



Parallel Programming

National Tsing Hua University
2017, Summer Semester

Instructor & TA Information

■ Instructor: 周志遠教授 (Jerry)

- Email: jchou@lsalab.cs.nthu.edu.tw
- Office/phone: 台達602 / 42801
- Office hour: email for appointment

■ TA: 郭柏妤(Tiffany)

- Email: tiffanykuo@lsalab.cs.nthu.edu.tw
- Office/phone: 資電836 / 33538
- Office hour: email for appointment
- Lecture & Demo for Programming homework

Course Website

■ Website: <http://lms.nthu.edu.tw/course/30306>

- Announcement
- Materials (lecture/project slides)
- Discussion forums



The screenshot shows the NTHU iLMS Course Website for the course "Parallel Programming". The header includes the NTHU logo and the text "國立清華大學 iLMS數位學習平台". The top right corner has links for "LMS", "知識社群", "我的首頁", and "登出(b14732)", along with "English", "Q&A", and "線上人數:26".

The main content area is titled "課程: 平行程式Parallel Programming" and "位置: 平行程式Parallel Programming > 課程說明". The left sidebar contains a "瀏覽模式" section with a dropdown menu and a "課程功能" section with various links like "課程活動(公告)", "上課教材", "課堂整理", "課程說明", "課程行事曆", "討論區", "小組專區", "隨堂筆記(共享的筆記)", "作業", "問卷", "線上測驗", "出缺勤(統計)", "成員(60)", "成績計算", and "設定".

The main content area displays "課程資訊" and "課程說明". The "課程資訊" table lists the course name, reading permissions, classroom management permissions, teacher, assistant, and credits. The "課程說明" section includes a course outline with three main parts: Course Description, Text Books, and References.

項目	內容
課程名稱	平行程式Parallel Programming (1021, 10210CS542200, 資工系, 碩士班)
閱讀權限	開放旁聽
課堂整理權限	不開放
老師	周志遠
助教	無
學分	3

課程大綱

- 一、課程說明(Course Description)
熟悉平行程式語言及平行程式設計
- 二、指定用書(Text Books)
 1. Parallel Programming – Techniques and applications Using Networked Workstations and Parallel Computers, Barry Wilkinson and Michael Allen, Prentice Hall, 1999.
 2. Parallel Programming in C with MPI and OpenMP, Michael J. Quinn, McGraw-Hill, 2003.
 3. Intel Multi-Core Programming
- 三、參考書籍(References)
 1. Documentation (PVM, MPI, Cilk, Pthread, TreadMark, SAM).

Course Contents

- Introduction to Parallel Computers and Computing
- Programming Languages
 - Message Passing Interface (MPI)
 - Thread Programming: Pthread
 - OpenMP
 - GPU Programming: CUDA
- Parallel Computing Algorithm & Techniques
 - Embarrassingly computing
 - Divide & Conquer
 - Pipeline 、 Synchronous computing
 - Load balancing

Grading Information

- 4 Programming Assignment: **85%, individually**
 - Parallel Odd-Even Transposition Sort (MPI): 25%
 - Mandelbrot Set (MPI + OpenMP): 25%
 - Roller-coaster (Pthread): 10%
 - Blocked All-Pairs Shortest Path (CUDA): 25%
- 6 Labs: **15%, individually**
 - **Computer room (EECS323)**
- **0 will be given to cheater (copying code)**
 - but, discussion on code is encouraged
- **Any late submission can only receive 60% of the points**
 - But 3 days is given for correction after demo

Reminder

- It will be in a FAST pace
 - **5 weeks** to cover the load of a whole semester
 - Learn by **doing**
- It will be dynamic
 - Pay attention to the announcement for the time of our **lectures, labs, and demo**
 - In principal, **morning session 9am-noon, afternoon session 1:30pm-4:30pm**