

系所課程地圖 Department Curriculum Map

| 系所概要 Department | |
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| 系所名稱 Department Name | 環境工程學系(Department of Environmental Engineering) |
| 班別 Division | 學士班 (Bachelor's Program) |

| 教育目標 Education Goals | |
|----------------------|--|
| 編號 Number | 項目內容 Content |
| A | 培育學生的科學基礎、環工專業知識、全球永續發展觀念及終生學習能力。(Cultivate students' scientific foundation, professional knowledge in environmental engineering, global sustainable development concepts, and lifelong learning abilities.) |
| B | 培養學生具有研發創新、工程實務及系統整合之基本能力。(Develop students' fundamental capabilities in research and innovation, engineering practices, and system integration.) |
| C | 培養學生具有合群敬業之態度、服務社會之熱忱及環境保護之使命感。(Foster students' attitude toward collaboration and dedication, enthusiasm for serving society, and a sense of purpose for environmental protection.) |

| 學生核心能力 Student Core Competencies | | |
|----------------------------------|--|--|
| 編號 Number | 項目內容 Content | 對應教育目標編號 Corresponding Education Goal Number |
| A | 物理、化學、數學及生物等基本知識。(Fundamental knowledge of Physics, Chemistry, Mathematics and Biology.) | A |
| B | 規劃與執行實驗、評析問題與闡釋數據之能力。(Capability of experimental planning and execution, problem-analyzing and data-interpreting.) | A B |
| C | 解決環境污染及促進永續發展之工程專業知識及應用工具之能力。(Professional engineering knowledge and application skills for solving environmental pollution problems and promoting sustainable development.) | A B C |
| D | 具備環境工程設計之能力。(Capability of environmental engineering design.) | A B |
| E | 資訊整合、計畫管理、有效溝通與團隊合作之能力。(Capability of data-integrating, project-management, effective-communication and teamwork.) | B C |
| F | 獨立思考、研發創新與解決問題之能力。(Capability of independent-thinking, innovation and problem-solving.) | B C |
| G | 瞭解工程技術對環境與社會文化之衝擊，並奠定終生學習的能力。(Capability of understanding impact on environment and social culture from technology and capability.) | A B C |
| H | 理解工程倫理、關懷社會及珍愛環境。(Comprehension of engineering ethics, social care and environmental appreciation.) | C |
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※附註 Note:

- 1.各系所所屬之班別，含學士班、碩士班、博士班等，請分別填寫。1. Complete the map separately for each division, including Bachelor's, Master's, and Doctoral program.
- 2.教育目標及核心能力之代號皆以英文字母大寫為主。2. Codes for Education Goals and Core Competencies must be in uppercase English alphabet letters.
- 3.可依不同班(組)別填寫教育目標及核心能力。3. Education Goals and Core Competencies can be specific to the division in question.

承辦人簽章：

Signature of Responsible Person:

規劃單位主管簽章：

Head of Planning Division:

114年1月8日

Date:

環境工程學系 Department of Environmental Engineering ■ 學士班 Bachelor's Program
課程規畫表 Curriculum Plan

| 中文課程名稱 Course Title in Chinese | 英文課程名稱 Course Title in English | 規劃要點 (附註) Plans (Notes) | | | | 對應核心能力編號 Corresponding Education Goal Number | 建議修課年級 Recommended Course Division | 開課單位 Course Offering Unit | 備註 Remarks |
|---|---|----------------------------|----|---|---|---|---------------------------------------|-------------------------------|---------------|
| | | 1 | 2 | 3 | 4 | | | | |
| 院核心課程(若無免填，請加註必修、選修) College Core Courses (not required if none, otherwise please indicate Required Courses and Elective Courses) | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 必修課程 Required Courses | | | | | | | | | |
| 環境科學概論 | Introduction to Environmental Science | U | A | S | 3 | ABCDEFGH | 大一(Freshman Year) | 環工(Environmental Engineering) | |
| 計算機概論 | Introduction to Computer Science | U | A | S | 3 | BDF | 大一(Freshman Year) | 環工(Environmental Engineering) | |
| 微積分(一) | Calculus(I) | U | A | S | 3 | ABCDF | 大一(Freshman Year) | 應數(Applied Mathematics) | |
| 微積分(二) | Calculus(II) | U | A | S | 3 | ABCDF | 大一(Freshman Year) | 應數(Applied Mathematics) | |
| 普通物理學 | General Physics | U | A | Y | 4 | ABCDF | 大一(Freshman Year) | 物理(Physics) | |
| 環境化學(一) | Environmental Chemistry (I) | U | A | S | 2 | AC | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 環境化學(二) | Environmental Chemistry (II) | U | A | S | 2 | ACF | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 微生物學 | Microbiology | U | A | S | 3 | A | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 微生物學實驗 | Microbiology Lab | U | B | S | 1 | BCE | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 固體廢棄物 | Solid Waste | U | A | S | 3 | ACDF | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 工程數學(一) | Engineering Mathematics(I) | U | A | S | 3 | A | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 工程數學(二) | Engineering Mathematics(II) | U | A | S | 3 | A | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 工程圖學(一) | Engineering Drawing(I) | U | AB | S | 1 | ABCDE | 大二(Sophomore Year) | 生機(Biotechnology) | |
| 工程圖學(二) | Engineering Drawing(II) | U | AB | S | 1 | ABCDE | 大二(Sophomore Year) | 生機(Biotechnology) | |
| 給水分析 | Water Analysis | U | A | S | 1 | ABC | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 給水分析實驗 | Water Analysis Lab | U | B | S | 1 | AB | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 流體力學 | Fluid Mechanics | U | A | S | 3 | BDFH | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 污水分析 | Wastewater Analysis | U | A | S | 2 | ABC | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 污水分析實驗 | Wastewater Analysis Lab | U | B | S | 1 | ABC | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 給水工程 | Water Supply Engineering | U | A | S | 3 | ABCDFH | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 有害廢棄物處理 | Hazardous Waste Treatment | U | A | S | 3 | CD | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 空氣污染學 | Air Pollution | U | A | S | 3 | BCDF | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 污水工程 | Wastewater Engineering | U | A | S | 3 | ABCDFH | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 空氣污染控制工程 | Air Pollution Control Engineering | U | A | S | 3 | BC | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 專題討論(一) | Seminar in Environmental Engineering (I) | U | C | S | 1 | ABCDEFGH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 專題討論(二) | Seminar in Environmental Engineering (II) | U | C | S | 1 | ABCDEFGH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 環工單元操作(一) | Environmental Engineering Unit Operation(I) | U | A | S | 1 | BCDEFH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 環工單元操作(二) | Environmental Engineering Unit Operation(II) | U | A | S | 1 | EFGH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 環工單元操作實驗(一) | Environmental Engineering Unit Operation Lab(I) | U | B | S | 1 | BCDEFH | 大四(Senior Year) | 環工(Environmental Engineering) | |

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|-------------|--|---|---|---|---|-------|-------------------|-------------------------------|--|
| 環工單元操作實驗(二) | Environmental Engineering Unit Operation Lab(II) | U | B | S | 1 | EFGH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 環境工程概論 | Introduction to Environmental Engineering | U | C | S | 1 | AC | 大一(Freshman Year) | 環工(Environmental Engineering) | |
| 普通化學 | General Chemistry | U | A | S | 3 | ABCDF | 大一(Freshman Year) | 化學(Chemistry) | |
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※附註：規劃要點填表說明：（ 1 到 4 各欄位請填正確代表字母 ）

Note: Instructions for completing this form are provided below (please provide the correct English alphabet letters in fields 1 to 4)

1：U-學士課程、M-碩士課程、D-博士課程。1: U-Bachelor's program, M-Master's program, D-Doctoral program.

2：A-正課、B-實習課、C-台下指導之科目如學生講述或邀請演講之專題討論、專題研究.....等。2: A-Lecture, B-Internship, C-Subjects with private guidance such as student presentations or invited speeches, topic discussions, topic research, etc.

3：S-學期課、Y-學年課。3: S-Semester course, Y-Year-long course.

4：科目（全期或全年）總學分數（請填阿拉伯數字）。4: Total course (full-semester or full-year) credits (in Arabic numerals).

承辦人簽章:

規劃單位主管簽章:

114年1月8日

Signature of Responsible Person:

Head of Planning Division:

Date:

環境工程學系Department of Environmental Engineering ■學士班 Bachelor's Program

課程規畫表 Curriculum Plan

| 中文課程名稱 Course Title in Chinese | 英文課程名稱 Course Title in English | 規劃要點 (附註) Plans (Notes) | | | | 對應核心能力編號 Corresponding Education Goal Number | 建議修課年級 Recommended Course Division | 開課單位 Course Offering Unit | 備註 Remarks |
|-----------------------------------|---|----------------------------|---|---|---|---|--|--|---------------|
| | | 1 | 2 | 3 | 4 | | | | |
| 選修課程 Elective Courses | | | | | | | | | |
| 土壤及地下水污染整治 | Soil and Groundwater Remediation | U | A | S | 3 | CD | 大三(Junior Year) | 環工(Environmental Engineering) | 梁振儒 |
| 普通物理學實驗 | General Physics Lab | U | B | Y | 2 | ABCDEF | 大一(Freshman Year) | 物理(Physics) | 物理系 |
| 普通化學實驗 | General Chemistry Lab | U | B | S | 1 | ABCDEF | 大一(Freshman Year) | 化學(Chemistry) | 化學系 |
| 工程力學(一) | Engineering Mechanics (I) | U | A | S | 2 | ACDF | 大二(Sophomore Year) | 土木(Civil Engineering) | 土木系 |
| 工程統計學 | Engineering Statistics | U | A | S | 3 | AC | 大三(Junior Year) | 環工(Environmental Engineering) | 林明德 |
| 環境政策與法規 | Environmental Policy and Regulations | U | A | S | 2 | CEFGH | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 氣象學 | Meteorology | U | A | S | 3 | CFG | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 工程力學(二) | Engineering Mechanics (II) | U | A | S | 2 | ACDF | 大二(Sophomore Year) | 土木(Civil Engineering) | 土木系 |
| 經濟學 | Economics | U | A | S | 3 | ABCDEGH | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 環境微生物學 | Environmental Microbiology | U | A | S | 2 | A | 大二(Sophomore Year) | 環工(Environmental Engineering) | 張書奇 |
| 環境微生物學實驗 | Environmental Microbiology Lab | U | B | S | 1 | BCE | 大二(Sophomore Year) | 環工(Environmental Engineering) | 張書奇 |
| 作業研究 | Operations Research | U | A | S | 3 | BEF | 大二(Sophomore Year) | 環工(Environmental Engineering) | 林明德 |
| 分析化學 | Analytical Chemistry | U | A | S | 3 | ABCD | 大三(Junior Year) | 化學/環工 (Chemistry/Environmental Engineering) | 化學系 |
| 環境影響評估 | Environmental Impact Assessment | U | A | S | 3 | BCEFGH | 大四(Senior Year) | 環工(Environmental Engineering) | 陳佳吟 |
| 輸送現象 | Transport Phenomenon | U | A | S | 3 | ACDFGH | 大三(Junior Year) | 環工(Environmental Engineering) | 盧重興 |
| 環境規劃與管理 | Environmental Planning and Management | U | A | S | 2 | BCEFGH | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 儀器分析 | Instrumental Analysis | U | A | S | 3 | ABCE | 大三(Junior Year) | 化學/環工(Chemistry/ Environmental Engineering) | 何幸修 |
| 儀器分析實驗 | Instrumental Analysis Lab | U | B | S | 1 | ABC | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 環境生物技術 | Environmental Biotechnology | U | A | S | 3 | ABCFG | 大三(Junior Year) | 環工(Environmental Engineering) | 洪俊雄 |
| 環境應用數學 | Environmental Applied Mathematics | U | A | S | 2 | ACD | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 電腦在環工上之應用 | Applications of Computer to Environmental Engineering | U | A | S | 3 | ABCDE | 大四(Senior Year) | 環工(Environmental Engineering) | 莊秉潔 |
| 畢業論文 | Thesis | U | C | Y | 2 | BEFGH | 大四(Senior Year) | 環工(Environmental Engineering) | 主任 |
| 噪音原理與控制 | Noise and Vibration Control | U | A | S | 3 | AC | 大二(Sophomore Year) | 環工(Environmental Engineering) | |
| 污水工程設計 | Wastewater Engineering Design | U | A | S | 3 | EFH | 大四(Senior Year) | 環工(Environmental Engineering) | 盧明俊 |
| 地下水污染 | Ground Water Pollution | U | A | S | 3 | CF | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 環境毒物學概論 | Introduction to Environmental Toxicology | U | A | S | 2 | ACEFH | 大三(Junior Year) | 環工(Environmental Engineering) | 林伯雄 |
| 有機化學 | Organic Chemistry | U | A | S | 3 | ABCDF | 大二(Sophomore Year) | 化學(Chemistry) | 化學系 |
| 水文學 | Hydrology | U | A | S | 3 | CDGH | 大二(Sophomore Year) | 環工(Environmental Engineering) | 林禹豪 |
| 數值分析 | Numerical Analysis | U | A | S | 3 | ABCDEF | 大四(Senior Year) | 環工/機械(Environmental / Mechanical Engineering) | 機械系 |
| 下水道系統規劃及工程 | Sewerage System Planning and Engineering | U | A | S | 3 | BCDEFGH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 環境衛生學 | Environmental Hygiene | U | A | S | 2 | ACEF | 大二(Sophomore Year) | 環工(Environmental Engineering) | 陳漫愷 |
| 奈米科技與環境保護 | Nanotechnology and Environmental Protection | U | A | S | 3 | ACF | 大三(Junior Year) | 環工(Environmental Engineering) | 修黑米 |

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| 土壤學 | Soil Property | U | A | S | 2 | ACDGH | 大二(Sophomore Year) | 土壤(Soil and Environmental Sciences) | 土壤系 |
| 流體力學(二) | Fluid Mechanics(II) | U | A | S | 3 | BCF | 大三(Junior Year) | 環工(Environmental Engineering) | |
| 工程數學(三) | Engineering Mathematics (III) | U | A | S | 3 | A | 大四(Senior Year) | 水保(Soil and Water Conservation) | 水保 |
| 水資源再生與利用 | Water Resource Recovery and Reuse | U | A | S | 3 | ACFH | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 污染場址健康風險評估概論 | Human Health Risk Assessment for Contaminated Sites | U | A | S | 3 | BCDF | 大四(Senior Year) | 環工(Environmental Engineering) | |
| 空氣品質管理 | Air Quality Management | U | A | S | 2 | AFGH | 大四(Senior Year) | 環工(Environmental Engineering) | 洪保鎮 |
| 環境法 | Environmental Law | U | A | S | 2 | FGH | 大四(Senior Year) | 環工(Environmental Engineering) | 陳漫愷 |
| 薄膜技術於水資源處理及應用 | Membrane technology principles and applications for water and wastewater treatment | U | A | S | 2 | ACDG | 大三(Junior Year) | 環工(Environmental Engineering) | 吳向宸 |
| 基礎Python與環境數據 | Python and environmental data | U | A | S | 2 | EF | 大三(Junior Year) | 環工(Environmental Engineering) | 林禹豪 |
| 工程英文 | English for General Engineering | U | A | S | 2 | CEF | 大一(Freshman Year) | 工學院(College of Engineering) | 工學院 |
| 邁向淨零轉型 | On the path to net zero transition | U | A | S | 2 | CEFG | 大三(Junior Year) | 環工(Environmental Engineering) | 修黑米 |
| 職業安全概論 | Introduction to Occupational Safety | U | A | S | 3 | CH | 大一(Freshman Year) | 環工(Environmental Engineering) | 何幸修 |
| 工程倫理與創意 | Engineering ethics and creativity | U | A | S | 2 | GH | 大一(Freshman Year) | 環工(Environmental Engineering) | 張書奇 |
| 綠色科技與永續發展 | Green Technology and Sustainable Development | U | A | S | 3 | ACGH | 大三(Junior Year) | 環工(Environmental Engineering) | 陳漫愷 |
| 循環經濟與永續發展 | Circular Economy and Sustainability | U | A | S | 3 | CDEF | 大三(Junior Year) | 環工(Environmental Engineering) | 修黑米 |

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規劃單位主管簽章：

Head of Planning Division:

114 年1月8日

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