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：王蒼容

Instructor:Wang, Chun-Long

課程名稱：高速電路板系統設計

Course Title： High-Speed PC Board System Design

2026/11/4

課程代號： ET5310701 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： R2(IB-512) R3(IB-512) R4(IB-512) Time/Location	
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	This course aims to equip the students with the fundamentals of high-speed PC board system design.
課程大綱： Outline of Lectures	Chapter 1 The Importance of Interconnect Design Chapter 2 Ideal Transmission Line Fundamentals Chapter 3 Crosstalk Chapter 4 Coupled Microstrip Line Chapter 5 Nonideal Interconnect Issues Chapter 6 Differential Serpentine Delay Line Chapter 7 Right-Angled Differential Transmission Line Chapter 8 Bended Differential Transmission Line Using Compensation Inductance and Capacitance Chapter 9 Common-Mode Noise Suppression of Bended Coplanar Transmission Lines Chapter 10 Connectors, Packages, and Vias Chapter 11 Millimeter-Wave Flip-Chip Transitions
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	High Speed Digital System Design: A Handbook of Interconnect Theory and Design Practices, Stephen H. Hall, Garrett W. Hall, James A. McCall, New York, Wiley, 2000.
參考書目： References	

	Advanced Signal Integrity for High-Speed Digital Designs, Stephen H. Hall, and Howard L. Heck, John Wiley & Sons, 2009. High-Speed Signal Propagation (Advanced Black Magic), Howard Johnson, Marin Graham, Prentice Hall PTR. Handbook of Digital Techniques for High-Speed Design: Design Examples, Signaling and Memory Technologies, Fiber Optics, Modeling, Granberg Tom, Prentice Hall, 2004. Principles of Electronic Packaging, Donald P. Seraphim, Ronald C. Lasky, and Che-Yu Li, New York, McGraw
修課須知： Notice	
評量方式： Grading	Midterm (40%) Final Examination (40%) Special Report (20%)
備註說明： Notes	None