Title: Block Chain, Al & Machine Learning
Code: DMC-313
Semester: 6th
Rating: 3 Credit Hours

DMC-313: Block Chain, Al & Machine Learning 3 Cr. Hrs

Course Description:

This course gives a basic introduction to block chain, machine learning (ML) and artificial intelligence (AI) and will introduce to understand this rapidly growing field and equip their selves with basic & advanced principles of Artificial Intelligence and latest tools with great mindset.

Learning Outcomes:

The students will be able to

Create a distributed and replicated ledger of events, transactions, and data generated through various IT processes with strong cryptographic guarantees of tamper resistance, immutability, and verifiability.

Course Outlines:

1. Introduction to Blockchain
   - 1.1 What is Blockchain?
   - 1.2 History of Blockchain
   - 1.3 Explaining Distributed Ledger
   - 1.4 Blockchain ecosystem
   - 1.5 Explaining Distributed Ledger
2. Types of Blockchain
   - 2.1 Private/Consortium/Permission-less
   - 2.2 Public/Permissioned implementation difference
   - 2.3 What Blockchain has to offer across Industry?
   - 2.4 Companies currently using Blockchain
   - 2.5 Overview of what we are going to study in this course
3. Key Concepts of the Blockchain
   - 3.1 Mining -Mining algorithm
   - 3.2 Node, peer and block explanation
   - 3.3 Merkle tree and Blockchain
   - 3.4 Consensus Mechanisms- proof of work , proof of stake
   - 3.5 How Bitcoin Blockchain works?
   - 3.6 What is Transaction?
4. Crypto Currency & Bitcoin
5. How Bitcoin Achieves Decentralization
6. Mechanics of Bitcoin
7. How to Store and Use Bitcoins
8. How does Bitcoin work?
9. Introduction to Ethereum
   - 9.1 Ethereum: Blockchain with smart contract
   - 9.2 What is Ether?
   - 9.3 Bitcoin vs Ethereum Blockchain
   - 9.4 What is Ethereum wallet?
   - 9.5 What is Smart Contract?
   - 9.6 Ethereum clients
   - 9.7 Geth Introduction
   - 9.8 Setting up Private Blockchain using Geth
10. Learn Solidity
    - 10.1 Introduction to solidity
    - 10.2 Hands on solidity
    - 10.3 Understand and implement different use cases

10.4 Implement and deploy smart contract on Blockchain
11. Introduction to Artificial Intelligence & Machine Learning
12. Developing a Chatbot
13. Introduction to Object Detection in Deep Learning
14. Objection detection = Classification + Localization
15. Image Classification:
16. Localization in an image
17. Developing a Forecasting Model
18. Introduction to Text Classification

Teaching Learning Strategies:

1. Class Discussion
2. Projects/Assignments
3. Group Presentations
4. Students LED Presentation
5. Thought Provoking Question

Assignments:

Assignments may include special reports, projects, class presentations, field work. The nature of assignments will be decided by the teacher as per the requirements of the course.

Assessment and Examinations:

Sr. No.	Elements	Weightage	Details
1	Midterm Assessment	35%	It takes place at the mid-point of the semester.
2	Formative Assessment	25%	It is continuous assessment. It includes: classroom participation, attendance, assignments and presentations, homework, attitude and behavior, hands-on-activities, short tests, quizzes etc.
3	Final Assessment	40%	It takes place at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.