M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

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

Subject: Data Science

Name of the Faculty: Prof. Gufran Qureshi

Month	Topics to be Covered	Internal Assessment	Number of Lectures
Jul	**Unit 1: Data Science Introduction & Basics** a. Data Science Technology Stack: Rapid Information Factory Ecosystem, Data Science Storage Tools, Data Lake, Data Vault, Data Warehouse Bus Matrix, Data Science Processing Tools ,Spark, Mesos, Akka , Cassandra, Kafka, Elastic Search, R ,Scala, Python, MQTT, The Future. b. Layered Framework: Definition of Data Science Framework, CrossIndustry Standard Process for Data Mining (CRISP-DM), Homogeneous Ontology for Recursive Uniform Schema, The Top Layers of a Layered Framework, Layered Framework for High-Level Data Science and Engineering c. Business Layer: Business Layer, Engineering a Practical Business Layer d. Utility Layer: Basic Utility Design, Engineering a Practical Utility Layer		08
Aug	**Unit 2: Statistics for Data Science** a. Three Management Layers: Operational Management Layer, Processing-Stream Definition and Management, Audit, Balance, and Control Layer, Balance, Control, Yoke Solution, Cause-and-Effect, Analysis System, Functional Layer, Data Science Process b. Retrieve Superstep: Data Lakes, Data Swamps, Training the Trainer		16

	Model, Understanding the Business Dynamics of the Data Lake, Actionable Business Knowledge from Data Lakes, Engineering a Practical Retrieve Superstep, Connecting to Other Data Sources. c. Assess Superstep: Assess Superstep, Errors, Analysis of Data, Practical Actions, Engineering a Practical Assess Superstep		
Sept	**Unit 3: Data Analysis with Python & Data Visualization** a. Process Superstep : Data Vault, Time-Person-Object-Location-Event Data Vault, Data Science Process, Data Science, b. Transform Superstep : Transform Superstep, Building a Data Warehouse, Transforming with Data Science, Hypothesis Testing, Overfitting and Underfitting, Precision-Recall, Cross-Validation Test. **Unit 4: Machine Learning for Data Science** a. Transform Superstep: Univariate Analysis, Bivariate Analysis, Multivariate Analysis, Linear Regression, Logistic Regression, Clustering Techniques, ANOVA, Principal Component Analysis (PCA), Decision Trees, Support Vector Machines, Networks, Clusters, and Grids, Data Mining, Pattern Recognition, Machine Learning,		12
Oct	Bagging Data,Random Forests, Computer Vision (CV) , Natural Language Processing (NLP), Neural Networks, TensorFlow. b. Organize and Report Supersteps : Organize Superstep, Report Superstep, Graphics, Pictures, Showing the Difference		04

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ML Dahanukar College

Teaching Plan: 2024 - 25

Department: I.T. **Class: MSc.(I.T.) Part-I** **Semester: I**

Subject: Soft Computing Techniques

Name of the Faculty: Ms. Rasika Sawant

Month	Topics to be Covered	Internal Assessment	Number of Lectures
July	**Unit I** a) Introduction of soft computing b) Artificial Neural Network c) Supervised Learning Network		16
August	**Unit II** a) Associative Memory Networks b) Special Networks c) Third Generation Neural Networks d) Unsupervised Learning Networks		18
September	**Unit III** a) Introduction to Fuzzy Logic, Classical Sets and Fuzzy sets b) Classical Relations and Fuzzy Relations c) Membership Function d) Defuzzification		12
October	e) Fuzzy Arithmetic and Fuzzy measures **Unit IV** a) Fuzzy Rule base and Approximate reasoning b) Genetic Algorithm		14

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

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

Subject: Cloud Computing

Name of the Faculty: Ms. Sayali Parab

Month	Topics to be Covered	Internal Assessment	Number of Lectures
July	**Introduction to Cloud Computing -** Introduction, Historical Developments, Building Cloud Computing Environments, **Principles of Parallel and Distributed Computing -** Eras of Computing, Parallel v/s distributed computing, Elements of Parallel Computing		06
August	**Principles of Parallel and Distributed Computing (cont):** Elements of distributed computing, Technologies for distributed computing. **Virtualization -** Introduction, Characteristics of virtualized environments, Taxonomy of virtualization techniques, Virtualization and cloud computing, Pros and cons of virtualization, Technology examples. Logical Network Perimeter, Virtual Server, Cloud Storage Device, Cloud usage monitor, Resource replication, Ready-made environment.		10
September	**Cloud Computing Architecture**: Introduction, Fundamental concepts and models, Roles and boundaries, Cloud Characteristics, Cloud Delivery models, Cloud Deployment models, Economics of the cloud, Open challenges.		06
October	**Fundamental Cloud Security:** Basics, Threat agents, Cloud security threats, additional considerations. **Industrial Platforms and New Developments**: Amazon Web Services, Google App Engine, Microsoft Azure		08

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M.L. Dahanukar College of Commerce

Teaching Plan: 2021 - 22

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

Subject: IMAGE PROCESSING

Name of the Faculty: FARZANA KHAN

Month	Topics to be Covered	Internal Assessment	Number of Lectures
JULY	UNIT 1 Chapter: introduction, Chapter: digital image fundamentals, Chapter: intensity transformation UNIT 2: CHAPTER: filtering in frequency domain, Chapter: image restoration		12-15
AUGUST	UNIT 2: CHAPTER: wavelet & other transform UNIT 3: CHAPTER: color image processing CHAPTER: Image compression CHAPTER: morphological image processing		12-15
SEPTEMBER	UNIT 4: CHAPTER: IMAGE SEGMENTATION 1 & 2 CHAPTER: feature extraction		8-10

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M.L. Dahanukar College of Commerce

Teaching Plan: 2024 - 25

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

Subject: Research Methodology

Name of the Faculty: Mr. Chayan Bhattacharjee

Month	Topics to be Covered	Internal Assessment	Number of Lectures
July	**Unit 1: a) Introduction:** Role of Business Research, Information Systems and Knowledge Management, Theory Building, Organization ethics and Issues		10
August	**b) Beginning Stages of Research Process:** Problem definition, Qualitative research tools, Secondary data research **Unit II: Research Methods and Data Collection:** Survey research, communicating with respondents, Observation methods, Experimental research		14
September	**Unit III: Measurement Concepts, Sampling and Field work:** Levels of Scale measurement, attitude measurement, questionnaire design, sampling designs and procedures, determination of sample size		14
October	**Unit IV: Data Analysis and Presentation:** Editing and Coding, Basic Data Analysis**,** Univariate Statistical Analysis and Bivariate Statistical analysis and differences between two variables.		18
November	**Unit IV: Data Analysis and Presentation (cont):** Multivariate Statistical Analysis		04

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