M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

Department: I.T. **Class: M.Sc.(I.T.)** **Semester: III**

Subject: Advanced Artificial Intelligence

Name of the Faculty: Aamina Qureshi

Month	Topics to be Covered	Internal Assessment	Number of Lectures
September 2024	Introduction to Artificial Intelligence, Intelligent Agents, Problem-solving using search algorithms, Knowledge Representation, Introduction to advanced AI concepts, Deep learning and neural networks, Natural language processing and understanding		18
October 2024	Reinforcement learning, AI applications in various domains such as healthcare, finance, and robotics, Machine Learning Paradigms: Machine Learning systems, supervised and un-supervised learning, inductive learning, deductive learning, clustering, support vector machines, cased based reasoning and learning.		15
November 2024	Artificial Neural Networks, Single-Layer feedforward networks, multi-layer feed-forward networks, radial basis function networks, design issues of artificial neural networks and recurrent networks		12
December 2024	Introduction to generative AI and its applications, Generative adversarial networks (GANs) , Variational autoencoders, Text generation and image synthesis using generative AI, Ethical considerations in generative AI		15

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

Department: I.T. **Class: M.Sc.(I.T.)** **Semester: III**

Subject: Machine Learning

Name of the Faculty: Hina Mahmood

Month	Topics to be Covered	Internal Assessment	Number of Lectures
October	Introduction to Machine Learning, General Principles in Machine Learning, Advanced Topics in Machine Learning, Mathematical Foundation: Probability and Statistics, Information Theory, Mathematical Optimization	Done	22
November	Classification Algorithms, Feature Extraction ,Discriminative Models,	Done	20
December	Generative Models , Unimodal Models Domain-Based Machine Learning Applications, Ethical Aspects of Machine Learning, Mixture Models, Entangled Models		22
January	Bayesian Learning, Graphical Models		08

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ML Dahanukar College

Teaching Plan: 2024 - 2025

Department: I.T. **Class: M.Sc.(I.T.) Part II** **Semester: III**

Subject: Natural Language Processing

Name of the Faculty: Pooja Amin

Month	Topics to be Covered	Internal Assessment	Number of Lectures
September	Unit I a) Introduction to NLP: Brief history, NLP applications, Challenges/Open Problems, NLP Abstraction levels, Introduction to NL computing techniques and steps (segmentation, tagging, parsing, etc.) b) NLP Tasks: Segmentation, Chunking, Tagging, Named Entity Recognition (NER), Parsing, Word Sense Disambiguation, NL Generation, Text Processing Challenges Unit II a) Morphological Analysis and Regular Expressions: Introduction to Morphology, Types of morphological parsing: rule-based vs. paradigm-based, Regular Expressions		07
October	Unit II Automata Finite State Automata (FSA) and Finite State Transducers (FST), Introduction to the Porter stemming algorithm. b) Part-of-Speech (POS) Tagging and Evaluation: Word Classes and Introduction to POS Tagging, Survey of POS tagsets in English and Indian languages, Introduction to rule-based approaches like ENGTOWL, Stochastic Approaches: Overview of probabilistic models, N-gram models, and Hidden Markov Models (HMM) for POS tagging, Transformation-Based Learning (TBL) Morphology,		12

	Evaluation Metrics and Error Analysis: Precision, Recall, F-measure, error-analysis		
November	Unit III a) NL Parsing Basics and Grammar Formalisms: Introduction to NL Parsing (top-down and bottom-up parsing approaches), Introduction to constituency and dependency schools of grammar		9.5
January	Overview of grammar notations: CFG, LFG, PCFG, LTAG, Overview of English CFG, Introduction to Paninian Karaka Theory for Indian language parsing, Overview of CFG parsing using Earley's and CYK algorithms, Introduction to Paninian Karaka Theory for Indian language parsing, Overview of CFG parsing using Earley's and CYK algorithms. b) Probabilistic Parsing and Dependency Parsing: Introduction to probabilistic parsing techniques, Overview of probabilistic CFG (PCFG) and its applications, dependency parsing and its importance, Overview of Covington algorithm, MALT parser, and MST parser for dependency parsing. Unit IV a) Lexical Semantics and Word Senses: Introduction to semantic analysis theories and methodologies, lexical semantics, word senses, and relationships, Introduction to WordNet for English and IndoWordnet, Overview of WSD techniques like Lesk Algorithm and Walker's algorithm, Importance of WSD in resolving ambiguity in NLP. b) Coreference Resolution and Semantic Representations: coreference resolution, including Anaphora and Cataphora, Importance of resolving coreference in NLP applications, Semantic Representations and Word Similarity and understanding lexical semantics.		20

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

Department: I.T. **Class: M.Sc.(I.T.)** **Semester: III**

Subject: Storage as a service

Name of the Faculty: FARZANA KHAN

Month	Topics to be Covered	Internal Assessment	Number of Lectures
SEPTEMBER	UNIT 1:- Chapter Data access in internet era		7
October	Chapter:- storage devices, storage subsystem Chapter:- storage virtualization, network backup		8
November	UNIT 2:- Chapter:- file system virtualization, network attached storage Chapter:- New directions in NETWORK FILING, DATA MANAGEMENT		8
December	Chapter:- overview of storage networking, OSI REFERENCE model		7

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