

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

2026/5/6

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| <p>課程代號： ET4401701</p> <p>Course Code</p> <p>學分數： 3</p> <p>Credits</p> | <p>必選修：選修/半學年</p> <p>Required/Electve:Elective/Half Yr.</p> <p>先修課程：</p> <p>Prerequisites</p> |
| <p>節次教室： W4(IB-409-1) W8(IB-409-1) W9(IB-409-1)</p> <p>Time/Location</p> | |
| <p>專業核心能力：</p> <p>Core Professional Competencies</p> | |
| <p>課程網址：</p> <p>Course Website</p> | |
| <p>課程宗旨： Course Objectives</p> <ul style="list-style-type: none"> • 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. | |
| <p>課程大綱： Outline of Lectures</p> <p>PART ONE OVERVIEW</p> <p>Chapter 1 Introduction</p> <p>Chapter 2 Operating-System Structures</p> <p>PART TWO PROCESS MANAGEMENT</p> <p>Chapter 3 Processes</p> <p>Chapter 4 Threads & Concurrency</p> <p>Chapter 5 CPU Scheduling</p> <p>PART THREE PROCESS SYNCHRONIZATION</p> <p>Chapter 6 Synchronization Tools</p> <p>Chapter 7 Synchronization Examples</p> <p>Chapter 8 Deadlocks</p> <p>PART FOUR MEMORY MANAGEMENT</p> <p>Chapter 9 Main Memory</p> <p>Chapter 10 Virtual Memory</p> <p>PART FIVE STORAGE MANAGEMENT</p> <p>Chapter 11 Mass-Storage Structure</p> <p>Chapter 12 I/O Systems</p> <p>PART SIX FILE SYSTEM</p> <p>Chapter 13 File-System Interface</p> <p>Chapter 14 File-System Implementation</p> <p>Chapter 15 File-System Internals</p> | |
| <p>授課方式： Method of Instruction</p> <p>講授 Lecture：90%</p> <p>分組討論 Group discussion：0%</p> <p>案例研討 Case study：0%</p> <p>操做練習 Practical exercises：10%</p> <p>講授 Lecture：%</p> | |

教科書： Abraham Silberschatz, Peter Baer Galvin, and Greg Gagne, " Operating
Textbooks System Concepts 10e," John Wiley, 2019.

參考書目： John Shapley Gray, "Interprocess Communications in Linux," Prentice
References Hall, 2003.
W. Richard Stevens, "Advanced Programming in the UNIX Environment,
"Addison-Wesley, 1992.

修課須知： PPT
Notice

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| 評量方式： | 1. Homework. | 10% |
| Grading | 2. Program exercises. | 30% |
| | 3. Midterm Exam. | 30% |
| | 4. Final Exam. | 30% |

備註說明： familiar with C and data structures.
Notes