CERTIFICATE COURSE ON BLOCKCHAIN

1. BLOCKCHAIN TECHNOLOGY

Course Objectives: The block chain technology course allows the students to explore the driving force behind the cryptocurrency Bitcoin. Along with the Decentralization, Cryptography, Bitcoins with its alternative coins, Smart contracts and outside of currencies.

Introduction to Blockchain:

Unit -I

What is Block chain, Block chain Technology Mechanisms & Networks, Block chain Origins, Objective of Block chain, Block chain Challenges, Transactions And Blocks

Unit-II

P2P Systems, Keys As Identity, Digital Signatures, Hashing, and public key cryptosystems, private vs. public Blockchain.CAP theorem and block chain, Block chain Network, Mining Mechanism,

Unit-III

Distributed Consensus, Merkle Patricia Tree,Gas Limit, Transactions and Fee, Anonymity, Reward, Chain Policy, Life of Block chain application, Soft & Hard Fork, Private and Public block chain. Benefits and limitations of block chain.

Unit-IV

Nakamoto consensus, Proof of Work, Proof of Stake, Proof of Burn, Difficulty Level, Sybil Attack, Energy utilization and alternate.

Unit-V

Decentralization Decentralization using block chain, Methods of decentralization, Routes to decentralization, Decentralized organizations.

Course outcomes:

At the end of the course the student will be able to:

1. Understand the types, benefits and limitation of block chain.
2. Explore the block chain decentralization and cryptography concepts.
3. Enumerate the Bitcoin features and its alternative options.
4. Describe and deploy the smart contracts
5. Summarize the block chain features outside of currencies

Textbook/ Textbooks: Mastering Block chain - Distributed ledgers, decentralization and smart contracts explained, Author- Imran Bashir, Packt Publishing Ltd, Second Edition, ISBN 978-1-78712-544-5, 2017 Reference Books

Blockchain Basics: A Non-Technical Introduction in 25 Steps, Author- Daniel Drescher, Apress, First Edition, 2017.