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：黃岳翰

Instructor:Yueh-Han Huang

課程名稱：應用電漿技術

Course Title：Applied Plasma Technology

2026/11/3

課程代號：EN5891701 Course Code 學分數：3 Credits	必選修：選修/半學年 Required/Electve:Elective/Half Yr. 先修課程： Prerequisites
節次教室：M2(TR-836) M3(TR-836) M4(TR-836) Time/Location	
專業核心能力： Core Professional Competencies	■ 具備自我求知能力 ■ 具備專業知識 ■ 具備跨領域整合 ■ 具備外語能力
課程網址： Course Website	
課程宗旨： Course Objectives	Plasma is the fourth state of matter, widely applied across various fields such as analytical chemistry, wastewater treatment, semiconductor manufacturing, surface cleaning, and modification. In recent years, plasma applications have expanded into other areas, including carbon dioxide conversion, plasma agriculture, plasma medicine, and rocket propulsion. This course aims to introduce the fundamental principles of plasma, enabling students to understand the physical and chemical characteristics of different types of plasma while exploring its applications in major fields. Through this course, students will gain an initial understanding of the plasma field, establish a solid grasp of basic plasma concepts, and prepare themselves with the necessary knowledge for future careers in related industries.
課程大綱： Outline of Lectures	1. Introduction to plasma 2. Plasma physics 3. Plasma diagnostics 4. Introduction to vacuum plasma techniques 5. Applications of vacuum plasma techniques (deposition, etching, surface cleaning, surface modification) 6. Introduction to atmospheric pressure plasma techniques 7. Applications of atmospheric pressure plasma techniques (deposition, plasma medicine, analytical chemistry, wastewater treatment)
授課方式： Method of Instruction	講授 Lecture：60% 分組討論 Group discussion：20% 案例研討 Case study：20% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Chapman, B., & Vossen, J. L. (1981). Glow discharge processes: sputtering and plasma etching.
參考書目： References	

	Fridman, A. (2008). Plasma chemistry. Cambridge university press. Fridman, A. A., & Friedman, G. G. (2013). Plasma medicine. Pârvulescu, V. I., Magureanu, M., & Lukes, P. (Eds.). (2012). Plasma chemistry and catalysis in gases and liquids. John Wiley & Sons.
修課須知： Notice	
評量方式： Grading	
備註說明： Notes	This class will be delivered in English.