

COURSE TITLE	BLOCKCHAIN AND CRYPTOCURRENCIES
COURSE CODE	04CH0411
COURSE CREDITS	4

Objective:

- 1 NA

Course Outcomes: After completion of this course, student will be able to:

- 1 Understand the fundamentals of blockchain technology and cryptographic principles.
- 2 Analyze the functioning of various cryptocurrencies, including Bitcoin and Ethereum.
- 3 Evaluate the applications of blockchain in finance, supply chain and governance.
- 4 Comprehend Indian regulatory approaches, including taxation and RBI guidelines.
- 5 Assess the future potential of blockchain in India through case studies and government initiatives.

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
4	0	0	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	Introduction to Blockchain Technology Origin and evolution of blockchain; Distributed Ledger Technology (DLT); Components: Blocks, Hashes, Merkle Trees; Types of Blockchain: Public, Private, Consortium; Consensus Mechanisms: Proof of Work, Proof of Stake; Introduction to Smart Contracts	12
2	Cryptocurrencies and Tokens Cryptocurrency- Meaning, Definition and Characteristics; Bitcoin: Structure, Mining, Wallets, and Transactions; Ethereum and Altcoins: Smart Contracts and dApps; Types of Tokens: Utility, Security, and Stablecoins; Crypto Wallets: Hot vs Cold; Risks and Volatility; Crypto adoption trends in India, Use of UPI for crypto investments.	12
3	Applications of Blockchain Technology Use in Financial Services (DeFi, NFTs, Tokenization); Blockchain in Supply Chain & Logistics; Use in Voting, Healthcare, and Identity Management; Interoperability and Cross-chain Platforms; Blockchain-as-a-Service (BaaS); Case studies: NITI Aayog, Andhra Pradesh Land Records, E-Governance initiatives	12

Contents : Unit	Topics	Contact Hours
4	Legal, Regulatory, and Ethical Framework Cryptocurrency Regulation Landscape: Global Overview; India's Legal Status of Crypto (Past and Present); Taxation of Virtual Digital Assets (Finance Act 2022); SC Judgment in IAMA vs RBI (2020); Crypto Exchanges in India (CoinDCX, WazirX) and their KYC norms; Ethical Concerns: Money Laundering, Fraud, Environmental impact; RBI stance, SEBI observations, Digital India Bill (proposed)	12
5	Digital Rupee and Future of Blockchain in India CBDC: Concept, Architecture, and Use Cases; RBI's Digital Rupee Pilot: Wholesale & Retail Models; India's Blockchain Startups and Innovations; Future Career Opportunities and Skills; Challenges: Scalability, Energy, Legal Vacuum; Integration of blockchain in Indian FinTech, Skill development via NASSCOM & IBA	12
Total Hours		60

Textbook :

- 1 Bitcoin and Cryptocurrency Technologies , Narayanan & Arvind , Princeton University Press, 2021
- 2 Token Economy , Voshmgir& Shermin , Token Kitchen, 2020

References:

- 1 DeFi and the Future of Finance, DeFi and the Future of Finance, Harvey, C. R. , Wiley, 2021

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	20.00	40.00	15.00	15.00	0.00

Instructional Method:

- 1 LECTURE