

22CSPE202		BLOCKCHAIN TECHNOLOGIES		SEMESTER VI			
PREREQUISITES		CATEGORY		PE	Credit		3
NIL		Horus/Week		L	T	P	TH
				3	0	0	3
Course Objectives:							
1.	Acquiring the basic level of knowledge about the block chain technology and its business applications						
2.	To familiarize with the decentralization and practical aspects of cryptography						
3.	To provide conceptual understanding of bit coin technology, alternative coins and smart contracts						
4.	Develop a distributed application using Ethereum.						
5.	Develop an application using Hyper ledger.						
UNIT I	BLOCKCHAIN 101			9	0	0	9
Distributed systems – The history of blockchain – Introduction to blockchain – definitions – elements – Features – Applications of blockchain technology – Tiers – Types of blockchain – Consensus in blockchain – CAP theorem – Benefits and limitations of blockchain.							
UNIT II	DECENTRALIZATION, CRYPTOGRAPHY AND TECHNICAL FOUNDATIONS			9	0	0	9
Introduction – Cryptography – Confidentiality – Integrity – Authentication – Cryptographic primitives – Asymmetric cryptography – Public and private keys – RSA – Discrete logarithm problem – Hash functions – Elliptic Curve Digital signature algorithm.							
UNIT III	BITCOIN & ALTERNATIVE COINS			9	0	0	9
Bitcoin – Transactions – Blockchain – Bitcoin payments – Alternative Coins – Theoretical foundations – Bitcoin limitations – Namecoin - Litecoin – Primecoin – Zcash – Smart Contracts.							
UNIT IV	ETHEREUM 101			9	0	0	9
Introduction – Ethereum blockchain – Elements of the Ethereum blockchain – Precompiled contracts – Accounts – Block – Ether – Messages – Mining - Clients and wallets – The Ethereum network –Ethereum Development.							
UNIT V	HYPERLEDGER			9	0	0	9
Total(45 L)=45 Periods							

Text Books:	
1.	Imran Bashir, "Mastering Blockchain Distributed ledgers, decentralization and smart contracts Explained", Packt Publishing, 2017.
Reference Books:	
1.	Brenn Hill, Samanyu Chopra & Paul Valencourt, "Blockchain Quick Reference: A guide to exploring decentralized blockchain application development", Packt, 2018
2.	Andreas Antonopoulos, "Mastering Bitcoin: Programming the open blockchain", 2nd Edition, O'Reilly Media, 2017.

COURSE OUTCOMES:		Bloom's Taxonomy Mapped
Upon completion of the course ,the students will be able to:		
CO1	Outline the history and different applications of blockchain	L1 and L2
CO2	Illustrate decentralization and practical aspects of cryptography	L1 and L2
CO3	Present bitcoin technology, alternative coins and smart contracts	L1 and L2
CO4	Develop a distributed application using Ethereum	L3
CO5	Deploy an application using Hyperledger	L3

COURSE ARTICULATION MATRIX														
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	1											2	
CO2	2	1											2	
CO3	2	1											2	
CO4	3	2	1		1								3	1
CO5	3	2	1		1								3	1
Avg	2.4	1.4	1		1								2.4	1
3 / 2 / 1 – indicates strength of correlation (3-High,2-Medium,1-Low)														