

Academic Org: Div of Computer Science & Engg – Subject: Computer Science

Course: CSCI5590 **Course ID:** 012789 **Eff Date:** 2022-07-01 **Crse Status:** Active **Apprv. Status:** Approved **【Course Rev】**
Advanced Topics in Blockchain 區塊鏈進階

This course aims to cover advanced topics on blockchain. The focus will be on advanced topics like permissionless blockchain, Ethereum, smart contract, mining pool, permissioned blockchain, anonymity, new consensus, sidechain, ripple, offchain and lightning network.
Advisory: Students are expected to have solid foundations on operating systems and database systems.

本科旨在研討區塊鏈的技術。重點將放在進階話題上，如無權區塊鏈，Ethereum，智能合同，採礦池，權區塊鏈，匿名學，新共識，側鏈，ripple，offchain和雷電網絡。
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 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

SATISFACTORY – adequate performance in all course learning outcomes; demonstration of adequate understanding of the subject matter, and the ability to solve straight forward problems.

有關等級說明的資料，請參閱英文版本。

C

REASONABLE – adequate performance in the essential course learning outcomes, reasonable performance, 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 meeting 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 not meeting 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:

COURSE OUTCOMES

Learning Outcomes:

At the end of the course of studies, students will have acquired the ability to

1. Understand what most kinds of cryptocurrencies out there and what are the differences between them.
2. Understand the advanced technology in blockchain.
3. Understand the other potential applications of blockchain beyond cryptocurrency.

Course Syllabus:

This course aims to cover advanced topics on blockchain. The focus will be on advanced topics like permissionless blockchain, Ethereum, smart contract, mining pool, permissioned blockchain, anonymity, new consensus, sidechain, ripple, offchain and lightning network.
Advisory: Students are expected to have solid foundations on operating systems and database systems.

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:

To be provided by course teacher.

Recommended Readings:

1. Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction, by Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, Steven Goldfeder
2. Research Perspectives and Challenges for Bitcoin and Cryptocurrencies, by Bonneau, Miller, Clark, Narayanan, Kroll and Felten
3. Cryptocurrency Online Bibliography, maintained by Jeremy Clerk

OFFERINGS

1. CSCI5590 Acad Organization=CSEGV; Acad Career=RPG

COMPONENTS

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

ENROLMENT REQUIREMENTS

1. CSCI5590

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);

Exclusions: IERG5590 or FTEC5520 or IEMS5725

New Enrollment Requirement(s):

Pre-requisite = no change

Exclusion = change to "IERG5590 or FTEC5520 or IEMS5725"

CAF

<END OF REPORT>