



# **AKTU B.E./B.Tech CSE Sem 7 syllabus**

## **Artificial Intelligence**

### **ARTIFICIAL INTELLIGENCE**

#### **Unit - 1 Introduction**

Introduction to Artificial Intelligence, Foundations and History of Artificial Intelligence, Applications of Artificial Intelligence, Intelligent Agents, Structure of Intelligent Agents. Computer vision, Natural Language Possessing.

#### **Unit - 2 Introduction to Search**

Searching for solutions, Uniformed search strategies, Informed search strategies, Local search algorithms and optimistic problems, Adversarial Search, Search for games, Alpha - Beta pruning.

#### **Unit - 3 Knowledge Representation & Reasoning**

Propositional logic, Theory of first order logic, Inference in First order logic, Forward & Backward chaining, Resolution, Probabilistic reasoning, Utility theory, Hidden Markov Models (HMM), Bayesian Networks.

#### **Unit - 4 Machine Learning**

Supervised and unsupervised learning, Decision trees, Statistical learning models, Learning with complete data - Naive Bayes models, Learning with hidden data - EM algorithm, Reinforcement learning.

#### **Unit - 5 Pattern Recognition**

Introduction, Design principles of pattern recognition system, Statistical

Pattern recognition, Parameter estimation methods - Principle Component Analysis (PCA) and

Linear Discriminant Analysis (LDA), Classification Techniques - Nearest Neighbor (NN) Rule, Bayes

Classifier, Support Vector Machine (SVM), K - means clustering.

## **Blockchain Architecture Design**

### **Blockchain Architecture Design**

#### **Unit - 1 Introduction to Blockchain**

Digital Money to Distributed Ledgers , Design Primitives: Protocols, Security, Consensus, Permissions, Privacy.

Blockchain Architecture and Design: Basic crypto primitives: Hash, Signature,) Hashchain to Blockchain, Basic consensus mechanisms

#### **Unit - 2 Consensus**

Requirements for the consensus protocols, Proof of Work (PoW), Scalability aspects of Blockchain consensus protocols

Permissioned Blockchains: Design goals, Consensus protocols for Permissioned Blockchains

#### **Unit - 3 Hyperledger Fabric**

Hyperledger Fabric (A): Decomposing the consensus process , Hyperledger fabric components, Chaincode Design and Implementation

Hyperledger Fabric (B): Beyond Chaincode: fabric SDK and Front End (b) Hyperledger composer tool

#### **Unit - 4 Use Case**

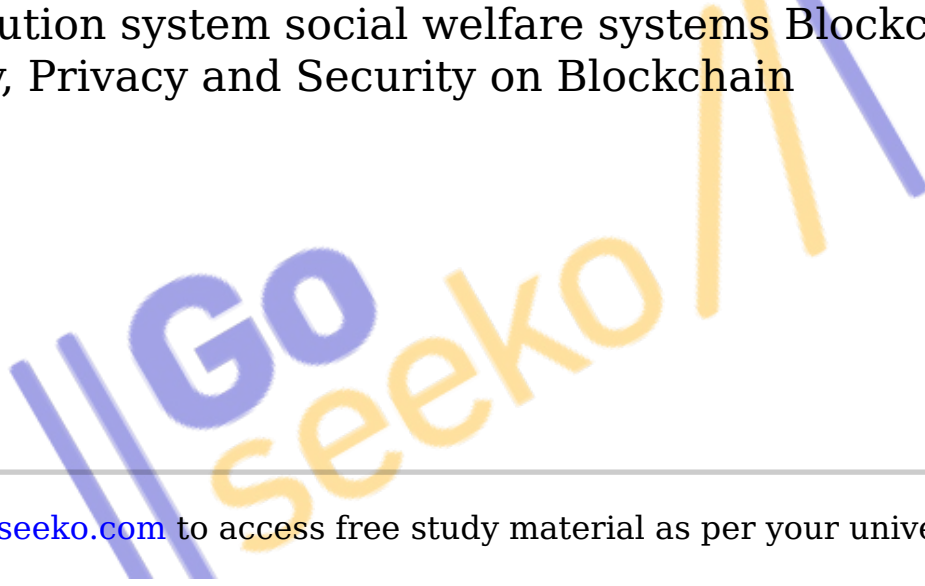
Use case 1 : Blockchain in Financial Software and Systems (FSS): (i) Settlements, (ii) KYC, (iii) Capital markets, (iv) Insurance

Use case 2: Blockchain in trade/supply chain: (i) Provenance of goods, visibility, trade/supply chain finance, invoice management discounting, etc.

#### **Unit - 5 Use case 3**

Blockchain for Government: (i) Digital identity, land records and other kinds of record keeping between government entities, (ii)

public distribution system social welfare systems Blockchain  
Cryptography, Privacy and Security on Blockchain



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