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：郭東昊

Instructor:Kuo,Dong-Hau

課程名稱：電子陶瓷

Course Title：Electroceramics

2026/11/3

課程代號： ME5412701 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： Time/Location	W2(TR-413-2) W3(TR-413-2) W4(TR-413-2)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	無
課程宗旨： Course Objectives	此課程將先介紹與陶瓷電特性相關的基礎理論其內容包括陶瓷缺陷、 Brouwer Diagram、陶瓷擴散與導電度、物理性質與張量；之後將介紹五種重要的電子陶瓷包括介電陶瓷、鐵電陶瓷、壓電陶瓷、電光陶瓷、磁性陶瓷。 The purpose of this course is to understand the fundamental principles and the relationships among the structure, chemistry, and processing of electronic ceramics. Several types of materials and their applications will be introduced, including dielectric, ferroelectric, piezoelectric, electro-optical, optical, and magnetic materials.
課程大綱： Outline of Lectures	此課程將先介紹與陶瓷電特性相關的基礎理論其內容包括陶瓷缺陷、 Brouwer Diagram、陶瓷擴散與導電度、物理性質與張量；之後將介紹五種重要的電子陶瓷包括介電陶瓷、鐵電陶瓷、壓電陶瓷、電光陶瓷、磁性陶瓷。 The purpose of this course is to understand the fundamental principles and the relationships among the structure, chemistry, and processing of electronic ceramics. Several types of materials and their applications will be introduced, including dielectric, ferroelectric, piezoelectric, electro-optical, optical, and magnetic materials.
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：NA%
教科書： Textbooks	編撰講義 (Handouts)
參考書目： References	1. Y.-M. Chiang, D. Birnie III and W.D. Kingery: Physical Ceramics, John Wiley & Sons, 1997 2. A. R. West, Solid State Chemistry and its Applications, 2nd. John Wiley & Sons, 2014. 3. L. L. Hench and J. K. West, Principles of Electronic Ceramics, John Wiley & Sons, 1990. 4. Dr. Patrick M. Woodward, Lectures of Solid State Chemistry, Ohio State University 5. W. D. Kingery, H. K. Bowen, and D. R. Uhlmann, Introduction to Ceramics, John Wiley & Sons Inc., 1976.

修課須知： Notice	NA 無
評量方式： Grading	期中考(Mid. Exam.) 40%；期末報告 (Final Report) 40%；出席 (Participation): 20%。
備註說明： Notes	NA 無