M.L. Dahanukar College of Commerce

Teaching Plan: 2018 - 19

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

Subject: Data Analysis Tools

Name of the Faculty: Ms.Sheetal Panchal

Month	Topics to be Covered	Internal Assessment	Number of Lectures
June	PART I : COMPUTING Statistics in Modern day, C : Lines, Variables and their declarations, Functions, The debugger , Compiling and running, Pointers , Arrays and other pointer tricks, Strings Databases :Basic queries , Doing more with queries, Joins and subqueries, On database design , Folding queries into C code	01	07
July	Matrices and models :The GSL's matrices and vectors apo_da t, Shunting data, Linear algebra, Numbers, gsl_matrix and gsl_ve ctor internals, Models, Graphics: plot , Some common settings, From arrays to plots, A sampling of special plots, Animation, On producing good plots, Graphs--nodes and flowcharts, Printing and LATEX	01	07
August	More coding tools : Function pointers , Data structures, Parameters, Syntactic sugar, More tools PART II : STATISTICS Distributions for description : Moments ,Sample distributions, Using the sample distributions , Non-parametric description	01	07
September	Linear projections: Principal component analysis, OLS and friends, Discrete variables, Multilevel modeling Hypothesis testing with the CLT: The Central Limit Theorem, Meet the Gaussian family, Testing a hypothesis, ANOVA, Regression , Goodness of fit.	01	07
October	Maximum likelihood estimation: Log likelihood and friends, Description: Maximum likelihood estimators, Missing data, Testing with likelihoods Monte Carlo : Random number generation, Description: Finding 6 statistics for a distribution, Inference: Finding statistics for a parameter, Drawing a distribution, Non-parametric testing	01	07

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M.L. Dahanukar College of Commerce

Teaching Plan: 2018 - 19

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

Subject: Data Mining

Name of the Faculty: Srushty Padte

Month	Topics to be Covered	Internal Assessment	Number of Lectures
August	**Introduction**: Basics of data mining, related concepts, Data mining techniques. **Data**: Introduction, Attributes, Data Sets, and Data Storage, Issues Concerning the Amount and Quality of Data,. **Knowledge Representation**: Data Representation and their Categories: General Insights, Categories of Knowledge Representation, Granularity of Data and Knowledge Representation Schemes, Sets and Interval Analysis, Fuzzy Sets as HumanCentric Information Granules, Shadowed Sets, Rough Sets, Characterization of Knowledge Representation Schemes, Levels of Granularity and Perception Perspectives, The Concept of Granularity in Rules. **Data Preprocessing**: Descriptive Data Summarization, Data Cleaning, Data Integration and Transformation, Data Reduction, Data Discretization and Concept Hierarchy Generation.		08(2 hrs each lec)
September	**Mining Frequent Patterns, Associations, and Correlations**: Basic Concepts, Efficient and Scalable Frequent Itemset Mining Methods, Mining Various Kinds of Association Rules, From Association Mining to Correlation Analysis, Constraint-Based Association Mining. **Classification and Prediction**: What Is Classification?, What Is Prediction?, Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Rule-Based Classification, Classification by Back-propagation, Support Vector Machines,		10(2 hrs each)
	Associative Classification: Classification by		10(2 hrs

October	Association Rule Analysis, Lazy Learners, Other Classification Methods, Prediction, Accuracy and Error Measures, Evaluating the Accuracy of a Classifier or Predictor, Ensemble Methods Increasing the Accuracy, Model Selection. **Cluster Analysis**: What Is Cluster Analysis?, Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Hierarchical Methods		each)
November	**Cluster Analysis**: Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Clustering High-Dimensional Data, Constraint-Based Cluster Analysis, Outlier Analysis. **Graph Mining, Social Network Analysis, and Multirelational Data Mining**: Graph Mining, Social Network Analysis, Multirelational Data Mining. **Mining Object, Spatial, Multimedia, Text, and Web Data**: Multidimensional Analysis and Descriptive Mining of Complex Data Objects, Spatial Data Mining, Multimedia Data Mining, Text Mining, Mining the World Wide Web.		10(2hrs each)
December			

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Teaching Plan: 2018 - 19

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

Subject: Distributed Systems

Name of the Faculty: Larissa Pegado

Month	Topics to be Covered	Internal Assessment	Number of Lectures
August	**Characterization Of Distributed Systems**: Introduction, Examples of Distributed Systems, Trends In Distributed Systems, Focus On Resource Sharing,Challenges, Case Study: The World Wide Web. **System Models:** Physical Models, Architectural Models, Fundamental Models **Networking And Internetworking:** Types Of Network, Network Principles, Internet Protocols, Case Studies: Ethernet, Wifi And Bluetooth.		8
September	**Interprocess Communication:** The Api For The Internet Protocols, External Data Representation And Marshalling,Multicast Communication, Network Virtualization: Overlay Networks, Case Study: MPI **Remote Invocation:** Request-Reply Protocols, Remote Procedure Call, Remote Method Invocation,Case Study: Java RMI **Indirect Communication:** Group communication, Publish-subscribe systems, Message queues, Shared memory approaches **Web Services:** Web services,Service descriptions and IDL for web services, A directory service for use with web services, XML security, Coordination of web services, applications of web services.	Internal Test 1	16

October	**Coordination And Agreement:** Distributed mutual exclusion Elections Coordination and agreement in group communication, Consensus and related problems **Name Services:** Name services and the Domain Name System, Directory services, Case study: The Global Name Service, Case study: The X.500 Directory Service. **Time And Global States:** Clocks, events and process states , Synchronizing physical clocks , Logical time and logical clocks, Global states, Distributed debugging	Internal Test 2	16
November	**Distributed Transactions:** Flat and nested distributed transactions, Atomic commit protocols, Concurrency control in distributed transactions, Distributed deadlocks. Replication: System model and the role of group communication, Fault-tolerant services, Case studies of highly available services: The gossip architecture, Bayou and Coda, Transactions with replicated data **Mobile And Ubiquitous Computing:** Association, Interoperation, Sensing and context awareness,Security and privacy, Adaptation.		12

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M.L. Dahanukar College of Commerce

Teaching Plan: 2018 - 19

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

Subject: Software Testing

Name of the Faculty: Prof. Supritha Bhandary

Month	Topics to be Covered	Internal Assessment	Number of Lectures
Aug	**Test Basics:** Introduction, Testing in the Software Lifecycle, Specific Systems, Metrics and Measurement, Ethics **Testing Processes:** Test Analysis and Design, Non-functional Test Objectives, Identifying and Documenting Test Conditions, Test Oracles, Standards, Static Tests, Metrics, Test Implementation and Execution, Test Procedure Readiness, Test Environment Readiness, Starting Test Execution, Running a Single Test Procedure, Logging Test Results, Use of Amateur Testers, Standards, Metrics, Evaluating Exit Criteria and Reporting, Test Suite, Defect Breakdown, Confirmation Test Failure Rate, System Test Exit Review, Standards, Evaluating Exit Criteria and Reporting Exercise, System Test Exit Review, Test closure activities.		18
Sep	**Test Management:** Introduction, Test Management Documentation, Test Plan Documentation Templates, Test Estimation, Scheduling and Test Planning, Test Progress Monitoring and Control, Business Value of Testing, Distributed, Outsourced, and Insourced Testing, Risk-Based Testing, Risk Management, Risk Identification, Risk Analysis or Risk Assessment, Risk Mitigation or Risk Control, Risk Identification and Assessment Results, Risk-Aware Testing Standards, Risk Based Testing Exercise, Project Risk By-Products, Requirements Defect By-Products, Test Case Sequencing Guidelines, Failure Mode and Effects Analysis, Test Management Issues	Class Test	22
Oct	**Test Techniques** Debrief, Common Themes, Static Analysis, Complexity Analysis, Code Parsing Tools, Standards and Guidelines, Data-Flow Analysis, Set-Use Pairs, Set-Use Pair Example,		12

	Data-Flow Exercise, Data-Flow Exercise Debrief, Data-Flow Strategies, Static Analysis for Integration Testing, Call-Graph Based McCabe Design Predicate Approach to Detection, API Misuse Detection. Integration Testing, Hex Converter Example, McCabe Design Predicate Exercise, McCabe Design Predicate Exercise Debrief, Dynamic Analysis, Memory Leak Detection, Wild Pointer		
Nov	**Tests of Software Characteristics** Introduction, The Principles of Reviews, Types of Reviews, Introducing Reviews, Success Factors for Reviews, Deutsch's Design Review Checklist, Marick's Code Review Checklist, The Open Laszlo Code Review Checklist, Incident Management **Standards and Test Process Improvement** **Test Techniques** Static and Dynamic Analysis Tools, Performance Testing Tools, Monitoring Tools, Web Testing Tools, Simulators and Emulators, Data-Driven Architecture, Keyword-Driven Architecture, Keyword Exercise, Performance Testing, Performance Testing Exercise	Assignment	08

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