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：Harry Hermawan

Instructor:Harry Hermawan

課程名稱：材料與結構試驗

Course Title：Materials and Structure Test

2026/6/22

課程代號： TE3032301 Course Code 學分數： 1 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(E2-103) M8(E2-103) M9(E2-103)
專業核心能力： Core Professional Competencies	核心能力1： 具有運用數學、物理、化學及工程管理等知識，和自我學習之能力。 核心能力2： 具有設計與執行實驗以及解讀實驗結果之能力。 核心能力4： 具有設計營建工程元件及系統之能力。 核心能力5： 具有溝通、協調及團隊合作之能力。 核心能力6： 具有辨識、分析、歸納及解決工程問題之能力。 1. an ability to apply knowledge of physics, chemistry, calculus, engineering mathematics, engineering statistics, and engineering project management to civil and construction engineering; 2. an ability to design and to conduct experiments, as well as to analyze and interpret the resulting data; 4. an ability to plan and design components and processes in construction engineering projects; 6. an ability to identify, to analyze, to formulate, and to solve engineering problems.
課程網址： Course Website	NA
課程宗旨： Course Objectives	1) Providing students with hands-one experience in testing concrete materials and evaluating the performance of structure 2) Emphasize practical applications of theoretical knowledge (Quality Control of Concrete) 3) Design concrete mixes with specific properties 4) Investigate the behavior of structural elements
課程大綱： Outline of Lectures	This course provides students with opportunities to learn the experimental skills on cement/concrete materials and structure. Students are required to familiarize themselves with the test procedures of the experiments, which include tests on cement, mortar, and concrete, mix design, stress and strain measurement, frequency and damping measurement, and buckling of a member. Students are required to do a term project to show their knowledge and skills learned from this course.

授課方式： Method of Instruction	講授 Lecture：10% 分組討論 Group discussion：10% 案例研討 Case study：0% 操做練習 Practical exercises：80% 講授 Lecture：%
教科書： Textbooks	Mehta, P.K., Monteiro, P.J.M. (2006). Concrete: Microstructure, Properties and Materials. Neville, A.M. and Brooks, J.J. (2010). Concrete Technology. Mindess, S., Young, J.F and Darwin, D. (2002). Concrete.
參考書目： References	ASTM standards
修課須知： Notice	11 weeks (2/3 Semester) -> Cement and concrete materials 5 weeks (1/3 Semester) -> Structure
評量方式： Grading	25% Attendance, 25% Lab Reports, 25% Term Report, 25% Exam
備註說明： Notes	Basic English is required