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：張益盛

Instructor:YISHENG CHANG

課程名稱：化學技術實習(二)

Course Title：Chemical Technology Lab. (2)

2026/11/3

課程代號： TE3040301 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	F2(E2-302) F3(E2-302) F4(E2-302)
專業核心能力： Core Professional Competencies	運用數學、科學及工程知識的能力 規劃與執行實驗，並具解析數據之能力。 能發掘、分析、應用研究成果及因應複雜且整合性工程問題的能力。
課程網址： Course Website	https://moodle2.ntust.edu.tw/course/view.php?id=15817
課程宗旨： Course Objectives	By engaging in hands-on operation of various analytical instruments, students will develop the ability to analyze, process, and interpret experimental data. They will also be trained in teamwork and communication skills, and learn to write complete laboratory reports. Through solid training in instrument operation and experimental techniques, students will validate chemical theories in practical applications, thereby establishing a strong foundation for professional knowledge in chemistry-related fields.
課程大綱： Outline of Lectures	Experiment 1: Agarose Gel Electrophoresis Analysis Objectives: Learn to separate DNA samples using agarose gel electrophoresis and verify the size of DNA plasmids. Experiment 2: Potentiometric Acid-Base Titration Objectives: Familiarize yourself with the operation and functions of an automatic potentiometric titrator. Learn to determine the equivalence point of acid-base reactions through potentiometric titration, and identify the concentration and dissociation constant (K_a) of unknown solutions using titration curves. Experiment 3: Comparison of Tensile Properties in Polymers Objectives: Understand the operation and functions of a Universal Testing Machine (UTM). Learn to analyze the mechanical properties of various materials using stress-strain curves obtained from tensile testing, and further investigate the experimental variables and factors that influence the test results. Experiment 6: Coagulation and Flocculation Experiment Objectives: Understand the functions and operation of a Zeta potential analyzer and a turbidimeter. Learn to determine the optimal coagulant dosage and pH value required to remove suspended solids from water using the Jar Test method. Experiment 10: Analysis of Inorganic Anions Objectives: Understand the principles, structure, and applications of Ion Chromatography (IC). Learn to perform qualitative and quantitative analysis of various samples using the external standard method.

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	國立台灣科技大學　化學技術實習（III, IV）
參考書目： References	
修課須知： Notice	
評量方式： Grading	Reports (Preliminary and Final Report) : 40% Attitude during experiments (included in regular performance): 20% Attendance: 15% Final Exam: The Video introducing the experiment : 25%
備註說明： Notes	