南方科技大学
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

课程详述
COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	**课程名称 Course Title**	管理学前沿与实践 I Management Frontiers and Practices I
2.	**授课院系 Originating Department**	信息系统与管理工程系 Department of Information Systems & Management Engineering
3.	**课程编号 Course Code**	EBA 420
4.	**课程学分 Credit Value**	3
5.	**课程类别 Course Type**	专业选修课 Major Elective Courses
6.	**授课学期 Semester**	春季 Spring
7.	**授课语言 Teaching Language**	英文 English
8.	**授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） Instructor(s), Affiliation& Contact （For team teaching, please list all instructors）**	杨玉坤，信息系统与管理工程系 Yukun Yang, Department of Information Systems & Management Engineering, yangyk@sustech.edu.cn
9.	**实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact**	待公布 To be announced
10.	**选课人数限额(可不填) Maximum Enrolment （Optional）**	

11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other（Please specify）	总学时 Total
学时数 Credit Hours	32	0	32	0	64

12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 None
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 None
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 None

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程旨在帮助学生深入了解区块链技术，以及它如何推动不同行业和环境中公司的大数据创新和竞争优势。本课程还将培养学生开发区块链应用的实践技能。

This course is designed to help students gain an in-depth understanding of the blockchain technology and how it drives big data innovation and competitive advantage for companies in various industries and environment. This course will also cultivate students' hands-on skills on developing blockchain applications.

16. 预达学习成果 Learning Outcomes

- 了解区块链作为大数据存储的关键技术。
- 通过区块链带来的新范式和框架，包括去中心化的组织结构、网络和应用程序，获得更广阔的大数据创新视野。
- 了解区块链的技术和加密构成。
- 从跨行业用例中了解区块链的潜在影响。
- 学习如何开发和部署智能合约。
- 了解区块链应用的发展趋势。

- Understand blockchain as a type of big data storage technology.
- Gain a broader perspective on big data innovation with the new paradigm and frameworks brought by blockchain including decentralized organizational structures, networks and applications.
- Understand the technological and cryptographic components of blockchain.
- Project the potential impacts on blockchain from use cases across industries.
- Learn how to create and deploy smart contracts.
- Learn from the industry leaders about the trends of blockchain applications.

17. 课程内容及教学日历 （如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

理论和案例研讨课（64 学时）

第一章 区块链技术（第 1 周）
理论（2 学时）
了解什么是区块链技术; 了解区块链开发的历史
案例研讨（2 学时）
区块链入门

第二章 区块链基本概念（第 2 周）
理论（2 学时）
了解区块链的基本概念，包括区块链、智能合约、区块链协议和交易等：了解不同类型的区块链的优点和缺点：需要许可的与无需许可的，公链与私链等
案例研讨（2 学时）
关于区块链的真相

第三章 全球区块链格局（第 3 周）
理论（2 学时）
了解全球区块链格局，包括市场规模、主要联盟、参与者、主要顾问、投资者和地域
案例研讨（2 学时）
区块链将如何改变组织

第四章 区块链应用框架（第 4 周）
理论（2 学时）
具有基本功能的常用区块链框架，包括 Hyperledger、以太坊、多链、Corda 和 Quorum
案例研讨（2 学时）
谁在控制区块链？

第五章 区块链协议和算法（第 5 周）
理论（2 学时）
了解非对称密钥加密的概念、哈希概念以及使用算法管理区块链中交易和块的完整性的技术；了解区块链中的信任元素，并讨论共识协议
案例研讨（2 学时）
谁编写区块链规则？

第六章 去中心化治理（第 6 周）
理论（2 学时）
了解区块链技术赋能的思维转变、策略和行动原则
案例研讨（2 学时）
TCLK：区块链驱动的信息平台

期中考试 （第 7 周）
期中考试**（2 学时）**
期中考试讲解**（2 学时）**

第七章 智能合约的开发（第 8 周）
理论（2 学时）
以 Solidity 语言设计和开发智能合约
实验（2 学时）
为候选人选举编写一份以太坊智能合约

第八章 智能合约的部署（第 9 周）
理论（2 学时）
在开发环境中测试和部署智能合约，并从一个简单的 Web 界面调用合约
实验（2 学时）
测试智能合约，将其部署到以太坊区块链，并开发一个允许帐户投票的客户端应用程序

第九章 区块链技术在金融服务领域的商业应用（第 10 周）
理论（2 学时）
了解去中心化金融的历史、DeFi 可以解决的问题以及关于 DeFi 的争论

案例研讨（2 学时）
区块链将如何改变我们的支付方式：对银行业的冲击

第十章 区块链技术在供应链领域的商业应用（第 11 周）
理论（2 学时）
介绍如何在供应链中引入区块链技术以协助记录价格、日期、位置、质量、认证等相关信息，从而更有效地管理供应链。
案例研讨（2 学时）
是真的，相信我！使用区块链建立供应链证明

第十一章 区块链技术在凭证领域的商业应用（第 12 周）
理论（2 学时）
介绍如何在凭据中引入区块链技术以提高安全和欺诈预防水平
案例研讨（2 学时）
区块链技术下的阿里巴巴：将基于区块链的汇款整合到云服务中

第十二章 区块链技术遇到的技术挑战和新兴的解决方案（第 13 周）
理论（2 学时）
识别重大技术和业务挑战以及新兴解决方案
案例研讨（2 学时）
哪些问题可以用区块链解决？

第十三章 区块链的未来发展（第 14 周）
理论（2 学时）
讨论一些对未来区块链发展的预测
案例研讨（2 学时）
导航区块链创新的下一波浪潮：智能合约

团队项目答疑（第 15 周）
项目答疑和讨论（**2 学时**）
课程回顾（**2 学时**）

团队项目展示（第 16 周）
项目展示（**2 学时**）
团队项目展示（**2 学时**）

备注：案例可能会因案例的可用性而改变。

Lectures and Tutorials (64 hours)

Chapter 1 A brief introduction to blockchain (Week 1)
Lecture (2 hours)
Understand what is blockchain technology; Learn the history of the blockchain development
Case Discussion (2 hours)
An Introduction to Blockchain

Chapter 2 Essentials of Blockchain (Week 2)
Lecture (2 hours)
Understand the basic concepts of blockchain, including blockchain, smart contract, blockchain protocol, transactions, etc.; Understand the strengths and weakness of different types of blockchains: permissioned vs. permissionless, public vs. private
Case Discussion (2 hours)
The Truth About Blockchain

Chapter 3 The Global Blockchain Landscape (Week 3)
Lecture (2 hours)
Understand the global blockchain landscape, including the size of market, major consortia, major players, major consultants, investors, and geographies
Case Discussion (2 hours)
How Blockchain Will Change Organizations

Chapter 4 The Blockchain Application Framework (Week 4)
Lecture (2 hours)
Top blockchain frameworks with their essential features, including Hyperledger, Ethereum, MultiChain, Corda and Quorum
Case Discussion (2 hours)
Who Controls the Blockchain?

Chapter 5 Blockchain Protocols and Algorithms (Week 5)
Lecture (2 hours)
Learn the concept of asymmetric key encryption, the concept of hashing, and the techniques that use algorithms to manage the integrity of transactions and blocks in blockchain; Learn the elements of trust in blockchain and discuss the consensus protocol
Case Discussion (2 hours)
Who Writes the Rules of a Blockchain?

Chapter 6 Decentralized Governance (Week 6)
Lecture (2 hours)
Understand the mind shifts, strategies, and action principles enabled by blockchain technologies
Case Discussion (2 hours)
TCLK: Blockchain-Powered Information Platform

Mid-term Exam (Week 7)
Mid-term Exam **(2 hours)**
Mid-term Exam Interpretation **(2 hours)**

Chapter 7 Smart Contract Development (Week 8)
Lecture (2 hours)
Design and program smart contracts in Solidity language
Lab (2 hours)
Write an Ethereum smart contract about an election between two candidates.

Chapter 8 Smart Contract Deployment (Week 9)
Lecture (2 hours)
Test and deploy smart contracts in the development environment and invoke them from a simple web interface
Lab (2 hours)
Write tests against the smart contract, deploy it to the Ethereum blockchain, and develop a client-side applications that allows accounts to cast votes

Chapter 9 Business Applications for Financial Services (Week 10)
Lecture (2 hours)
Learn the history of decentralized finance, problems that DeFi can solve, and debates about DeFi
Case Discussion (2 hours)
How Blockchain Will Change the Way We Pay: Banking Disruption

Chapter 10 Business Application for Supply Chains (Week 11)
Lecture (2 hours)
Introduce the applications using blockchain in the supply chain to help participants record price, date, location, quality, certification, and other relevant information to more effectively manage the supply chain.
Case Discussion (2 hours)
It's Real, Trust Me! Establishing Supplychain Provenance using Blockchain

Chapter 11 Business Applications for Credentials (Week 12)
Lecture (2 hours)
Introduce the applications with credentials that have been recorded against the blockchain to establish a heightened level of security and fraud prevention
Case Discussion (2 hours)
Alibaba in Blockchain: Integrating Blockchain-based Remittances into Cloud Services

Chapter 12 Technical Challenges and Emerging Solutions (Week 13)
Lecture (2 hours)
Identify major technical and business challenges and emerging solutions
Case Discussion (2 hours)
What Problems Will You Solve with Blockchain?

Chapter 13 The Future of Blockchains (Week 14)

Lecture (2 hours)
Discuss some blockchain predictions for the future
Case Discussion (2 hours)
Navigating the Next Wave of Blockchain Innovation: Smart Contracts

Project Group Consultation (Week 15)
Q&A for group projects **(2 hours)**
Final Review **(2 hours)**

Group Project Presentation (Week 16)
Group Project Presentation **(2 hours)**
Group Project Presentation **(2 hours)**

Notes: Cases may change due to the availability.

18. 教材及其它参考资料 **Textbook and Supplementary Readings**

Lacity, M. (2020). *Blockchain Foundations for the Internet of Value.* Epic Books/University of Arkansas Press, Fayetteville Arkansas.

Mehta, N., Agashet, A., & Detrojia, P. (2019). *Bubble or Revolution: The Present and Future of Blockchain and Cryptocurrencies*. Paravane Ventures.

Other reading materials assigned by the instructor.

课程评估 ASSESSMENT

19.

评估形式 **Type of Assessment**	评估时间 **Time**	占考试总成绩百分比 **% of final score**	违纪处罚 **Penalty**	备注 **Notes**
出勤 **Attendance**				
课堂表现 **Participation**		10		
小测验 **Quiz**				
课程项目 **Projects**		30		
平时作业 **Graded Team Assignments**		10		
期中考试 **Mid-Term Quiz**		20		
期末考试 **Final Exam**		30		
期末报告 **Final Presentation**				
其它（可根据需要				

改写以上评估方式） **Others (The above may be modified as necessary)**				

20. 记分方式 **GRADING SYSTEM**

☑ A. 十三级等级制 **Letter Grading**
☐ B. 二级记分制（通过/不通过） **Pass/Fail Grading**

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过
This Course has been approved by the following person or committee of authority