

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：謝佑明

Instructor:HSIEH,YO-MING

課程名稱：平行與分散式計算
在工程上之應用

Course Title : Parallel and Distributed
Computing

2026/5/6

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| 課程代號： CT5708701 Course Code 學分數： 3 Credits | 必選修：選修/半學年 Required/Elective:Elective/Half Yr. 先修課程： Prerequisites |
| 節次教室： M6(IB-602-2) M7(IB-602-2) M8(IB-602-2) Time/Location | |
| 專業核心能力： Core Professional Competencies | |
| 課程網址： Course Website | |
| 課程宗旨： Course Objectives | 1. Students will develop understandings toward parallel and distributed computing, including hardware architecture and various programming models. 2. Students will gain the ability to use parallel computers for solving engineering problems. |
| 課程大綱： Outline of Lectures | * Efficient C/C++ Programming * Programming in the Linux environment * Multi-core and multithread programming through OpenMP * Many-core programming through OpenCL or CUDA. * Parallel and Distributed Computing through MPI * Modern parallel and distributed programming (e.g. SYCL, OneAPI, Hadoop, ...) |
| 授課方式： Method of Instruction | 講授 Lecture：80% 分組討論 Group discussion：0% 案例研討 Case study：20% 操做練習 Practical exercises：0% 講授 Lecture：% |
| 教科書： Textbooks | n/a |
| 參考書目： References | • Williams (2012), C++ Concurrency in Action: Practical Multithreading, Manning Publications, ISBN 978-1933988771. • Cambell (2011), Parallel Programming with Microsoft Visual C++: Design Patterns for Decomposition and Coordination on Multicore Architectures, Microsoft Press, ISBN 978-0735651753. • Reinders, James (2007). Intel Threading Building Blocks: Outfitting C++ for Multi-Core Processor Parallelism |
| 修課須知： Notice | |
| 評量方式： Grading | |

- 30%: Exams
- 30%: Personal term project
- 30%: Assignments
- 10%: Class participation

備註說明：
Notes

- C/C++ programming, Engineering Mathematics(linear algebra, vector, matrices)
- Passionate about programming!