

Branch Name:	IMCA
Program Code:	CS301
Course Code	1CS3010704T
Course Title	Block Chain Technology
Pre-requisite Course:	Basic understanding of computer systems and operations, Knowledge of arrays, linked lists, trees, and algorithms, Understanding of data storage, transactions, and databases, Basics of networking, protocols, and distributed systems.

Course Objective:

1. To understand the fundamental concepts of blockchain technology and distributed ledger systems.
2. To analyze cryptographic techniques such as hashing and digital signatures used in blockchain.
3. To explore various blockchain platforms and their underlying architecture.
4. To evaluate real-world applications, use cases, and challenges of blockchain technology across industries.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture	Tutorial	Practical	Credit	Theory		Practical		Total
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
4	-	-	4	60	40	-	-	100

Course Contents:

Unit No	Topics	Total Hours	Weight age (%)
1	Introduction: Introduction to Blockchain, Types of Blockchain - Public Blockchains, Consortium Blockchains, Private Blockchains. Blockchain Implementations - Bitcoin, Namecoin, Ripple, Ethereum, Blockchain Collaborative Implementations - Hyperledger, Corda, Categories of Blockchain, Private Blockchain Use Cases, Private Blockchain Technology, AlphaPoint Distributed Ledger Platform, Chain Core, Corda, Domus Tower, The Elements Project, HydraChain, Hyperledge, Stellar.	10	25
2	Blockchain Business Use Cases: Currency and Tokens, Cryptocurrency, Digital Tokens, Financial Services Use Cases viz. Know Your Customer (KYC) Use Case, Asset Management Settlement Use Case, Insurance Claims Processing Use Case, Trade Finance (Supply Chain) Use Case, Global Payments Use Case, Smart Property, Smart Contracts on the Blockchain.	12	25
3	Blockchain Technology, Legal and Governance Use Cases: Web 3.0, Distributed Storage Systems, Distributed Computation, Decentralized Communications, Cryptocurrencies as Legal Tender, Blockchain and Privacy Laws, Blockchain and Privacy Laws, Smart Contract, Smart Contract Design, Decentralized Autonomous Organizations.	12	25
4	Blockchain Challenges :	11	25

	Blockchain Governance Challenges, Bitcoin Blocksize Debate, Blockchain Technical Challenges, Bugs in the Core Code, Denial-of-Service Attacks, Security in Smart Contracts, Scaling, Sharding.		
--	--	--	--

Text Books:

1. Blockchain Basics: A Non-Technical Introduction in 25 Steps – Daniel Drescher.

Reference Books:

- a) Blockchain: A Practical Guide to Developing Business, Law, and Technology Solutions by Joseph J. Bambara and Paul R. Allen, McGraw-Hill Education.
- b) Blockchain Enabled Applications by Vikram Dillon, David Metcalf, Max Hooper, Apress).
- c) Hands-On Blockchain with Hyperledger, Nitin Gaur et al., Packt Publishing.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the concepts of blockchain technology.	L2 – Understand
CLO2	Apply the blockchain for business applications.	L3 – Apply
CLO3	Apply the blockchain for technology, legal and governance applications.	L3 – Apply
CLO4	Analyse the various available private blockchain platforms.	L4 – Analyze
CL05	Evaluate various blockchain challenges for real world applications.	L5 – Evaluate

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	L	M	L	L	-	M	M	-	L	H	L	-	-	M
CLO2	L	M	L	M	-	L	M	-	L	H	L	-	-	M
CLO3	-	M	L	M	-	H	M	-	L	H	L	-	-	M
CLO4	-	M	L	H	M	M	M	L	M	H	H	L	L	M

H:High, M:Medium, L:Low