

4/4 B.Tech - SECOND SEMESTER

IT8T2A**INFORMATION RETRIEVAL SYSTEMS****Credits:3****Lecture: 3 Periods/week****Internal assessment: 30 marks****Practice/Interaction: 1Period/week****Semester end examination: 70 marks****Objectives:**

- To provide the knowledge on information retrieval system capabilities.
- To introduce different computational search problems and evaluate search engines.
- To introduce different applications of informational retrieval techniques in the internet or web environment.
- To discuss about information visualization and system evaluation.

Outcomes:

Students will be able to

- Understand various functionalities and capabilities of Information Retrieval System.
- Gain knowledge on cataloging and data structure methodology for IRS.
- Differentiate various clustering algorithms and indexing.
- Differentiate various user search techniques and system search techniques.
- Understand the concepts of information visualization and text search.

Syllabus:**UNIT-I**

Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital Libraries and Data Warehouses.

Information Retrieval System Capabilities: Search, Browse, Miscellaneous.

UNIT-II

Cataloging and Indexing: Objectives, Index Process, Automatic Indexing, Information Extraction.

Data Structures: Introduction, Stemming Algorithms, Inverted File Structure, N-Gram Data Structure, PAT Data Structure, Signature File Structure, Hypertext Data Structure.

UNIT-III

Automatic Indexing: Classes of Automatic Indexing, Statistical Indexing, Natural Language, Concept Indexing.

Document and Term Clustering: Introduction, Thesaurus Generation, Item Clustering, Hierarchy of clusters.

UNIT-IV

User Search Techniques: Search Statements and Binding, Similarity Measures and Ranking, Relevance Feedback, Selective Dissemination of Information Search, Weighted Searches of Boolean Systems, Searching the Internet and Hypertext.

UNIT-V

Information Visualization: Introduction, Cognition and Perception, Information Visualization Technologies.

Text Search Algorithms: Introduction, Software Text Search Algorithms, Hardware Text Search Systems.

Text Book:

1. Kowalski, Gerald, Mark T May bury: INFORMATION RETRIEVAL SYSTEMS: Theory and Implementation, Kluwer Academic Press, 1997.

Reference Books:

1. Gerald Kowalski: INFORMATION RETRIEVAL Architecture and Algorithms.
2. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval data Structures and Algorithms, Prentice Hall, 1992.
3. Modern Information Retrieval by Yates Pearson Education.
4. Information Storage & Retrieval by Robert Korfhage –John Wiley & Sons.

e-Learning Resources:

1. <https://class.coursera.org/nlp/lecture/178>
2. <http://cosmolearning.org/courses/database-design-417/video-lectures/>
3. <http://nptel.ac.in/video.php?subjectId=106102064>