

Syllabus(2023-2nd semester)

Course	Blockchain Application	Department	Cyber Security	Office Hours	
Course No. and Class	38487-01	Hours	3.0	Academic Credit	3.0
Professor	Jongkil Kim		Office	Jinseonmi-gwan 225	
Telephone	4253		E-MAIL	jongkil@ewha.ac.kr	
Value of competence	Pursuit of Knowledge(80), Creative Convergence(20)		Keyword	blockchain, Distributed ledger, Cryptocurrency	

1. Course Description

This subject is designed to introduce the fundamentals of blockchain systems and their applications. The content of the subject will include some important theories that are necessary to understand blockchain systems and their applications. This subject also will include discussions on cybersecurity issues in blockchain systems.

2. Prerequisites

There are no prerequisites for this subject.

3. Course Format

Lecture	Discussion/Presentation	Experiment/Practicum	Field Study	Other
90%	10%	0%	0%	0%

- explanation of course format :

The students in this subject may need to present their project outcomes during the classes.

4. Course Objectives

By completing this subject, the students can get a solid understanding of the essential theories and principles needed to understand blockchain systems. Those will include cryptographic mechanisms and consensus algorithms that are critical to understanding blockchain systems. Moreover, the students may enable to discuss and understand the ongoing issues in blockchain systems and their applications including cybersecurity issues.

5. Evaluation System

* Absolute evaluation

Midterm Exam	Final Exam	Quizzes	Presentation	Projects	Assignments	Participation	Other
30%	30%	0%	0%	15%	15%	10%	0%

* Evaluation of group projects may include peer evaluations.

- explanation of evaluation system

6. Required Materials

No textbook is needed for this subject.

7. Supplementary Materials

Bitcoin: A Peer-to-Peer Electronic Cash System (2008) by Satoshi Nakamoto

8. Optional Additional Readings

<https://ethereum.org/>

9. Course contents

Week	Date	Topics, Materials, Assignments
Week 1	2023/09/04(MON)	Subject Overview
	2023/09/06(WED)	Preliminaries
Week 2	2023/09/11(MON)	Preliminaries
	2023/09/13(WED)	Introduction to Blockchain
Week 3	2023/09/18(MON)	Introduction to Blockchain
	2023/09/20(WED)	Bitcoin and Cryptocurrency
Week 4	2023/09/25(MON)	Bitcoin and Cryptocurrency
	2023/09/27(WED)	Hashcash and proof-of-work
Week 5	2023/10/02(MON)	임시공휴일
	2023/10/04(WED)	More on Bitcoin
Week 6	2023/10/09(MON)	한글날
	2023/10/11(WED)	More on Bitcoin
Week 7	2023/10/16(MON)	Ethereum and Smart Contract
	2023/10/18(WED)	Ethereum and Smart Contract
Week 8	2023/10/23(MON)	Proof-of-stake
	2023/10/25(WED)	Midterm Exam
Week 9	2023/10/30(MON)	Proof-of-stake
	2023/11/01(WED)	Other consensus algorithms
Week 10	2023/11/06(MON)	NFT (Non-fungible Tokens)
	2023/11/08(WED)	NFT (Non-fungible Tokens)
Week 11	2023/11/13(MON)	Private blockchain
	2023/11/15(WED)	Private blockchain
Week 12	2023/11/20(MON)	Discussion on Stable Coins
	2023/11/22(WED)	Discussion on Stable Coins
Week 13	2023/11/27(MON)	Blockchain Applications
	2023/11/29(WED)	Blockchain Applications
Week 14	2023/12/04(MON)	Project presentation (II)
	2023/12/06(WED)	Project presentation (I)
Week 15	2023/12/11(MON)	Subject Summary
	2023/12/13(WED)	Final Exam
Makeup Classes 1	2023/10/10(TUE)	Other topics in blockchain systems. (The location will be announced in a class.)
Makeup Classes 2		Hashcash and proof-of-work

10. Course Policies

* For laboratory courses, all students are required to complete lab safety training.

11. Special Accommodations

* According to the University regulation #57, students with disabilities can request special accommodation related to attendance, lectures, assignments, and/or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' requests, students can receive support for such accommodations from the course professor and/or from the Support Center for Students with Disabilities (SCSD).

* The contents of this syllabus are not final—they may be updated.