

环境工程（“3+2”中澳班）

Environmental Engineering (UWA)

专业代码：082502

学制：4年

Program Code: 082502

Duration: 4 years

培养目标：

培养适应社会主义现代化建设需要和现代科学技术发展需要、德智体全面发展，具备扎实的自然科学与人文科学基础，具备计算机和外语应用能力，掌握环境工程专业的理论知识，具有创新、创造、创业精神的高素质国际化人才。毕业生应具有从事环境工程有关的工程规划、设计、施工、运行、管理、科研和教育等工作的能力。学生毕业五年后，预期可成为环境工程相关领域的骨干。

Educational Objectives:

Training our students to meet the needs of socialist modernization and the development of modern science and technology, who are all-round developed in moral, intellectual and physical qualities. The students are trained with natural science and humane studies, capable for practical applications with computer operation and foreign language. The students are well trained with theoretical knowledge in environmental engineering, with international vision global vision who have innovative, creative, and entrepreneurship spirit. The graduates should have the work capability to engage environmental project planning, designing, construction, operation, management, scientific research, and environmental education. Five years after graduation, the graduates are anticipated to be the important members in the R&D, technological back bone, or advanced manager in their engaged environmental engineering related directions.

毕业要求：

No1.工程知识：能够将数学、自然科学知识以及相关的工程基础理论和专业知识用于解决复杂环境工程问题。

No2.问题分析：能够应用数学、自然科学和环境工程的基本原理，识别、表达并通过文献研究分析复杂环境工程问题，以获得有效的结论。

No3.设计 / 开发解决方案：能够设计针对复杂环境工程问题的解决方案，设计符合规范及满足需求的系统、单元或工艺流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化及环境等因素。

No4.研究：了解国内外环境工程领域发展现状与趋势，能够基于物理、化学、微生物等与环境工程相关领域的科学原理并采用科学方法对复杂环境工程问题进行研究，包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。

№5.使用现代工具：能够针对复杂环境工程问题，开发、选择与使用适当的技术、资源、现代工程工具和信息技术工具，包括对复杂环境工程问题的预测与模拟，并能够理解其局限性。

№6.工程与社会：能够基于工程相关背景知识进行合理分析，评价环境工程实践和复杂环境工程问题解决方案对社会、健康、安全、法律以及文化的影响，并理解应承担的责任。

№7.环境和可持续发展：能够理解和评价针对复杂环境工程问题的专业工程实践对环境、社会可持续发展的影响。

№8.职业规范：具有人文社会科学素养、社会责任感，能够在环境工程实践中理解并遵守工程职业道德和规范，履行责任。

№9.个人和团队：能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。

№10.沟通：能够就复杂环境工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野，能够在跨文化背景下进行沟通和交流。

№11.项目管理：理解和掌握工程管理原理与经济决策方法，并能在多学科环境中应用。

№12.终身学习：具有自主学习和终身学习的意识，有不断学习和适应发展的能力。

Graduation requirements

№1.Engineering Knowledge: Ability to apply fundamental knowledge of mathematics, natural scientific knowledge, and related engineering specialization to solve complex engineering problems.

№2.Problem Analysis: Application he basic principles of mathematics, natural sciences and environmental science to identify, express, and analyze complex environmental engineering problems through literature research to obtain effective conclusions.

№3.Design/development solutions: Design a solution for complex environmental engineering problems, design systems, units or processes that meet specific needs and be able to embody innovation awareness in the design process, taking into account social, health and safety , Legal,

№ 4: Research: Study complex environmental engineering problems based on the scientific principles of chemistry, chemical engineering, physics, electrical engineering and other environmental engineering related scientific methods, including experimental design, analysis and interpretation of data, and reasonable and effective conclusions through information synthesis.

№5: Utilize of modern tools: Develop, select, and utilize appropriate technologies, resources, modern engineering tools and information technology tools to solve complex environmental engineering issues, including predictions and simulations of complex environmental engineering issues and the ability to understand its limitations.

№6: Engineering and Society: Capable of conducting rational analysis based on engineering-related background knowledge, evaluate the impact of environmental engineering practices and complex environmental engineering solutions on society, health, safety, law and culture, and understand the

responsibilities.

№7: Environment and Sustainability: Capable of understanding and evaluation the impact of professional engineering practices on complex environmental issues such as environmental and social sustainable development.

№8. Professional Standards: An understanding of humanity science and social responsibility, being able to understand and abide by professional ethics and standards responsibly in engineering practice.

№9. Individual and Teams: Capable of undertaken different functions as an individual, a member, or leader in diverse teams and in multi-disciplinary settings.

№10. Communication: Capable of effective communicating on complex environmental protection problems with the professional peers, being able to comprehend and write reports and design documentation, make presentations, give and receive clear instructions, and communicate in cross-cultural contexts with international perspective.

№11. Project Management: Demonstrate knowledge and understand of engineering management principles and methods of economic decision-making, to function in multidisciplinary environments.

№12. Lifelong Learning: Recognition awareness of the need for, and an ability to engage in independent and life-long learning with the ability to learn continuously and adapt to new developments.

专业简介：

环境工程全英班从 2012 年开始招收本科生，已与美国罗格斯大学等签订了“2+2”联合培养协议。其依托专业从 1998 年开始招收本科生，2010 年获批广东省特色专业建设点，2011 年、2014 年环境工程专业两次通过了国家工程教育专业认证。专业依托环境科学与工程一级学科博士点、广东省一级优势重点学科，以及挥发性有机污染物污染治理技术与装备国家工程实验室、工业聚集区污染控制与生态修复教育部重点实验室、大气环境与污染控制广东省重点实验室等 10 余个省部级以上研究平台。专业实验室面积 1000m²，设有水污染控制工程、大气污染控制工程、固体废物处理与处置、环境工程微生物学、物理性污染控制、环境监测、工业废水处理、开放共享、环境分析、生态修复等专业教学实验室。实验室布局合理、设施先进，拥有紫外分光光度计、离子色谱、原子吸收分光光度计、高效液相色谱、气相色谱等仪器设备，总价值 730 余万元。专业建有校外实习实践教学基地 13 个，主要包括广州开发区水质净化中心、广州第一热力资源总厂（李坑垃圾焚烧厂）、广州市石井污水处理厂、黄陂水质净化厂等。

Program Profile:

Major of Environmental Engineering began to recruit undergraduate students since 2012, “2+2” Joint Training Program between the South China University of Technology and the Rutgers University. In 2010, this major was approved as a Guangdong Provincial characteristic specialty. In 2011 and 2014, Environmental Engineering passed the National Professional certification for twice. The research are relying on the support of more than 10 Provincial platforms such as the Environmental Science and

Engineering Primary Discipline Doctoral, Guangdong Provincial one advantage of the key disciplines, National Engineering Laboratory of VOCs Pollution Control Technology and Equipment, The Key Lab of Pollution Control and Ecosystem Restoration in Industry Clusters, Ministry of Education, China, and Guangdong Provincial Key Laboratory of Air Environment and Pollution Control. There are 35 full-time faculties and 31 professors among them, one winners of National Outstanding Youth Fund, and 5 the Ministry of education of New Century Excellent Talents (cross). There are 1000m² of laboratory, with professional laboratories of water-pollution control, air-pollution control, solid waste treatment and disposal, environmental engineering microbiology, physical pollution control, environmental monitoring, industrial wastewater treatment, environmental remediation, environmental analysis, and open sharing laboratory. Laboratory layout is reasonable with advanced facilities. There are UV spectrophotometer, Ion chromatography, Atomic Absorption Spectrophotometer, High performance liquid chromatography, Gas chromatography and so on, which total valued 7.3 million RMB. There are 13 off-campus practical practice teaching bases, including Guangzhou Development Zone Water Purification Center, Guangzhou First Thermal Resources Plant (Likeng Waste Incineration Plant), Guangzhou Shijing Sewage Treatment Plant, Huangpi Water Purification Plant and so on.

专业特色:

注重学生面向应用的工程实践能力的培养，理论联系实际，让学生的素质与能力在参与教师的科研课题或工程项目中得到锻炼与提高。采用全英文教学，聘请境外知名大学教授参与主干课程教学，着重培养国际化和研究型人才。擅长水污染控制工程、大气污染控制工程、固体废物处理与处置以及环境生物技术。

Program Features:

Focus on the application of students for the application of engineering practice ability, theory with practice, improve the students' quality and ability through participating the professors' projects and engineering projects. All courses are taught in English and teaching materials in world leading universities are adopted. Good at water pollution control engineering, air pollution control engineering, solid waste treatment and disposal, and environmental biotechnology

授予学位: 工学学士学位

Degree Conferred: Bachelor of Engineering

主干课程:

工程力学、流体力学与传热、传质与分离工程、环境监测、水污染控制工程、大气污染控制工程、固体废物处理与处置、环境工程微生物学、环境工程综合实验、环境工程设计、施工与管理。

Core Courses:

Engineering Mechanics, Fluid Mechanics and Heat Transfer, Mass Transfer and Separation Engineering, Environmental Monitoring, Water Pollution Control Engineering, Air Pollution Control Engineering, Solid Waste Treatment and Disposal, Environmental Engineering Microbiology, Environmental Engineering Comprehensive Experiment, Environmental Engineering Design, Construction and Management.

特色课程：

全英语教学课程：除政治课、体育等课程外，全部采用英语授课。

创业教育课程：环境统计学

Featured Courses:

Fluid Mechanics and Heat Transfer, Environmental Toxicity, Air Pollution Control Engineering, Environmental Monitoring, Solid Waste Treatment and Disposal, Environmental Engineering Microbiology, and Water Pollution Control Engineering.

一、教学计划总体安排表（General Teaching Schedule）

| 学 年 | 学 期 | 教 学 进 度 安 排 (周) | | | | | | | | | | | | | | | | | | | 理 论 教 学 | 考 试 | 入 学 教 育 | 军 训 | 课 程 设 计 | 工 程 训 练 | 电 子 实 习 | 综 合 实 验 | 社 会 实 践 | 生 产 实 习 | 毕 业 实 习 | 其 它 实 习 | 中 外 合 作 项 目 | 毕 业 设 计 | 就 业 安 排 | 机 动 | 假 期 | 小 计 | | | |
|--------|--------|-----------------|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|------------------|--------|------------------|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------------------------|------------------|------------------|--------|--------|--------|----|--|-----|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | | | | | | | | | | | | | | | | | | | 20 | | |
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | | | | | | | | | | | | | | | | | | | | | | |
| 一 | 1 | | C | A | A | A | A | A | A | A | A | A | A | A | A | B | B | D | D | D | 13 | 2 | 1 | 3 | | | | | | | | | | | | | | 19 | | | |
| | 2 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | Q | B | B | 17 | 2 | | | | | | | | | | | 1 | | | | 20 | | | | |
| 二 | 3 | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | Q | B | B | 17 | 2 | | | | | | | | | | | | | 1 | | 20 | | | | |
| | 4 | A | A | A | A | A | A | G | G | A | A | A | A | A | A | A | A | Q | B | B | 16 | 2 | | | | 2 | | | | | | | | | | | 20 | | | | |
| 三 | 5 | A | A | A | A | A | A | A | A | A | A | A | A | K | K | E | E | H | B | B | 17 | 2 | | | | | 1 | | | | | | | | | | 20 | | | | |
| | 6 | A | A | A | A | A | A | A | A | A | A | A | A | A | E | E | E | E | B | B | 16 | 2 | | | | | | | | | 2 | | | | | | 20 | | | | |
| 四 | 7 | A | A | A | A | A | A | A | A | A | A | A | E | E | E | E | E | Q | B | B | 11 | 2 | | | 6 | | | | | | | | | | 1 | | 20 | | | | |
| | 8 | L | L | O | O | O | O | O | O | O | O | O | O | O | O | O | O | Q | Q | Q | | | | | | | | | | | 2 | | | 15 | | 3 | 20 | | | | |
| | | 合 计 (周) | | | | | | | | | | | | | | | | | | | 107 | 14 | 1 | 3 | 6 | | 2 | 1 | | | | | 2 | 2 | 1 | | 15 | | 5 | | 159 |

二、各类课程学分登记表 (Registration Form of Curriculum Credits)

1. 学分统计表 (Credits Registration Form)

| 课程类别 Course Category | 课程要求 Requirement | 学分 Credits | 学时 Academic Hours | 备注 Remarks |
|---|-------------------------|---------------|----------------------|---------------|
| 公共基础课 General Basic Courses | 必修 Compulsory | 60.0 | 924 | |
| | 通识 General Education | 10.0 | 160 | |
| 学科基础课 Disciplinary Basic Courses | 必修 Compulsory | 46.5 | 872 | |
| | 选修 Elective | 0.0 | 0 | |
| 专业领域课 Specialty-related Courses | 必修 Compulsory | 6.0 | 112 | |
| | 选修 Elective | 10.5 | 168 | |
| 合计 Total | | 133.0 | 2236 | |
| 集中实践教学环节(周) Practice Training (Weeks) | 必修 Compulsory | 36.0 | 36周 | |
| 毕业学分要求 Credits Required for Graduation | 133.0+36.0=169.0 | | | |

备注：学生在取得专业教学计划规定学分的同时，还必须取得第二课堂 2 个人文素质教育学分和 4 个创新能力培养学分。第四年未进入西澳大学学习的学生，按环境工程普通班培养计划修读，毕业学分要求不能低于普通班。

2. 类别统计表 (Category statistics)

| 学时 Academic Hours | | | | | 学分 Credits | | | | | | |
|----------------------|--------------------|------------------|-------------------------|---------------|---------------|--------------------|------------------|--|---------------------------------|---------------|---|
| 总学时数 Total | 其中 Include | | 其中 Include | | 总学分 Total | 其中 Include | | 其中 Include | | | 其中 Include |
| | 必修学时 Compulsory | 选修学时 Elective | 理论教学学时 Theory Course | 实验教学学时 Lab | | 必修学分 Compulsory | 选修学分 Elective | 集中实践教学环节学分 Practice-concentrated Training | 理论教学学分 Theory Course Credits | 实验教学学分 Lab | 创新创业教育学分 Innovation and Entrepreneurship Education |
| 2236 | 1908 | 328 | 1748 | 488 | 169 | 148.5 | 20.5 | 36 | 118 | 15 | 3 |

三、专业教学计划表 (Teaching Schedule)

| 类别 Course Category | 课程代码 Course No. | 课程名称 Course Title | 是否必修 C/E | 学时数 Total Curriculum Hours | | | 学分 Credits | 开课学期 Semester | 毕业要求 Student Outcomes | |
|--------------------------------|--------------------|--|-------------|-------------------------------|----------------------------------|-----------------|---------------|------------------|--------------------------|----------------------|
| | | | | 总学时 Class Hours | 上机 Computer-aided Class Hours | 实验 Lab Hours | | | | 实践 Practice Hours |
| 公共基础课 General Basic Courses | 143091 | 中国近现代史纲要 Skeleton of Chinese Modern History | 必修 C | (32) 24 | | | | 2.0 | 1 | No8 |
| | 143093 | 思想道德修养与法律基础 Cultivation of Thought and Morals & Fundamental of Law | | (40) (36) | | | | 2.5 | 2 | No8、12 |
| | 143090 | 马克思主义基本原理 Fundamentals of Marxism Principle | | (40) 36 | | | | 2.5 | 3 | No 8、12 |
| | 143106 | 毛泽东思想和中国特色社会主义理论体系概论 Thought of Mao ZeDong and Theory of Socialism with Chinese Characteristics | | (80) 48 | | | | 5 | 4 | No8 |
| | 143094 | 形势与政策 Analysis of the Situation & Policy | | (128)) | | | | 2.0 | 1-8 | No8、12 |
| | 144001 | 大学英语(一) College English(1) | | 64 | | | | 4.0 | 1 | No10 |
| | 144002 | 大学英语(二) College English(2) | | 64 | | | | 4.0 | 2 | No10 |
| | 145223 | 大学计算机基础 Foundations of Computer | | 32 | | | | 2.0 | 1 | No5 |
| | 145269 | VB 语言程序设计 VB Language Program Designing | | 48 | | | | 3.0 | 2 | No5 |
| | 152001 | 体育(一) Physical Education (1) | | 32 | | | | 1.0 | 1 | No9 |
| | 152002 | 体育(二) Physical Education (2) | | 32 | | | | 1.0 | 2 | No9 |
| | 152003 | 体育(三) Physical Education (3) | | 32 | | | | 1.0 | 3 | No9 |
| | 152004 | 体育(四) Physical Education (4) | | 32 | | | | 1.0 | 4 | No9 |
| | 106001 | 军事理论 Military Principle | | (16) | | | | 1.0 | 2 | No8 |
| | 141001 | 大学物理 I (一) General Physics (I) | | 48 | | | | 3.0 | 2 | No1、2、3 |
| | 141002 | 大学物理 I (二) General Physics (II) | | 48 | | | | 3.0 | 3 | No1、2、3 |
| | 141007 | 大学物理实验(一) Physics Experiment(I) | | 32 | | 32 | | 1.0 | 2 | No4 |
| | 141008 | 大学物理实验(二) Physics Experiment(II) | | 32 | | 32 | | 1.0 | 3 | No4 |
| | 140189 | 微积分 I (一) Calculus(I) | | 80 | | | | 5.0 | 1 | No1、2 |

| | | | | | | | | | |
|------------|---|-------|-----|--|----|--|------|---|------|
| 140190 | 微积分 I (二) Calculus(II) | | 64 | | | | 4.0 | 2 | №1、2 |
| 130139 | 工程制图 (一) Engineering drawing (I) | | 48 | | | | 3.0 | 1 | №1、2 |
| 130140 | 工程制图 (二) Engineering drawing (II) | | 32 | | | | 2.0 | 2 | №1、2 |
| 140197 | 线性代数与解析几何 Linear Algebra & Analytic Geometry | | 48 | | | | 3.0 | 1 | №1、2 |
| 140019 | 概率论与数理统计 Probability & Mathematical Statistics | | 48 | | | | 3.0 | 2 | №1、2 |
| | 人文科学领域 Humanities Field | 通识课 E | 96 | | | | 6.0 | | №8 |
| | 社会科学领域 Social Science Field | | 64 | | | | 4.0 | | №8 |
| 合 计 | | | 108 | | 64 | | 70.0 | | |
| | | | 4 | | | | | | |

三、专业教学计划表 (Teaching Schedule)

| 类别 Course Category | 课程代码 Course No. | 课程名称 Course Title | 是否必修 C/E | 学时数 | | | | 学分 Credits | 开课学期 Semester | 毕业要求 Student Outcomes |
|-------------------------------------|--------------------|---|-------------|--------------------|----------------------------------|-----------------|----------------------|---------------|------------------|--------------------------|
| | | | | 总学时 Class Hours | 上机 Computer-aided Class Hours | 实验 Lab Hours | 实践 Practice Hours | | | |
| 学科基础课 Disciplinary Basic Courses | 147001 | 无机化学 I Inorganic Chemistry I | 必 C | 32 | | | | 2.0 | 1 | №1、2、3 |
| | 147034 | 无机化学实验 (工科) (一) Inorganic Chemistry Experiment (I) | 必 C | 16 | | 16 | | 0.5 | 1 | №4 |
| | 147035 | 无机化学实验 (工科) (二) Inorganic Chemistry Experiment (II) | 必 C | 16 | | 16 | | 0.5 | 2 | №4 |
| | 147020 | 有机化学 I Organic Chemistry I | 必 C | 48 | | | | 3.0 | 2 | №1、2、3 |
| | 147007 | 有机化学实验 I Organic Chemistry Experiment I | 必 C | 32 | | 32 | | 1.0 | 3 | №4 |
| | 147008 | 分析化学 I Analysis Chemistry I | 必 C | 32 | | | | 2.0 | 3 | №1、2、3 |
| | 147013 | 分析化学实验 II Analysis Chemistry Experiment II | 必 C | 32 | | 32 | | 1.0 | 3 | №4 |
| | 133092 | 工程力学 II Engineering Mechanics II | 必 C | 64 | | | | 4.0 | 3 | №1、2、3 |
| | 147058 | 物理化学 I Physical Chemistry I | 必 C | 48 | | | | 3.0 | 4 | №4 |
| | 147055 | 物理化学实验 II Physical Chemistry Experiment II | 必 C | 32 | | 32 | | 1.0 | 5 | №1、2 |
| | 135092 | 电工与电子技术 II Electrical Engineering and Electro-technic II | 必 C | 64 | | | | 4.0 | 4 | №4 |

| 类别 Course Category | 课程 代码 Course No. | 课程名称 Course Title | 是否 必修 C/E | 学时数 | | | | 学分 数 Credits | 开课 学期 Semester | 毕业 要求 Student Outcomes |
|--------------------------|------------------------|--|-----------------|---------------------------|--|--------------------|-------------------------|--------------------|----------------------|------------------------------|
| | | | | 总学 时 Class Hours | 上机 Computer- aided Class Hours | 实验 Lab Hours | 实践 Practice Hours | | | |
| | 135081 | 电工与电子技术实验 Experiment of Electrical Engineering and Electronics | 必 C | 24 | | 24 | | 1.0 | 5 | No2、3、6、7、 10 |
| | 169001 | 环境学导论 Introduction to Environmental Science | 必 C | 32 | | | | 2.0 | 1 | No1、2、3 |
| | 169065 | 环境工程微生物学 Environmental Engineering Microbiology | 必 C | 32 | | | | 2.0 | 3 | No1、2 |
| | 169219 | 环境工程微生物实验 Experiment of Environmental Engineering Microbiology | 必 C | 16 | | 16 | | 0.5 | 3 | No3、4、9 |
| | 169181 | 水污染控制工程 Water Pollution Control Engineering | 必 C | 48 | | | | 3.0 | 4 | No3 |
| | 169218 | 水污染控制工程实验 Experiment of Water Pollution Control Engineering | 必 C | 16 | | 16 | | 0.5 | 4 | No3、4、9 |
| | 169016 | 环境监测 Environmental Monitoring | 必 C | 32 | | | | 2.0 | 5 | No3、6 |
| | 169202 | 环境监测实验 Experiment of Environmental Monitoring | 必 C | 16 | | 16 | | 0.5 | 5 | No3、4、9 |
| | 137114 | 流体力学与传热 II Fluid Mechanics and Heat Transfer II | 必 C | 48 | | | | 3.0 | 5 | No1、2、10 |
| | 170013 | 传质与分离工程 III Mass Transfer and Separation Engineering III | 必 C | 48 | | | | 3.0 | 6 | No1、2、3、 10 |
| | 137063 | 化工原理实验（一） Experiment of Principles of Chemical Engineering (I) | 必 C | 16 | | 16 | | 0.5 | 5 | No4 |
| | 137064 | 化工原理实验（二） Experiment of Principles of Chemical Engineering (II) | 必 C | 16 | | 16 | | 0.5 | 6 | No4 |
| | 169192 | 固体废物处理与处置 Solid Waste Treatment and Disposal | 必 C | 32 | | | | 2.0 | 5 | No3 |
| | 169220 | 固体废物处理与处置实验 Experiment of Solid Waste Treatment and Disposal | 必 C | 16 | | 16 | | 0.5 | 5 | No3、4、9 |
| | 169038 | 大气污染控制工程 Air Pollution Control Engineering | 必 C | 48 | | | | 3.0 | 6 | No3、10 |
| | 169221 | 大气污染控制工程实验 Experiment of Air Pollution Control Engineering | 必 C | 16 | | 16 | | 0.5 | 6 | No3、4、9 |
| | | 合 计 | 必 C | 872 | | 264 | | 46.5 | | |
| Special | 169019 | 科技文献检索 Environmental Documents Retrieval | 必 C | 16 | | | | 1.0 | 3 | No5 |

| 类别 Course Category | 课程 代码 Course No. | 课程名称 Course Title | 是否 必修 C/E | 学时数 | | | | 学分 数 Credits | 开课 学期 Semester | 毕业 要求 Student Outcomes |
|--------------------------|------------------------|---|-----------------|--|--|--------------------|-------------------------|--------------------|----------------------|------------------------------|
| | | | | 总学 时 Class Hours | 上机 Computer- aided Class Hours | 实验 Lab Hours | 实践 Practice Hours | | | |
| | 169012 | 环境规划与管理 Environmental Planning and Management | 必 C | 32 | | | | 2.0 | 4 | No3 |
| | 169222 | 环境工程综合实验 Environmental Engineering Comprehensive Experiment | 必 C | 32 | | 32 | | 1.0 | 6 | No3、4、9 |
| | 169079 | 环境工程设计、施工与管理 Environmental Engineering Design, Construction and Management | 必 C | 32 | | | | 2.0 | 7 | No3、11 |
| | 169013 | 环境生态学 Environmental Ecology | 选 E | 24 | | | | 1.5 | 3 | No3、7 |
| | 169015 | 环境化学 Environmental Chemistry | 选 E | 32 | | | | 2.0 | 4 | No3、7 |
| | 169033 | 环境统计学 Environmental Statistics | 选 E | 24 | | | | 1.5 | 4 | No4、11 |
| | 169095 | 水力学 Hydrology | 选 E | 56 | | | | 3.5 | 4 | No2、3 |
| | 169194 | 能源与环境 Energy and Environment | 选 E | 32 | | | | 2.0 | 6 | No3、7 |
| | 169037 | 环境毒理学 Environmental Toxicology | 选 E | 32 | | | | 2.0 | 5 | No3、7、10 |
| | 169029 | 环境修复技术 Environmental Remediation Technology | 选 E | 32 | | | | 2.0 | 6 | No3、7 |
| | 169030 | 土壤环境学 Soil Environmental Science | 选 E | 24 | | | | 1.5 | 6 | No3、7 |
| | 169206 | 环境纳米材料 Environmental Nanomaterials | 选 E | 24 | | | | 1.5 | 6 | No3、7 |
| | 120003 | 创新研究训练 Innovative Research Training | 选 E | 32 | | | | 2.0 | | |
| | 120004 | 创新研究实践 I Innovative Research Practice I | 选 E | 32 | | | | 2.0 | | |
| | 120005 | 创新研究实践 II Innovative Research Practice II | 选 E | 32 | | | | 2.0 | | |
| | 120006 | 创业实践 Entrepreneurial practice | 选 E | 32 | | | | 2.0 | | |
| 合计 | | | 必 C | 112 | | 32 | | 6.0 | | |
| | | | 选 E | 选修课选修最低要求 10.5 学分 minimum elective course credits required:10.5 | | | | | | |

备注：学生根据自己开展科研训练项目、学科竞赛、发表论文、获得专利和自主创业等情况申请折算为一定的专业

选修课学分（创新研究训练、创新研究实践 I、创新研究实践 II、创业实践等创新创业课程）。每个学生累计申请为专业选修课总学分不超过 4 个学分。经学校批准认定为选修课学分的项目、竞赛等不再获得对应第二课堂的创新学分。

四、集中实践教学环节(Practice-concentrated Training)

| 课程代码 Course No | 课程名称 Course Title | 是否必修 C/E | 学时数 Total Curriculum Hours | | 学分 Credits | 开课学期 Semester | 毕业要求 Student Outcomes |
|---------------------|--|-------------|-------------------------------|---------------------|---------------|------------------|--------------------------|
| | | | 实践 Practice weeks | 授课 Lecture Hours | | | |
| 106002 | 军训 Military Training | 必 C | 3 周 | | 3.0 | 1 | №8、9 |
| 143197 | 马克思主义理论与实践 Marxist Theory and Practice | 必 C | 2 周 | | 2.0 | 假期 | №8 |
| 130356 | 工程训练 I Engineering Training I | 必 C | 2 周 | | 2.0 | 4 | №6、9 |
| 169180 | 认识实习 Knowing Internship | 必 C | 1 周 | | 1.0 | 2 | №3、6、8 |
| 169087 | 生产实习 Practical Internship | 必 C | 2 周 | | 2.0 | 5 | №2、6、8 |
| 169128 | 环境监测实践 Environmental Monitoring Practice | 必 C | 2 周 | | 2.0 | 4 | №2,3,6 |
| 141075 | 电子工艺实习 I Electronic Craft Practice | 必 C | 1 周 | | 1.0 | 5 | №6、9 |
| 169223 | 固体废物处理与处置设计 Solid Waste Treatment and Disposal Design | 必 C | 2 周 | | 2.0 | 7 | №2、5、6、10、11、12 |
| 169198 | 水污染控制工程设计 Water Pollution Control Engineering Design | 必 C | 2 周 | | 2.0 | 7 | №2、5、6、10、11、12 |
| 169089 | 大气污染控制工程设计 Air Pollution Control Engineering Design | 必 C | 2 周 | | 2.0 | 7 | №2、5、6、10、11、12 |
| 169061 | 毕业实习 Graduation Practice | 必 C | 2 周 | | 2.0 | 8 | №2、6、7、8、9、11、12 |
| 169092 | 毕业设计 Graduation Project | 必 C | 15 周 | | 15.0 | 8 | №2、3、4、5、10、12 |
| 合计 Total | | 必 C | 36 周 | | 36.0 | | |

五、第二课堂 Second Classroom

第二课堂由人文素质教育和创新能力培养两部分组成。

Second classroom is composed of Humanistic quality education and Innovative ability training.

1.人文素质教育基本要求

学生在取得专业教学计划规定学分的同时，还应结合自己的兴趣适当参加课外人文素质教育活动，参加活动的学分累计不少于 2 个学分。

1. Basic Requirements of Humanistic Quality Education

When obtain credits in the professional teaching plan, students should also participate in extracurricular cultural quality education activities combined with their own interests, accumulate not less than 2 credits in these activities.

2. 创新能力培养基本要求

学生在取得本专业教学计划规定学分的同时，还必须参加国家创新创业训练计划或广东省创新创业训练计划或 SRP（学生研究计划）或百步梯攀登计划或一定时间的各类课外创新能力培养活动（如学科竞赛、学术讲座等），参加活动的学分累计不少于 4 个学分。

2. Innovative ability to cultivate the basic requirements

When obtain credits in the professional teaching plan, students must participate at least one of National Innovation and Entrepreneurship Training Program, or Guangdong Province Innovation and Entrepreneurship Training Program, or Student research program, or 100 Step Climbing Plan, or all kinds of extracurricular innovation ability training activities (such as Subject competition, academic lecture and so on), accumulate not less than 4 credits in these activities.