



OFFICE OF THE REGISTRAR :: DIBRUGARH UNIVERSITY :: DIBRUGARH

Ref. No. DU/DR-A/CCSA(Optional paper)/2024/014

Date: 04.01.2024

NOTIFICATION

As recommended by the meeting of the Board of Studies (BoS) in Computer Science held on 09.11.2023, the 129th Meeting of the Academic Council, Dibrugarh University held on 08.12.2023 vide *Resolution No. 03* has approved the introduction of optional paper “*ADVANCED DATA MINING TECHNIQUES*” under Course – III in the existing syllabus of the Ph.D. Pre-registration course work in Computer Science w.e.f. the academic session 2023-2024.

A copy of the Syllabus is attached herewith.

Issued with due approval.

Sadiq Islam 4.1.24

Deputy Registrar (Academic) i/c

Dibrugarh University

Shelini

Copy for kind information and necessary action to:

1. The Hon'ble Vice-Chancellor i/c, Dibrugarh University.
2. The Deans, Dibrugarh University.
3. The Registrar, Dibrugarh University.
4. The Chairperson, Board of Studies in Computer Science, Dibrugarh University.
5. The Chairperson, Centre for Computer Science and Applications, Dibrugarh University.
6. The Controller of Examinations i/c, Dibrugarh University.
7. The Joint / Deputy Controller of Examinations – ‘B’, ‘C’ & ‘A’, Dibrugarh University.
8. The Programmer, Dibrugarh University with a request to upload the notification in the Dibrugarh University Website.
9. File.

Sadiq Islam 4.1.24

Deputy Registrar (Academic) i/c

Dibrugarh University

Shelini

ADVANCED DATA MINING TECHNIQUES
Total marks: 100 (End-Semester: 60 & In-Semester: 40)

Introduction:

Data mining is the extraction of previously unknown and potentially useful hidden information from large databases. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified.

Pre-Requisites:

- A course on “Database Management Systems”
- Knowledge of probability and statistics

Course Objectives:

- It presents methods for mining frequent patterns, associations, and correlations.
- It then describes methods for data classification and prediction, and data-clustering approaches.
- It covers mining various types of data stores such as spatial, textual, multimedia, streams.

Learning Outcomes:

- Ability to understand the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system.
- Apply preprocessing methods for any given raw data.
- Extract interesting patterns from large amounts of data.
- Discover the role played by data mining in various fields.
- Choose and employ suitable data mining algorithms to build analytical applications
- Evaluate the accuracy of supervised and unsupervised models and algorithms.

DETAILED SYLLABUS:

UNIT-I

Marks: 10

Data Mining: Data-Types of Data-, Data Mining Functionalities- Interestingness Patterns- Classification of Data Mining systems-Data mining Task primitives-Integration of Data mining system with a Data warehouse-Major issues in Data Mining-Data Preprocessing.

UNIT-II

Marks: 10

Association Rule Mining: Mining Frequent Patterns-Associations and correlations - Mining Methods- Mining Various kinds of Association Rules- Correlation Analysis- Constraint based Association mining. Graph Pattern Mining, SPM.

UNIT-III

Marks: 15

Classification: Classification and Prediction - Basic concepts-Decision tree induction-Bayesian classification, Rule-based classification, Lazy learner.

UNIT-IV

Marks: 15

Clustering and Applications: Cluster analysis-Types of Data in Cluster Analysis- Categorization of Major Clustering Methods- Partitioning Methods, Hierarchical Methods- Density-Based Methods, Grid-Based Methods, Outlier Analysis.

S. D. Al.

Chairperson
Centre for Computer Science and Application
Nirbugarh University

UNIT-V

Marks: 10

Advanced Concepts: Basic concepts in Mining data streams—Mining Time-series data—Mining sequence patterns in Transactional databases— Mining Object- Spatial- Multimedia-Text and Web data – Spatial Data mining– Multimedia Data mining–Text Mining– Mining the World Wide Web.

TEXTBOOKS:

1. Data Mining—Concepts and Techniques—Jiawei Han & Micheline Kamber, 3rd Edition Elsevier.
2. Data Mining Introductory and Advanced topics—Margaret H Dunham, PEA.

REFERENCEBOOK:

1. Ian H. Witten and Eibe Frank, Data Mining: Practical Machine Learning Tools and Techniques (Second Edition), Morgan Kaufmann, 2005.



Chairperson
Centre for Computer Science and Application
Dibrugarh University