NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

AY24/25 Trimester 1
SC6101 Introduction to Blockchain Technology – Part 1

Instructor **:** Assoc Prof Li Yi
Telephone : +65 6790 4287
E-mail : yi_li@ntu.edu.sg

COURSE DESCRIPTION

This is the first course in the MSc (Blockchain) program, which aims to introduce you to the core technical framework of Blockchain Technology and Cryptocurrencies, encompassing distributed systems, consensus protocols, incentive mechanisms, and decentralized applications. You will also learn the major anonymity, security, and privacy issues in modern Blockchain, in addition to the relevant enterprise platforms, solutions, applications and regulatory aspects of the technology.

COURSE OBJECTIVES

By the end of this course, you should be able to:

1. Recognize and identify the various consensus protocols in distributed systems
2. Discuss and explain Bitcoin blockchain, its technical mechanisms, and protocols
3. Discuss and explain Ethereum blockchain, its smart contracts, DApps, and tokens
4. Understand decentralized applications based on tokens and smart contracts
5. Analyse and argue anonymity, security, and privacy issues in modern blockchain

COURSE CONTENTS

1. Motivation and Introduction
2. Distributed systems and consensus protocols
3. The Bitcoin Blockchain
4. The Ethereum Blockchain
5. Practical Aspects of Blockchain
6. Blockchain in Practice

COURSE ASSESSMENT

Quiz 1	*Individual*	*30%*
Quiz 2	*Individual*	*30%*
Term Paper	*Team*	*40%*
Total		**100%**

QUIZ 1 (30%)

Multiple choice and short-answered questions to be tested in class.

QUIZ 2 (30%)

Multiple choice and short-answered questions to be tested in class.

TERM PAPER (40%)

The term paper is team-based. Students are expected to finish a survey on one of the chosen aspects of blockchain technology, for example, security, privacy, and scalability. Peer evaluation results will be considered for the final grading.

PENALTY FOR LATE SUBMISSION

Do note that a penalty of 10% per day will apply on the assignment marks obtained. No assignments will be accepted after 5 days and participants will get "0" marks for this component.

Example:
Submission late for less than 1 day: 10 marks are deducted for an assignment with a total score of 100.
Submission late more than 1 day but less than 2 days: 20 marks are deducted for an assignment with a total score of 100.
Late submission from 5th day onwards: Will not be accepted and participant will get "0" marks for this component.