CSCE 5933 Topics in Computer Science and Engineering – Cryptocurrencies

Instructor: Kirill Morozov (Department of Computer Science and Engineering)

Course syllabus

L1 (Jun 5): Course overview, introduction to cryptography and cryptocurrencies

L2 (Jun 7): Introduction of Bitcoin's protocols and consensus

L3 (Jun 12): Technical overview of Bitcoin's protocols

L4 (Jun 14): Bitcoin's handling and operation

L5 (Jun 19): Overview of Bitcoin mining

L6 (Jun 21): Mining: Strategy and attacks

L7 (Jun 26): Socioeconomic aspects of Bitcoin

L8 (Jun 28): Summary of Bitcoin, **Midterm Exam 1**

L9 (Jul 3): Alternative approaches to mining and consensus

L10 (Jul 5): Anonymity and security issues in cryptocurrencies

L11 (Jul 10): Overview of altcoins

L12 (Jul 12): Cryptocurrencies with enhanced privacy

L13 (Jul 17): Introduction to Ethereum

L14 (Jul 19): Smart contracts and decentralized applications

L15 (Jul 24): Summary of altcoins, **Mid-Term Exam 2**

L16 (Jul 26): Cryprocurrencies based on Proof-of-Stake

L17 (Jul 29): Bitcoin scalability and the Lightning Network

L18 (Jul 31): Bitcoin as a platform: Smart property, public randomness and more

L19 (Aug 2): Conclusion: Legal aspects, recent developments and a glimpse into future

L20 (Aug 9): Course summary, **Mid-Term Exam 3**

Recommended textbook: A. Narayanan, J. Bonneau, E. Felten, A. Miller, and S. Goldfeder, "Bitcoin and cryptocurrency technologies: a comprehensive introduction", Princeton University Press, 2016.