

FUNDAMENTALS OF BLOCK CHAIN TECHNOLOGY

(Program Elective-V)

Course Code	19IT4702A	Year	IV	Semester	I
CourseCategory	PE	Branch	IT	CourseType	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Computer Networks.
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

CourseOutcomes		Blooms Taxonomy Level
Upon successful completion of the course, the student will be able to		
CO1	Understand the key dimensions of Block chain Technology	L2
CO2	Apply the principles of Block chain for a given application.	L3
CO3	Apply the features of Ethereum and Hyperledger to develop various applications	L3
CO4	Analyze the given scenario and design a block chain based solution.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (H:High, M:Medium, L:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3													
CO2	3												3	
CO3	3												3	
CO4		3							3	3			3	

Syllabus		
Unit No	Contents	Mapped CO
I	Blockchain 101: Distributed systems, History of Blockchain and bitcoin, Introduction to Blockchain, Consensus, CAP theorem and Blockchain.	CO1,CO2
II	Decentralization: Decentralization using Blockchain, Methods of decentralization, Routes to decentralization, Blockchain and full ecosystem decentralization, pertinent Terminology.	CO1,CO2, CO4
III	Cryptography and Technical Foundations: Cryptographic primitives, Asymmetric cryptography, Cryptographic constructs and Blockchain technology Introducing Bitcoin: Overview, Cryptographic keys, transactions, Blockchain, Mining.	CO1,CO2, CO4
IV	Ethereum 101: Overview,The Ethereum Network, Components of the Ethereum ecosystem, The Ethereum Virtual Machine Smart Contracts: Definition, Ricardian Contracts, Smart Contract Templates, Oracles, Deploying Smart Contracts	CO1,CO3, CO4
V	Hyperledger: Overview, Hyperledger Reference Architecture, Hyper ledger fabric Blockchain-Outside of Currencies: Internet of Things, Government, Health, Finance, Media.	CO1,CO3, CO4

Learning Resources
Text Book
1.Mastering Block chain - Distributed ledgers, decentralization and smart contracts explained, Imran Bashir, Third Edition, Packt Publishing Ltd.
References
1.Bitcoin and Crypto currency Technologies, Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, Steven Goldfeder, Princeton University, 2016. 2. Mastering Bitcoin: Unlocking Digital Crypto currencies, Andreas M. Antonopoulos, First Edition, 2014, O'Reilly Media.
e-Resources and other Digital Material
1. https://www.coursera.org/specializations/blockchain 2. https://nptel.ac.in/courses/106105184/