

# M.L.Dahanukar College of Commerce (Autonomous)

## Teaching Plan: 2025 - 26

Department: I.T.

Class: M.Sc.(I.T.) Part-II

Semester: IV

Subject: Blockchain

Name of the Faculty: Mr. Chayan Bhattacharjee

Month	Topics to be Covered	Internal Assessment	Number of Lectures
December	<p><b>Unit 1: A. Blockchain:</b> Introduction, History, Centralised versus Decentralised systems, Layers of blockchain, Importance of blockchain, Blockchain uses and use cases.</p> <p><b>Unit 1: B. Working of Blockchain:</b> Blockchain foundation, Cryptography, Game Theory, Computer Science Engineering, Properties of blockchain solutions, blockchain transactions, distributed consensus mechanisms, Blockchain mechanisms, Scaling blockchain</p> <p><b>Unit 2: A. Working of Bitcoin:</b> Money, Bitcoin, Bitcoin blockchain, bitcoin network, bitcoin scripts, Full Nodes and SVPs, Bitcoin wallets, Interacting with bitcoin blockchain</p> <p><b>Unit 2: B. Ethereum:</b> Ethereum as a Next-Gen Blockchain, Design Philosophy of Ethereum, Ethereum Blockchain, Ethereum Accounts, Advantages of Accounts, Account State, Merkle Patricia Tree, Ethereum Transaction and Message Structure, Ethereum State Transaction Function, Gas and Transaction Cost, Ethereum Smart Contracts, Contract Creation, Ethereum Virtual Machine.</p>		16
January	<p><b>Unit 2: C. Mining Ether:</b> Difficulty, Factors Required for Block Validation, How Proof of Work Helps Regulate Block Time, Faster Blocks, How Ethereum Uses Stale Blocks, Forking</p> <p><b>Unit 3: A. Smart Contracts and Solidity:</b> Basic of Solidity Programming:- writing loops in solidity, statement and expressions in solidity, Value types, Global special variables, Units and Functions</p> <p><b>Unit 3: B. Behind Dapp Deployment:</b> Seven Ways to Think About Smart Contracts, Smart Contract Deployment- EVM as Back End: Introduction to Truffle, Use of Remix and test networks for deployment, Dapp deployment.</p>		20
February	<p><b>Unit 3: C. Blockchain Application Development:</b> Decentralized Applications, Interacting Programmatically with Ethereum—Sending Transactions, creating a Smart Contract, Executing Smart Contract Functions</p> <p><b>Unit 4: A. Permissioned Blockchain:</b> Public vs. Private Blockchains, Decentralized Application Architecture, Hyperledger concept, Exploring Hyperledger fabric project, Iroha project</p>		14
March	<p><b>Unit 4: B. Cryptoeconomics:</b> Why Is Cryptoeconomics useful? Understanding Hashing vs. Encryption, Speed of blocks, Ether Issuance scheme, Common Attack Scenarios</p> <p><b>Unit 4: C. NFT:</b> What are NFTs? NFT Marketplaces, Creating and Minting NFTs, Legal Aspects of NFTs, The Future of NFTS</p>		10

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# M.L. Dahanukar College of Commerce (Autonomous)

## Teaching Plan: 2025 - 26

Department: I.T.

Class: M.Sc. (I.T.)

Semester: IV

Subject: Deep Learning

Name of the Faculty: Avinash Kauran

Month	Topics to be Covered	Internal Assessment	Number of Lectures
December	a) Applied Math and Machine Learning Basics: Linear Algebra: Scalars, Vectors, Matrices and Tensors, Multiplying Matrices and Vectors, Identity and Inverse Matrices, Linear Dependence and Span, norms, special matrices and vectors, Eigen decompositions.	Assignment 10 questions from the topics here.	16+2P
January	b) Numerical Computation: Overflow and under flow, poor conditioning, Gradient Based Optimization, Constraint optimization.	Assignment 5 questions from the topics here.	8+2P
January	a) Deep Networks: Deep feed forward network, regularization for deep learning, Optimization for Training deep models.	Assignment 5 questions from the topics here.	8+2P
February	a) Convolution Applications: Convolutional Networks, Sequence Modelling,	Assignment 5 questions from the topics here.	8+2P
February	b) Deep Learning Research: Linear Factor Models, Auto encoders, representation learning	Assignment 5 questions from the topics here.	8+2P
March	a) Generative Models: Approximate Inference, Deep Generative Models b) Diff usion Models (Reference 3) c) Applications: Transformers, Advance GANs (Reference 3)	Assignment 10 questions from the topics here.	12+1P

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# M.L. Dahanukar College of Commerce (Autonomous)

## Teaching Plan: 2025 - 26

Department: I.T.

Class: M.Sc. (I.T.)

Semester: IV

Subject: Robotic Process Automation Practical

Name of the Faculty: Sumedha S. Barve

Month	Topics to be Covered	Internal Assessment	Number of Lectures
December	1. RPA Basics: Sequences and Flowcharts 2. Decision making and looping	NA	8
January	3. Types of Recording 4. Excel Automation 5. Different controls in UiPath	NA	16
February	6. Keyboard and Mouse Events 7. Screen Scraping and Web Scraping methods 8. PDF Automation and Exception Handling	NA	16
March	9. Email Automation 10. Orchestrator management and mini project 11. RPA Applications	NA	16

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