



BLOCKCHAIN ARCHITECTURE DESIGN AND USE CASES

PROF. SANDIP CHAKRABORTY

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TYPE OF COURSE : Rerun | Elective | UG/
INTENDED AUDIENCE : PG CSE, ECE, EE, Maths
INDUSTRIES APPLICABLE TO : IT Industries

COURSE DURATION : 12 weeks (29 Jul'19 - 18 Oct'19)
EXAM DATE : 17 Nov 2019

COURSE OUTLINE :

The widespread popularity of digital cryptocurrencies has led the foundation of Blockchain, which is fundamentally a public digital ledger to share information in a trustworthy and secure way. The concept and applications of Blockchain have now spread from cryptocurrencies to various other domains, including business process management, smart contracts, IoT and so on. This course is a joint venture from academia and industry, where the target is to cover both the conceptual as well as application aspects of Blockchain. This includes the fundamental design and architectural primitives of Blockchain, the system and the security aspects, along with various use cases from different application domains.

ABOUT INSTRUCTOR :

Prof. Sandip Chakraborty received the Ph.D. and M.Tech. degrees from Department of Computer Science and Engineering, Indian Institute of Technology (IIT), Guwahati, India. Presently, he is an Assistant Professor with Department of Computer Science and Engineering, IIT Kharagpur.

Dr. Praveen Jayachandran is a research staff member, master inventor and manager of the Blockchain and Smart Contracts team at IBM Research, India. His work spans different aspects of blockchain technology, including developing an enterprise-grade blockchain platform, development of smart contracts, and reimagining industry use cases in a blockchain world.

COURSE PLAN :

- Week 01** : Introduction to Blockchain
- Week 02** : Crypto Primitives and Bitcoin
- Week 03** : Consensus
- Week 04** : Permissioned Blockchain
- Week 05** : Hyperledger Fabric
- Week 06** : Fabric Demo
- Week 07** : Blockchain Use Cases - Finance
- Week 08** : Blockchain Use Cases - Industry
- Week 09** : Blockchain in Government and Blockchain Security
- Week 10** : Security and Research Aspects
- Week 11** : Research Aspects in Blockchain
- Week 12** : AI, Blockchain and Big Data