COURSE TITLE	**BLOCK CHAIN TECHNOLOGY**
COURSE CODE	**04BB0532**
COURSE CREDITS	**2**

Objective:

1 N/A

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

1 Build an understanding of the requirements of the fundamentals of Blockchain
2 Identify and apply the concept of Bitcoin
3 Recognize the underlying technology of transactions, blocks, and proof-of-work
4 Gain a profound insight into the Bitcoin network, Bitcoin miners, and Bitcoin transactions
5 Design and explore the applications of Blockchain

Pre-requisite of course:none

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
4	0	0	100	0	0	0	0

Contents : Unit	Topics	Contact Hours
1	**Fundamentals and Structure of Blockchain** Definition and importance of blockchain, Key features of blockchain, Types of Blockchain: Public, Private, Consortium, , Layers of Blockchain: Application, Execution, Consensus, Blockchain Components and Concepts, Block structure and identification, Linking blocks and block validation, Mining basics , consensus mechanisms, Challenges in governance and implementation	10
2	**Bitcoin and Blockchain Security** Bitcoin transactions: Lifecycle, Structure, Inputs and Outputs, Bitcoin network overview and block propagation, Proof of Work (PoW) and consensus in Bitcoin, Bitcoin addresses and wallets, Introduction to Bitcoin Core and APIs, Security principles in Blockchain, Risks and vulnerabilities, , Privacy attacks and mitigation strategies, User security practices, Wallet types, multisignature, Risk diversification	10

MR. PARAS CHANDULAL RUGHANI
Digitally signed by (Name of HOD)

DR. SANJEET SINGH
Digitally signed by (Name of Dean/ Principal)

Contents : Unit	Topics	Contact Hours
3	**Applications and Use Cases of Blockchain** Blockchain application design basics, Overview of Ethereum and Solidity, Sample decentralized application: Betting or Tokenization, Blockchain in finance and digital supply chains, Use cases: Land record management, Medical records, Royalty tracking, Content publishing, Logistic, Advertising insights	10
Total Hours		**30**

Textbook :

1 Beginning Blockchain, A Beginner's Guide to Building Blockchain Solutions,, Bikramaditya Singhal, Gautam Dhameja, Priyansu Sekhar Panda, Apress, New York, 2018

2 Blockchain: a practical guide to developing business, law and technology solutions, Joseph J. Bambara, Paul R. Allen, McGraw-Hill publication, 2018

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**
0.00	0.00	35.00	35.00	30.00	0.00

Instructional Method:

1 Theory

2 Case study

Supplementary Resources:

1 https://www.britannica.com/science/statistics/Random-variables-and-probability-distributions

2 https://www.aptech.com/blog/introduction-to-the-fundamentals-of-time-series-data-and-analysis

MR. PARAS CHANDULAL RUGHANI
Digitally signed by (Name of HOD)

DR. SANJEET SINGH
Digitally signed by (Name of Dean/ Principal)