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THE CHINESE UNIVERSITY OF HONG KONG
Print Course Catalog Details

July 25, 2024
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Academic Org: Div of Computer Science & Engg – Subject: Computer Science

Course: CSCI5600   **Course ID:** 012810   **Eff Date:** 2024-07-01   **Crse Status: Active**   **Apprv. Status:** Approved   **[**New Course**]**
Advanced Topics in Distributed Systems 分佈式系統進階

This course aims to cover research topics on distributed systems. Topics including distributed time and global states, distributed coordination and consensus, P2P systems, distributed transactions and concurrency control, distributed replications and synchronization. Case studies about latest distributed systems such as Chord, Paxos and Spanner and research papers from top conferences will be discussed.
Advisory: Students are expected to have solid foundations on operating systems and database systems.

本科旨在涵蓋分佈式系統的研究課程。主題包括分佈式時間和全局狀態，分佈式協調和共識，分佈式事務和並發控制，P2P系統，分佈式複制和同步。還包括有關Chord，Paxos和Spanner等最新分佈式系統的案例研究和頂尖學術文章的討論。
建議·學生應在操作系統和數據庫系統上有堅實的基礎 。

Grade Descriptor:

A

EXCELLENT – exceptionally good performance and far exceeding expectation in all or most of the course learning outcomes; demonstration of superior understanding of the subject matter, the ability to analyze problems and apply extensive knowledge, and skillful use of concepts and materials to derive proper solutions.

有關等級說明的資料，請參閱英文版本。

B

GOOD – good performance in all course learning outcomes and exceeding expectation in some of them; demonstration of good understanding of the subject matter and the ability to use proper concepts and materials to solve most of the problems encountered.

有關等級說明的資料，請參閱英文版本。

C

FAIR – adequate performance and meeting expectation in all course learning outcomes; demonstration of adequate understanding of the subject matter and the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

D

MARGINAL – performance barely meets the expectation in the essential course learning outcomes; demonstration of partial understanding of the subject matter and the ability to solve simple problems.

有關等級說明的資料，請參閱英文版本。

F

FAILURE – performance does not meet the expectation in the essential course learning outcomes; demonstration of serious deficiencies and the need to retake the course.

有關等級說明的資料，請參閱英文版本。

Equivalent Offering:
Units: 3 (Min) / 3 (Max) / 3 (Acad Progress)
Grading Basis: Graded
Repeat for Credit: N
Multiple Enroll: N
Course Attributes: MSc Computer Science
MPhil-PhD Computer Sci & Erg

Topics:

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COURSE OUTCOMES

Learning Outcomes:

At the end of the course of studies, students will have acquired the ability to
1. Understand what kinds of distributed systems out there and their differences.
2. Understand the technology behind distributed systems, such as distributed consensus and gossip protocol.
3. Understand the applications of distributed systems in different domains.

Course Syllabus:

This course aims to cover research topics on distributed systems. Topics including distributed time and global states, distributed coordination and consensus, P2P systems, distributed transactions and concurrency control, distributed replications and synchronization. Case studies about latest distributed systems such as Chord, Paxos and Spanner and research papers from top conferences will be discussed.

Assessment Type:

Essay test or exam	: 50%
Homework or assignment	: 50%

Feedback for Evaluation:

1. Quiz and examinations
2. Course evaluation and questionnaire
3. Question-and-answer sessions during class
4. Student consultation during office hours or online

Required Readings:

1. Distributed Systems: Concepts and Design: George Coulouris, Jean Dollimore, Tim Kindberg, Gordon Blair. 5th edition, Addison-Wesley.
2. Principles of Distributed Database Systems: Tamer Ozsu, Patrick Valduriez. Springer.
3. Distributed Systems Reading List: https://dancres.github.io/Pages/

Recommended Readings:

OFFERINGS

1. CSCI5600   Acad Organization=CSEGV; Acad Career=RPG

COMPONENTS

LEC : Size=30; Final Exam=Y; Contact=3

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ENROLMENT REQUIREMENTS

1. CSCI5600

Enrollment Requirement Group:
For students in MSc Computer Science or MPhil - PhD Computer Science & Engineering or UG Computer Science or UG Computer Engineering;
Pre-requisites: CSCI3150 & CSCI3170 (for UG students only);
Exclusion: CMSC5735

Additional Information

VTL-Onsite face-to-face hrs   0
VTL-Online synch. hrs   0
VTL-Online asynch. hrs   0

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