國立台灣科技大學 114學年 第2學期　課程大綱

Spring 2026 NTUST Course Outline

授課教師：Erwin

Instructor:Erwin

課程名稱：營建工程整合設計實務

Course Title：Integrated Design Practice for Civil Engineering

2026/11/3

課程代號： CT4409306 Course Code 學分數： 3 Credits	必選修：必修/半學年 Required/Electve:Required/Half Yr. 先修課程： Prerequisites
節次教室： Time/Location	M10(T2-206) M8(T2-206) M9(T2-206)
專業核心能力： Core Professional Competencies	1. 運用數學、物理、化學及工程管理等知識，和自我學習之能力。 an ability to apply knowledge of physics, chemistry, calculus, engineering mathematics, engineering statistics, and engineering project management to civil and construction engineering; 2. 設計與執行實驗以及解讀實驗結果之能力。 an ability to design and to conduct experiments, as well as to analyze and interpret the resulting data; 3. 管理與執行工程實務以及使用現代化科技之能力。 an ability to use techniques and skills to manage or execute engineering projects and to efficiently use modern tools and technologies; 4. 設計營建工程元件及系統之能力。 an ability to plan and design components and processes in construction engineering projects; 5. 溝通、協調及團隊合作之能力。 an ability to work and collaborate in a team with effective communications; 6. 辨識、分析、歸納及解決工程問題之能力。 an ability to identify, to analyze, to formulate, and to solve engineering problems; 7. 永續工程及生態環境保護之認知。 an awareness of sustainable development; a knowledge of contemporary issues; an understanding of the impact of engineering solutions in a global, economic, environmental, and societal context; and an ability to engage life-long learning 8. 工程法律、工程倫理、敬業精神及社會責任之素養。 an understanding of relationships between engineering and the law; a literacy on engineering ethics, professionalism, and social responsibilities.
課程網址： Course Website	
課程宗旨： Course Objectives	

	此課程為本系大學部最終的統整課程，目的在深化大學所學內容， 強調團隊合作與實務演練，藉由完成實務工程之設計， 使學生學習專案工程之時間規劃與進度的掌控以符合實務界之需求。 This course is the final integration course (Capstone Course) of the undergraduate program in the Department of Civil and Construction Engineering. It aims to deepen the contents learned in the undergraduate courses and emphasize teamwork and practical exercises. By completing the design of a practical project, students can exercise skills and learn the time planning and progress control of the project to meet the needs of the professional practice.
課程大綱： Outline of Lectures	工程專案之設定-工程規模、功能需求、工期、預算 結構系統規劃-結構系統、桿件尺寸初步設計、評估、選擇適當的結構系統 結構詳細設計-材料規格之選擇、分析工具之選擇、載重及其組合之決定、結構詳細分析、桿件檢核、構架及桿件之微調、斷面設計 基礎型式規劃與設計-鑽探報告判讀、基礎型式選定、基礎詳細設計 坡地災害潛能評估-地質調查報告判讀、水文調查報告判讀、地下水位災害潛能評估 排水系統設計-水理分析、排水規劃、排水溝設計、 坡地崩塌潛能評估 擋土措施設計 工程數量計算、估價、預算編列 合約文件製作-設計圖之繪製、材料規格說明、施工注意事項說明 圖說識讀（包括設計圖與規範） 施工規劃（包含品質、進度、成本、安全與環境管理等） 施工步驟設計、檢測項目擬定與耐震評估 施工介面檢討與施工圖繪製 協力廠商管理 監工實務
授課方式： Method of Instruction	講授 Lecture：% 分組討論 Group discussion：% 案例研討 Case study：% 操做練習 Practical exercises：% 講授 Lecture：%
教科書： Textbooks	
參考書目： References	
修課須知： Notice	
評量方式： Grading	
備註說明： Notes	