NPTEL Video Course - Computer Science and Engineering - NOC:Blockchain Architecture Design and Use Cases

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Co-ordinating Institute - IIT - Kharagpur

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Blockchain - I (Basics)
Lecture 2 - Introduction to Blockchain - II (History)
Lecture 3 - Introduction to Blockchain - III (Architecture)
Lecture 4 - Introduction to Blockchain - IV (Conceptualization)
Lecture 5 - Basic Crypto Primitives - I
Lecture 6 - Basic Crypto Primitives - II
Lecture 7 - Bitcoin Basics - I
Lecture 8 - Bitcoin Basics - II
Lecture 9 - Bitcoin Basics - III
Lecture 10 - Distributed Consensus
Lecture 11 - Consensus in Bitcoin - I (The Basics)
Lecture 12 - Consensus in Bitcoin - II (PoW and Beyond)
Lecture 13 - Consensus in Bitcoin - III (The Miners)
Lecture 14 - Permissioned Blockchain - I (Basics)
Lecture 15 - Permissioned Blockchain - II (Consensus)
Lecture 16 - Permissioned Blockchain - III (RAFT Consensus)
Lecture 17 - Permissioned Blockchain - IV (Byzantine General Problem)
Lecture 18 - Permissioned Blockchain - V (Practical Byzantine Fault Tolerance)
Lecture 19 - Blockchain for Enterprise - Overview
Lecture 20 - Blockchain Components and Concepts
Lecture 21 - Hyperledger Fabric - Transaction Flow
Lecture 22 - Hyperledger Fabric Details
Lecture 23 - Fabric - Membership and Identity Management
Lecture 24 - Hyperledger Fabric Network Setup
Lecture 25 - Fabric Demo on IBM Blockchain Cloud - I
Lecture 26 - Fabric Demo on IBM Blockchain Cloud - II
Lecture 27 - Fabric Demo, deploy from scratch - III
Lecture 28 - Hyperledger Composer - Application Development
Lecture 29 - Hyperledger Composer - Network Administration

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Lecture 30 - Blockchain Use Cases
Lecture 31 - Blockchain in Financial Service - I (Payments and Secure Trading)
Lecture 32 - Blockchain in Financial Service - II (Compliance and Mortgage)
Lecture 33 - Blockchain in Financial Service - III (Financial Trade)
Lecture 34 - Revolutionizing Global Trade
Lecture 35 - Blockchain in Supply Chain - I
Lecture 36 - Blockchain in Supply Chain - II
Lecture 37 - Blockchain in Other Industries
Lecture 38 - Blockchain in Government - I (Advantages)
Lecture 39 - Blockchain in Government - II (Use Cases)
Lecture 40 - Blockchain in Government - III (Digital Identity)
Lecture 41 - Blockchain in Government - IV (Hyperledger Indy)
Lecture 42 - Blockchain in Government - V (Tax Payments and Land Registry Records)
Lecture 43 - Blockchain Security - I (Overview)
Lecture 44 - Blockchain Security - II (Membership and Access control in Fabric)
Lecture 45 - Blockchain Security - III (Privacy in Fabric)
Lecture 46 - Blockchain Security - III (Fabric SideDB)
Lecture 47 - Research Aspects - I (Consensus Scalability)
Lecture 48 - Research Aspects - II (Bitcoin-NG)
Lecture 49 - Research Aspects - III (Collective Signing)
Lecture 50 - Research Aspects - IV (Byzcoin)
Lecture 51 - Research Aspects - V (Algorand)
Lecture 52 - Research Aspects - VI (Cross Fault Tolerance)
Lecture 53 - Research Aspects - VII (Secured Multi-Party Computation)
Lecture 54 - Blockchain for Science - I (Blockchain for Big Data)
Lecture 55 - Blockchain for Science - II (Blockchain and AI)
Lecture 56 - Comparing Ecosystems - Ethereum
Lecture 57 - Comparing Ecosystems - Ethereum development tools and Quorum
Lecture 58 - Comparing Ecosystems - Corda Part 1
Lecture 59 - Comparing Ecosystems - Corda Part 2
Lecture 60 - Concluding the course
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