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：羅承慈

Instructor:Chen-Tsyr Lo

課程名稱：有機半導體材料

Course Title：Organic Semiconducting Materials

2026/11/3

課程代號：TX5028701 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：T2(TR-614) T3(TR-614) T4(TR-614) Time/Location	
專業核心能力： Core Professional Competencies	□1.具備基礎科學與材料工程專業知識之整合、創新能力。 □2.具備收集文獻、建構研究規劃、設計實驗流程與整合分析之能力。 □3.具備執行專題研究、應用研究成果，以及口頭發表與報告撰寫之能力。 □6.具備語文能力及良好之國際觀，尊重多元價值觀點。
課程網址： Course Website	https://moodle2.ntust.edu.tw/
課程宗旨： Course Objectives	Organic semiconductor materials have developed vigorously with the evolution of science and technology in recent years and have broken through the limitations of previous organic materials in many applications with a pivotal position. 有機半導體材料隨著近年科技演進蓬勃發展，並已在許多應用上突破以往有機材料限制，擁有舉足輕重的地位。 This course will introduce the operating principles of various organic semiconductors and the mechanisms when applied to various types of electronic devices. The latest applications will be interspersed in the curriculum with special topics, in order to provide more practical stimulation to the students taking the course. 本課程將介紹各種有機半導體的運行原理、以及應用於各式新穎元件中的操作機制。並將以專題將最新應用穿插於課程中，希望能給修課學生更多實務刺激。
課程大綱： Outline of Lectures	1.導論與半導體物理基礎 2.有機半導體分子結構設計、合成與特性檢驗 3.元件導論，如有機薄膜場效式電晶體、快閃式記憶體、先進封裝實務等 1. Introduction and Fundamentals of Physics in Organic Semiconductor 2. Organic semiconductor molecular structure design, synthesis, and characterization 3. Introduction to devices, such as organic thin film field-effect transistors, flash memory, advanced packing technology and other applications
授課方式： Method of Instruction	講授 Lecture：60% 分組討論 Group discussion：30% 案例研討 Case study：10% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	Course materials will be provided in Moodle.
參考書目： References	All referencing materials will be provided in Moodle.

修課須知： Notice	All referencing materials will be provided in Moodle.
評量方式： Grading	30% Midterm 35% Final Report (Group) 35% Random assignments and discussion
備註說明： Notes	Nothing specifically requested. We welcome everyone to discover more knowledge about organic semiconducting materials.