programming A	3.5	56	40														16				3.5																																																																																																																																																																																																																																																																				
20413200	水资源与环境专业导论 Introduction to Groundwater and Environmental Sciences	1	16	16																	1																																																																																																																																																																																																																																																																					
14300100	军事理论 Military Theory	2	32	32																	2																																																																																																																																																																																																																																																																					
选修 Elective		总计 12 学分,含创新创业选修课学分,跨学科选修课不低于 6 学分。“形势与政策”课程作为限选课,由马克思主义学院实施		12	192																																																																																																																																																																																																																																																																																					
小计 Sum			46.5	824	616	16			11.5	9	8	6	0	0	0	0	0																																																																																																																																																																																																																																																																									
学科基础课 Disciplinary Fundamental Courses													212127 * 1	高等数学 A Advanced Mathematics A	11.5	184	184			5	6.5																																																																																																																																																																																																																																																																					
													21212801	线性代数 A Linear Algebra A	3.5	56	56					3.5																																																																																																																																																																																																																																																																				
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课程类别 Course Classification	课程编号 Course Code	课程名称 Course Name	学分 Crts	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分分配 Semester Credits																							
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th																
					Disciplinary Fundamental Courses 学科基础课													212130 * 2	大学物理 B College Physics B	7	112	112			3.5	3.5					
21213202	物理实验 B Physical Experiments B	2	32															32			2										
20302403	大学化学 C College Chemistry C	4	64	50														14				4									
20311402	有机化学 B Organic Chemistry B	3.5	56	40														16					3.5								
20320102	分析化学 B Analytical Chemistry B	3	48	32														16							3						
20114900	普通地质学 Physical Geology	3	48	48																3											
20113100	矿物岩石学 A Mineralogy and Lithology A	3	48	48																		3									
20104002	构造地质学 B Structure Geology B	3	48	48																			3								
20115100	地貌学及第四纪地质学 Geomorphology and Quaternary Geology	2.5	40	40																						2.5					
21120801	测量学 A Surveying A	2.5	40	40																	2.5										
20508002	工程力学 B Engineering Mechanic B	5	80	72														8						5							
20408400	水力学 Hydraulics	2.5	40	32														8						2.5							
	小计 Sum		60.5	968														862	106			8	15.5	17.5	14	3	2.5	0	0		
Main Specialty Courses 专业主干课																		20409101	水文地质学基础 A The Principles of Hydrogeology A	4	64	40	24						4		
													20400801	地下水动力学 A Groundwater Hydraulics A	4	64	40	24							4						
													20408800	水文地球化学(附水分析) Hydro-geochemistry	3	48	36	12								3					
													20404200	环境工程微生物及实验 Environmental Microbiology and Experiments	3	48	28	20								3					
													20414400	水文地质工程地质勘察方法 Investigation and Survey Skills for Groundwater and Geoenvironment	2.5	40	40										2.5				

课程类别 Course Classification	课程编号 Course Code	课程名称 Course Name	学分 Crts	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分分配 Semester Credits								
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th	
专业主干课 Main Specialty Courses	20413900	环境地质学 A Environmental Geology A	2.5	40	40									2.5		
	20414500	地下水污染与防治 Groundwater Contamination and Prevention	3	48	28	20								3		
	20407400	生态学 General Ecology	2	32	32								2			
	20414200	水资源开发与保护 Water Resources Exploitation and Protection	1.5	24	24								1.5			
	小计 Sum		25.5	408	308	100			0	0	0	0	11	9	5.5	0
专业选修课 Specialty Elective Courses		具体见专业选修课列表	15	240												
合计 Sub-total			147.5	2440	1786	222			19.5	24.5	25.5	20	14	11.5	5.5	0
实践环节 Practical Work	44300200	军事训练 Military Training	2	2周				2								
	41919001	C语言课程设计 A Course Design for C Language A	1.5	1.5周					1.5							
	41120901	测量教学实习 A Surveying Practice A	1	1周					1							
	40115200	地质认识实习(北戴河) Primary Field Training(Beidaihe)	2	2周					2							
	40115602	地质教学实习(周口店)B Geological Field Training(Zhoukoudian) B	4	4周							4					
	40421400	专业教学实习(三峡)A Professional Teaching Practice(the Three Gorges) A	5	5周									5			
	40421500	水资源开发与保护课程设计 Course Design for Water Resources Exploitation and Protecting	2	2周									2			
	40421600	毕业实习 Practice for Graduation	8	8周											8	
	40421700	毕业设计 Design for Graduation	8	8周											8	
	小计 Sum		34.5	34.5周					3	4.5	0	4	0	7	0	16

课程类别 Course Classifi- cation	课程编号 Course Code	课程名称 Course Name	学分 Crts	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分配 Semester Credits									
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th		
					创新创业自主学习 Autonomous Learning	ZZ35000S		社会调查 Social Investigation	2								
	其他(学科竞赛、发明创造、科 研报告) Others (Contest, Invention, Innovation and Research Presentation)	6															
小计 Sum		8															
总计 Total			190	2440 + 34.5 周	1786	222		22.5	29	25.5	24	14	18.5	5.5	5	16	

水文与水资源工程方向选修课程

Elective Courses for Hydrology and Water Resources Engineering

课程类别 Course Classification	课程编号 Course Code	课程名称 Course Name	学分 Cr	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分分配 Semester Credits							
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; font-size: small;"> 前导类 At least choose 1 course 至少 1 门 </div> <div style="writing-mode: vertical-rl; font-size: small;"> 专业类 At least choose 3 courses 至少 3 门 专业选修课列表 Specialty Elective Courses </div> <div style="writing-mode: vertical-rl; font-size: small;"> 方法与技术类 At least choose 3 courses 至少 3 门 </div> </div>										
20411600	学科研究前沿 Research Progress in Hydrogeology and Environmental Engineering	2	32	32										2	
20413700	地球科学与环境 Earth Science and Environment	2.5	40	40									2.5		
20515800	土力学 Soil Mechanics	3	48	48									3		
20517100	岩体力学 B Rock Mechanics B	2.5	40	32	8								2.5		
20508400	工程地质学基础 B Principles of Engineering Geology B	2.5	40	40										2.5	
20414300	工程水文地质学 Engineering Hydrogeology	2.5	40	40										2.5	
20506100	地质灾害防治工程 Control Engineering for Geodisasters	2.5	40	40										2.5	
20405002	环境监测 B Environmental Monitoring B	3	48	28	20									3	
20405303	环境评价 C Environmental Assessment C	2	32	32										2	
20413600	土壤污染与防治 Soil Pollution and Remediation	2.5	40	28	12									2.5	
20714600	建筑制图 Architecture Drawing	3.5	56	44	12									3.5	
20725102	电工与电子技术 B Electrical and Electronic Technology B	5	80	68	12									5	
20401000	地下水防治技术与方法 Groundwater Control Techniques and Methods	1.5	24	24										1.5	
20409600	水文学原理与水文测验 The Principles of Hydrology and Gauging	2.5	40	34	6									2.5	
20401400	地下水数值模拟基础及应用 Numerical Simulation	2	32	20	12									2	
20405700	环境同位素原理与技术 Environment Isotope Principles and Technology	2	32	26	6									2	
20603500	工程物探 Engineering Geophysical Exploration	2	32	24	8									2	
21100700	GIS 原理与应用 Principles and Applications of GIS (Bilingual Teaching)	2.5	40	30	10									2.5	

环境工程方向选修课程

Elective Courses for Environmental Engineering Major

课程类别 Course Classifi- cation	课程编号 Course Code	课程名称 Course Name	学分 Crts	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分分配 Semester Credits												
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th					
前 沿 类 Frontier	20411600	学科研究前沿 Research Progress in Hydro- geology and Environmental Engineering	2	32	32															2
	20413700	地球科学与环境 Earth Science and Environ- ment	2.5	40	40															2.5
专 业 类 Professional	20413800	水污染控制工程 Water Pollution Control En- gineering	3	48	36	12														3
	20414100	大气污染控制 Atmospheric Pollution Con- trol	2	32	32															2
	20405002	环境监测 B Environmental Monitoring B	3	48	28	20														3
	20405303	环境评价 C Environmental Assessment C	2	32	32															2
	20413600	土壤污染与防治 Soil Pollution and Remedia- tion	2.5	40	28	12														2.5
	20510002	固体废物处理与处置 B Solid Waste Disposal B	2	32	32															2
	20515800	土力学 Soil Mechanics	3	48	48															3
	20517100	岩体力学 B Rock Mechanics B	2.5	40	32	8														2.5
20506100	地质灾害防治工程 Control Engineering for Geo- disasters	2.5	40	40															2.5	
方 法 与 技 术 类 Method and Technology	20714600	建筑制图 Architecture Drawing	3.5	56	44	12														3.5
	20725102	电工与电子技术 B Electrician and Technetronic B	5	80	68	12														5
	20401000	地下水防治技术与方法 Groundwater Control Tech- niques and Methods	1.5	24	24															1.5
	20409600	水文学原理与水文测验 The Principles of Hydrology and Gauging	2.5	40	34	6														2.5

课程类别 Course Classification	课程编号 Course Code	课程名称 Course Name	学分 Crs	学时 Hrs	学时分类 Class Hours		先修课程 Prerequisite Courses	学期学分分配 Semester Credits									
					讲课 Lec.	实验 Lab.		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th		
					专业选修课列表 Specialty Elective Courses 至少3门 Method and Technology At least choose 3 courses	20401400		地下水数值模拟基础及应用 Numerical Simulation	2	32	20	12					
20405700	环境同位素原理与技术 Environment Isotope Principles and Technology	2	32	26		6										2	
20603500	工程物探 Engineering Geophysical Exploration	2	32	24		8									2		
21100700	GIS原理与应用 Principles and Applications of GIS	2.5	40	30		10										2.5	

注: 通识教育选修课和自主学习学分未纳入具体学期。

水资源与环境工程(实验班)专业课程分类统计

Course Category Statistics of Water Resources and Environmental Engineering (Experimental Class)

课程学分 统计	通识教育课 Liberal Education Courses		学科基础课 Fundamental Courses	专业主干课 Main Specialty Courses	专业选修课 Specialty Elective Courses	实践环节 Practical Work	创新创业自主学习 Autonomous Learning	学时总计 Total Hours	学分总计 Total Credits
	必修 Compulsory	选修 Selective							
学时/学分 Hrs/Crs	584/34.5	192/12	968/60.5	408/25.5	240/15	34.5周/ 34.5	128/8	2440+ 34.5周	190
学分所占比例 Proportion of Credits	24.5%		31.8%	13.4%	7.9%	18.2%	4.2%		100%