



Name of Faculty	:	Faculty of Engineering & Technology
Name of Program	:	Master of Technology (M.Tech.) - Cyber Security
Course Code	:	1MCS03
Course Title	:	Introduction to Blockchain & Cryptocurrency
Type of Course	:	Professional Core
Year of Introduction	:	2023-24

Prerequisite	:	Able to know the working of blockchain technology and the real-world applications of blockchain
Course Objective	:	To understand the fundamentals of Block chain and crypto.
Course Outcomes	:	At the end of this course, students will be able to:
	CO1	To explain the basic notion of distributed systems.
	CO2	To use the working of an immutable distributed ledger and trust model that defines block chain.
	CO3	To illustrate the essential components of a block chain platform.

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
L	T	P		Theory Marks		Practical Marks		Total Marks
SEE	CIA	SEE	CIA					
3	0	2	4	70	30	30	20	150

Legends: L-Lecture; T-Tutorial/Teacher Guided Theory Practice; P - Practical, C - Credit, SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with CO
1	Introduction to Block chain: The Double-Spend Problem, Byzantine Generals' Computing Problems, Public-Key Cryptography, Hashing, Distributed Systems, Distributed Consensus.	12	20%	CO1
2	Technology Stack: Block chain, Protocol, Currency. Bit coin Block chain: Structure, Operations, Features, Consensus Model, Incentive Model.	12	20%	CO1 CO2
3	Tier of Block chain Technology: Block chain 1.0, Block chain 2.0, Block chain 3.0, Types of Block chain: Public Block chain, Private Block chain, Semi-Private Block chain, Side chains.	12	20%	CO2 CO3
4	Types of consensus algorithms: Proof of Stake, Proof of Work, Delegated Proof of Stake, Proof Elapsed Time, Deposited-Based Consensus, Proof of Importance, Federated Consensus or Federated Byzantine Consensus, Practical Byzantine Fault Tolerance. Block chain Use Case: Supply Chain Management.	12	20%	CO3 CO1
5	Block chain Applications: Internet of Things, Medical Record Management System, Domain Name Service and Future of Blockchain, Alt Coins.	12	20%	CO3 CO2

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	20	30	30	20	0	0

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.



Suggested Learning Websites

Sr. No.	Name of Website
1	https://www.coinbase.com/learn/crypto-basics/what-is-a-blockchain
2	https://www.kaspersky.com/resource-center/definitions/what-is-cryptocurrency
3	https://guides.loc.gov/fintech/21st-century/cryptocurrency-blockchain

Reference Books

Sr. No.	Name of Reference Books
1	Kirankalyan Kulkarni, Essentials of Bitcoin and Blockchain, Packt Publishing.
2	Anshul Kaushik, Block Chain & Crypto Currencies, Khanna Publishing House.
3	Tiana Laurence, Blockchain for Dummies, 2nd Edition 2019, John Wiley & Sons.
4	Mastering Blockchain: Deeper insights into decentralization, cryptography, Bitcoin, and popular Blockchain frameworks by Imran Bashir, Packt Publishing (2017).