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：朱　瑾

Instructor:Jinn P. Chu

課程名稱：高等材料表面分析

Course Title：Advanced Surface Characterizations for Materials

2026/11/3

課程代號：TX6604701 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：F3(TR-210) F4(TR-210) F5(TR-210) Time/Location	
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	讓學生能深入瞭解材料的表面分析技術 To acquaint the students who have no or little previous knowledge of the subject of surface characterizations for materials. (Offered in English)
課程大綱： Outline of Lectures	(1)電子顯微鏡介紹 (2)電子顯微鏡之應用：掃描式電子顯鏡 (3)電子顯微鏡之應用：化學成份分析EDS及WDS (EPMA) (4)電子顯微鏡之應用：顯微觀察及定量定性分析 (5) FIB介紹 (6) XPS(ESCA)介紹 (7) Auger介紹 (8) SIMS介紹 (9) STM及AFM介紹 (10)其他材料分析技術介紹 This course given in English will cover the following topics. (1)Introduction to electron microscopy (2)Scanning electron microscopy: Image (3)Scanning electron microscopy: X-ray microanalyses (EDS and WDS) (4)Scanning electron microscopy: qualitative and quantitative analyses (5)Introduction to FIB (6)Introduction to XPS (ESCA) (7)Introduction to Auger electron microscopy (8)Introduction to SIMS (9)Introduction to STM and AFM (10)Introduction to other analytical techniques
授課方式： Method of Instruction	講授 Lecture：100% 分組討論 Group discussion：0% 案例研討 Case study：0% 操做練習 Practical exercises：0% 講授 Lecture：%
教科書： Textbooks	The printed copy of class handouts (ppt pages) is available for purchase. The cost of this handout will be announced later, which consists of 544 ppt pages (136 printed pages) and the content is largely different from last years. To purchase, it is required to pay a deposit of NT$200 from each lab (professor's group) at Room E1-141, with your requested number of printed copies. Please place your handout order before March 2 to ensure you will have the handout for our first lecture on March 6.

參考書目： References	No textbook.
修課須知： Notice	This is an EMI course. The recording of lectures by video or photographic is expressly forbidden without prior written consent from the instructor. Each lecture will be recorded and made available on Moodle for after-class review. Note that these recordings are not in a standard-resolution format and are not a substitute for in-person attendance. In-person attendance is required for this course. Due to holidays and lecturer's conference travels, some make-up classes will be scheduled on weekday.
評量方式： Grading	Midterm exam: 45%, Final exam: 55%; the final examination consists of 20% from the pre-midterm part and 80% from the post-midterm.
備註說明： Notes	1. The course will be offered in English. 2. The lecture will be recorded and posted to Moodle for review after each class. However, the recorded lecture files are intended for review purposes and, thus, not in a high-resolution format. Your attendance in person is therefore required. 3. It is strongly suggested to use your university email in order to receive the important course-related messages.