

Subject Code	Subject Name	Credits
26CS107	INTRODUCTION TO BLOCKCHAIN	4

Course Objectives:

1. To understand the emerging of Blockchain technology.
2. To evaluate the usage of Blockchain Implementation.
3. To understand the concept and usage of Bitcoins.
4. To incorporate the models of Blockchain Ethereum.

Learning Objectives:

On successful completion of the course, students will be able to:

1. To learn the functioning of the Block Chain Technology

Unit 1 - Introduction to Blockchain (12 hrs.):

What is Blockchain, Centralized vs Decentralized Systems, Layers of Blockchain, Why is Blockchain Important, Limitations of Centralized Systems, Blockchain Adoption so far, Blockchain uses and use Case.

Unit 2 - How Blockchain Works (12 hrs.):

Laying The Blockchain Foundation, Cryptography, Cryptographic Hash Functions, Assymmetric Key Cryptography, Merkle Trees, Properties of Blockchain Solutions, Blockchain Applications, Blockchain vs Bitcoin.

Unit 3 - Introduction to Bitcoin (12 hrs.):

History of Money, Key concepts of Bitcoin, Working with Bitcoin, The Bitcoin Blockchain, Block Structure, The Bitcoin Network, Bitcoin Transactions, Bitcoin Wallets.

Unit 4 - Cryptocurrencies and Smart Contracts (12 hrs.):

Ethereum and programmable blockchain - Cryptocurrency exchanges and wallets - ICOs, tokens, and digital assets - Smart contracts: concept and applications - Decentralized applications (DApps)

Unit 5 - Future of Blockchain (12 hrs.):

Legal and regulatory frameworks for blockchain - Ethical issues and privacy concerns - Cybersecurity risks in blockchain systems - Future trends: Web3, Metaverse, and enterprise blockchain - Career opportunities in blockchain

Reference Books:

1. Bikramaditya Singhal, Gautam Dhameja, Priyansu Sekhar Panda, “ Beginning Blockchain- A Beginner’s Guide to Building Blockchain Solutions” ,Apress, 2018.
2. Melanie Swan (2015), Blockchain: Blueprint for a New Economy, O'Reilly Media.
3. Andreas M. Antonopoulos (2017), Mastering Bitcoin, O'Reilly Media.
4. Imran Bashir (2023), Mastering Blockchain (4th Edition), Packt Publishing.
5. Arshdeep Bahga & Vijay Madiseti (2017), Blockchain Applications: A Hands-On Approach, VPT.

