IT486: Blockchains and Cryptocurrencies
Autumn 2019-20

Credits: 3-0-0-3
Pre-requisites: Students should have taken a cryptography course (preferably, IT325)

Instructor: Anish Mathuria, Room 1105, Faculty Block 1
Timetable: To be announced
Lecture hall: To be announced

Objectives: This course explores the fundamentals of blockchains and cryptocurrencies.

Course topics: Topics covered include basic cryptographic tools, early digital cash (Chaum et al), Bitcoin blockchain, Script language, Bitcoin wallets, applications of Bitcoin scripts, distributed consensus algorithms, proof of work, mining pools, mining attacks, altcoins, virtual mining, cross-chain transactions, Bitcoin exchanges, anonymity and privacy techniques, scaling blockchains, smart contracts, decentralized applications, and Ethereum blockchain.

References


The Princeton text covers some but not all of the lecture material. In addition to the text, we will use selected papers and references available on the web.

Evaluation

- Two in-semester exams: 30%
- End-sem exam: 30% (cumulative)
- Quizzes: 20% (in-class, not announced in advance)
- Programming assignments (Java/Python): 20%

Class Attendance

To keep up with the course material, you must come to class, listen and ask questions. We will not use class attendance as part of the grading policy.