

# Blockchain Technology & Application

June 15 - 24, 2023

Introduction: Blockchain and distributed ledger technology, Bitcoin blockchain, Transactions, Digital signature, and consensus mechanism- Proof of Work.

Ethereum blockchain, Smart contracts, Blockchain as a platform, Building a smart contract and its deployment on the blockchain network - Using Solidity language, Metamask and Remix Programming Environment

Blockchain use cases and Decentralized applications (DApps), Using Truffle, Ganache for deployment of smart contracts on a test network.

Alternatives to Proof of Work, Proof of stake, and other consensus, Byzantine fault tolerance.

Public and private ledgers, Permissionless and permissioned blockchain, Enterprise level blockchains and distributed ledgers.

Blockchain security: Public-Key Cryptography, Hashing, Hashchain to Blockchain, Transaction Integrity, Securing Blockchain.

Hyperledger fabric (HF) network, Chaincode, consensus in HF, Further Details of Hyperledger Fabric Network - Private Data, Building an HF test network.

Emerging applications of blockchain in Healthcare /Security, Blockchain Applications in Internet of Things /Agriculture, Blockchain Applications in Supply Chain /Finance

Cryptocurrencies, NFTs, DeFi, Policy issues related with blockchain.

Blockchain scalability issues and emerging solutions.