

City University of Hong Kong
Course Syllabus

offered by College/School/Department of Electrical Engineering
with effect from Semester B, 2019/2020

Part I Course Overview

Course Title:	Internet Finance
Course Code:	EE4017
Course Duration:	One Semester (13 weeks)
Credit Units:	3
Level:	B4
Proposed Area: <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	EE3009 Data Communications and Networking
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course is about Internet finance. The course discusses internet based technologies that are applied to financial activities. The discussion includes mobile payments, cryptocurrencies, blockchain based systems, and the use of Python for processing big financial data. The course also briefly discusses on the current trends on FinTech and cybersecurity.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Understand the importance of Internet technologies in traditional financial services and markets		✓	✓	
2.	Explain the principles and technologies of Internet Finance		✓	✓	
3.	Apply programming techniques to solve problems of Internet finance		✓	✓	
4	Realize the importance of cybersecurity in Internet finance		✓	✓	
* If weighting is assigned to CILOs, they should add up to 100%.		100%			

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
Lecture	Key concepts are described with lecture activities to reinforce students' learning.	✓	✓	✓	✓			2
Laboratory based Tutorial	Key concepts are applied and practice in solving real time network problems.	✓	✓	✓	✓			1

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3	4				
Continuous Assessment: 60 %								
Test (min: 2)	✓	✓	✓	✓			36%	
Assignments (min: 3)	✓	✓	✓	✓			24%	
Examination: 40 % (duration: 2hrs , if applicable)								
Examination	✓	✓	✓	✓			40%	
* The weightings should add up to 100%.							100%	

Remark: To pass the course, student are required to achieve at least 30% in the coursework and 30% of the examination. Also, 75% laboratory attendance rate must be obtained.

#may include homework, tutorial/laboratory exercise, project/mini-project, presentation

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Examination	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Coursework	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal levels

6. Constructive Alignment with Major Outcomes

MILO	How the course contribute to the specific MILO(s)
1	An ability to apply knowledge of mathematics, science and engineering.
3	An ability to design a system, component, or process that conforms to a given specification within realistic constraints.
5	An ability to identify, evaluate, formulate and solve engineering problems.
10	An ability to use necessary engineering tools.

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

Introduction to Financial Services and Markets

Banking; Money Market; Stock Market; Bond Market; Other Financial Markets

Blockchain and Distributed Ledger

Basic Theory: Hashing, Hashing Reference, Nonce; Types of Blockchain; Blockchain implementations; Blockchain Use Cases

Cryptocurrencies

Blockchain and Cryptocurrencies; Bitcoin; Ethereum; Ripple

Mobile Payment

Mobile Payment Systems; Mobile Device Security; Architectures and Models for Mobile Payment Systems; Security in Mobile Payment Systems

Python for Big Financial Data

Python for Finance; Hadoop for Finance; Running MapReduce for Stock Prices; Algorithmic Trading

Current Trends on Cybersecurity and FinTech

FinTech and Cybersecurity; Current trends on FinTech: AI, Big Data Analytics, and Threat Intelligence

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	N/A
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2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Blockchain: A Practical Guide to Developing Business, Law, and Technology Solutions, Joseph J. Bambara et. al., McGraw-Hill Education, 2018.
2.	Blockchain Basics, Daniel Drescher, Apress, 2017.
3.	Mobile Payment Systems: Secure Network Architectures and Protocols, Jesus Tellez and Sherali Zeadally, Springer, 2017.
4.	Mastering Python for Finance, James Ma Weiming, Packt Publishing, 2015. Internet Finance in China, Ping Xie, Chuanwei Zou, and Haier Liu, Routledge, 2016.