ADIKAVI NANNAYA UNIVERSITY: RAJMAHENDRAVARAM
Single Major B.Com. Computer Applications (w.e.f:2023-24A.B)

SEMESTER-V

COURSE 15: BLOCK CHAIN TECHNOLOGY

Theory Credits: 3 3 hrs/week

Course Objectives:

The course aims to help learners to acquire conceptual knowledge of Block Chain Technology. To Understand Security systems in Block Chain Technology. To acquire knowledge to applications of Block Chain Technology.

Learning Outcomes:

The students will be able:

Identify various types of Software Architecture and understand types of Cryptography. Improve knowledge in understanding underlying technologies in Block Chain Technologies. Understand the storage methods and advantages and have knowledge on the applications of Block Chain

Unit 1: Layers of a Software System, Integrity, A Payment System, Types of Software Architecture, Purpose of the Blockchain, Peer-to-Peer system: Definition, Architecture, Link between Peer-to-Peer and Blockchain, Integrity Threats in Peer-to-Peer Systems, Four ways of Defining Blockchain, The purpose of the Blockchain, Blockchain Properties

Case Study: Identify Different Crypto Payments and Differentiate Them

Unit 2: Foundations of Ownership, Security Related concepts in Block chain, Purpose and Properties of a Ledger, Double Spending Problem, Designing and Developing a Software System, Documenting Ownership, Integrity of the Transaction History

Case Study: Study about Harbor, Ubitquity, Propy that are used in Real Estate

Unit 3: Hash Function in Block chain, Patterns of Hashing Data, Uses of Hash Values, Cryptography: Activities, Types of Cryptography, Digital Signatures

Case Study: Differentiate between various Blockchain Techniques used in Medical Field such as Ambrosus, Connecting Care, Farma Trust, MedRec

Unit 4: Transforming Book into Blockchain Data structure, Chaining Blocks of Data, Protecting the Data Store, Distributing the Data Store among Peers, Verifying and Adding Transactions

Case Study: How we Apply Blockchain Technology in Elections and Voting

Unit 5: Choosing a transaction History, Paying for Integrity, Technical Limitations of Blockchain, Conflicting Goals of the Blockchain, Characteristics of the Blockchain, Blockchain Applications, Blockchain Platforms

Case Study: Identify various Blockchain Technologies used in Entertainment

Text Books:

1. Blockchain Basics by: A Non-Technical Introduction in 25 Steps by Daniel Drescher, APress
2. Blockchain: Cybrosys Limited Edition

Web References:

1. 10 Blockchain Use Cases in Real Practical World | GoLinuxCloud
2. 33 Top Blockchain Applications to Know for 2023 | Built In
3. 15+ Practical Blockchain Use Cases in 2022 - 101 Blockchains
4. 30+ Real Examples Of Blockchain Technology In Practice (forbes.com)

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SEMESTER-V

COURSE 15: BLOCK CHAIN TECHNOLOGY

Practical | Credits: 1 | 2 hrs/week

LIST OF EXPERIMENTS

1. Creating and Building Up Crypto Token
2. Ethereum Smart Contract
3. Creating and Building Up Bitcoin Wallet
4. Introduction to Hyperledger
5. Creating a Business Network using Hyperledger
6. Creating a Business Network using Hyperledger- II
7. Building and Deploying multichain private Blockchain