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：陳省隆

Instructor:Chen, Hsing-Lung

課程名稱：作業系統

Course Title：Real-Time Operating Systems

2026/11/3

課程代號： ET4401701 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	W4(IB-409-1) W8(IB-409-1) W9(IB-409-1)
專業核心能力： Core Professional Competencies	
課程網址： Course Website	
課程宗旨： Course Objectives	・Presents the basic theory of operating system design and implementation in some depth. ・Exposes the student to the internals of operating systems through the presentation of how they are actually implemented; throughout the text, the theory is illustrated with one running example using Linux. ・Gives a practical introduction to related system services, using the POSIX interface.
課程大綱： Outline of Lectures	PART ONE OVERVIEW Chapter 1 Introduction Chapter 2 Operating-System Structures PART TWO PROCESS MANAGEMENT Chapter 3 Processes Chapter 4 Threads & Concurrency Chapter 5 CPU Scheduling PART THREE PROCESS SYNCHRONIZATION Chapter 6 Synchronization Tools Chapter 7 Synchronization Examples Chapter 8 Deadlocks PART FOUR MEMORY MANAGEMENT Chapter 9 Main Memory Chapter 10 Virtual Memory PART FIVE STORAGE MANAGEMENT Chapter 11 Mass-Storage Structure Chapter 12 I/O Systems PART SIX FILE SYSTEM Chapter 13 File-System Interface Chapter 14 File-System Implementation Chapter 15 File-System Internals
授課方式： Method of Instruction	講授 Lecture：90% 分組討論 Group discussion：0% 案例研討 Case study：0% 操做練習 Practical exercises：10% 講授 Lecture：%

教科書： Textbooks	Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne, " Operating System Concepts 10e," John Wiley, 2019.
參考書目： References	John Shapley Gray, "Interprocess Communications in Linux," Prentice Hall, 2003. W. Richard Stevens, "Advanced Programming in the UNIX Environment, "Addison-Wesley, 1992.
修課須知： Notice	PPT
評量方式： Grading	1.Homework. 10% 2.Program exercises. 30% 3.Midterm Exam. 30% 4.Final Exam. 30%
備註說明： Notes	familiar with C and data structures.