

NEW NUGGET COURSE

IDS 552 1 Cryptography for Block Chain

12/6/2020 - 12/13/2020
Sun/Sat 9:00 AM-12:00 PM
2:00 PM -4:00 PM

Instructor:
Dr Jermey Tseng

Course Description

Block Chain technology was originally proposed in 1991 as a timestamp mechanism for digital documents. But not until 2008, when Bitcoin, which used Block Chain as its underlying technology, was invented by Satoshi Nakamoto, has Block Chain caught the attention around the world. This fast proliferation is partially due to the speculative nature and the incredible appreciation of the digital cryptocurrency, the Bitcoin. Besides, many other applications also emerged to benefit from the advantageous nature of the Block Chain technology.

In the course, we will use Bitcoin to explain how Block Chain works, although Bitcoin is only one of the many possible applications of Block Chain. We will then describe how and why some cryptographic techniques, namely Hash algorithms, Nonce, Digital Signature and Public Key Encryption, are used in Block Chain and its applications.

Instead of delving into the abstruse mathematics behind the cryptography, we will, in a simplistic way, show how and why these cryptographic techniques are used in BC. The intent is to let the students learn how to apply these techniques, not only in Block Chain, but also in many other applications.

Syllabus of course process / Course Content

Total Lecture Time 15 hours

- Bitcoin and Block Chain: 4 hours
- Quizzes: 1 hours
- Hash: 2 hours
- Nonce: 1 hour
- Encrypting techniques: Symmetric and Asymmetric : 3 hours
- Digital Signature: 3 hours
- Final Exam: 1 hour