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THE CHINESE UNIVERSITY OF HONG KONG
Print Course Catalog Details

July 25, 2024
9:28:08 AM

Academic Org: Dept of Computer Sci & Engg – Subject: Computer Science

Course: CSCI2730   **Course ID:** 014339   **Eff Date:** 2024-07-01   **Crse Status: Active**   **Apprv. Status:** Approved   **[Course Rev]**

Introduction to Blockchain Technologies and Applications 區塊鏈技術和應用導論

This course introduces the concepts and applications of blockchain technologies, explain their potential impacts on different industries, and explore the latest techniques of blockchains. Students will learn skills in popular blockchain platforms to understand blockchain technologies and applications, in IoT and NFT, etc. Topics include: (1) Blockchain Fundamentals; (2) Blockchain Mining; (3) Sustainable Blockchain; (4) Blockchain and Hyperledger; (5) Blockchain and Decentralized Applications (DApps); (6) AI in Blockchain, and Impact on Industry; (7) IOT and Blockchain; (8) Security issue in Blockchain; (9) Scalable Blockchain and Blockchain as a Service (BaaS); (10) Blockchain Applications.

本科旨在介紹區塊鏈技術的概念和應用，解釋其對不同行業的潛在影響，並探索以太坊和 Hyperledger 項目中區塊鏈的最新技術。學生將學習流行區塊鏈平台的技能，以了解區塊鏈技術和應用、物聯網和 NFT 等。主題包括：（1）區塊鏈基礎知識；（2）區塊鏈挖礦；（3）可持續區塊鏈；（4）區塊鍊和超級賬本；（5）區塊鍊和去中心化應用（DApps）；（6）區塊鏈中的人工智能，以及對行業的影響；（7）物聯網與區塊鏈；（8）區塊鏈的安全問題；（9）可擴展的區塊鍊和區塊鏈即服務（BaaS）；（10）區塊鏈應用。

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.

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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:

Topics:

COURSE OUTCOMES

Learning Outcomes:

At the end of the course of studies, students will be able to:
1. explain the concepts and techniques of different types of blockchains;
2. explain decentralized applications running on a decentralized peer-to-peer network
3. explain the blockchain applications running on popular blockchain platforms;

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Course Syllabus:

Week 1: Blockchain Fundamentals
Week 2: Blockchain Mining
Week 3: Sustainable Blockchain
Week 4: Blockchain and Hyperledger
Week 5: Ethereum
Week 6: Blockchain and Decentralized Applications (DApps)
Week 7: AI in Blockchain, and Impact on Industry
Week 8: IOT and Blockchain
Week 9: Security issue in Blockchain
Week 10: Scalable Blockchain and Blockchain as a Service (BaaS)
Week 11: IOT and Blockchain Applications
Week 12: Blockchain Applications
Week 13: Blockchain Applications

Assessment Type:

Examination	: 55%
Homework or assignment	: 25%
Project	: 20%

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:

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Recommended Readings:

1) Imran Bashir. Mastering Blockchain: A deep dive into distributed ledgers, consensus protocols, smart contracts, DApps, cryptocurrencies, Ethereum, and more, 3rd Edition, Packt Publishing Limited, 2020 (ISBN-10: 1839213191 | ISBN-13: 978-1839213199).
2) Andreas Antonopoulos. Mastering Bitcoin 2nd Edition, O'Reilly Media, Inc, USA, 2017 (ISBN10: 1491954388 | ISBN-13: 978-1491954386).

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3) Timi Ajiboye , Luis Buenaventura , Lily Liu. The Little Bitcoin Book: Why Bitcoin Matters for Your Freedom, Finances, and Future, Whispering Candle, 2019 (ISBN-10: 1641990503 | ISBN13: 978-1641990509).

OFFERINGS	
1. CSCI2730	Acad Organization=CSD; Acad Career=UG

COMPONENTS
LEC : Size=80; Final Exam=Y; Contact=3
TUT : Size=80; Final Exam=N; Contact=1

ENROLMENT REQUIREMENTS

1. CSCI2730

Enrollment Requirement Group:
Not for students who have taken IERG4360 or ESTR4326.
Prerequisite: AIST1110 or CSCI1120 or 1130 or 1510 or 1520 or 1530 or 1540 or 1550 or ENGG1110 or ESTR1002 or 1100 or 1102.

New Enrollment Requirement(s):
Pre-requisite = Change from "AIST1110 or CSCI1120 or 1130 or 1510 or 1520 or 1530 or 1540 or ENGG1110" to "AIST1110 or CSCI1120 or 1130 or 1510 or 1520 or 1530 or 1540 or 1550 or ENGG1110 or ESTR1002 or 1100 or 1102"

Additional Information

eLearning hrs for blended cls	0
VTL-Onsite face-to-face hrs	0
VTL-Online synch. hrs	0
VTL-Online asynch. hrs	0
No. of micro-modules	0
Research components (UG)	1% - 49%

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