



# MARRI LAXMAN REDDY INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(AN AUTONOMOUS INSTITUTION)

(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)

Accredited by NAAC with 'A' Grade & Recognized Under Section 2(f) & 12(B) of the UGC act, 1956

## COURSECONTENT

INFORMATION RETRIEVAL SYSTEMS								
IV - I Semester: CSE								
CourseCode	Category	Hours/Week			Credits	MaximumMarks		
		L	T	P		C	CIA	SEE
24X6646	ELECTIVE	3	0	0	3	40	60	100
ContactClasses:45	TutorialClasses:Nil	PracticalClasses:Nil			TotalClasses:45			
Prerequisites:DATA STRUCTURES								

**Course Overview:** This course provide the fundamental principles, techniques, and tools used to design and implement systems for retrieving relevant information from large data collections, including web search engines, digital libraries, and enterprise search platforms. Prerequisites: Data Structures

**Course Objectives:** The students will try Study fundamentals of DBMS, Data warehouse and Digital libraries• Learn various preprocessing techniques and indexing approaches in text mining• Know various clustering approaches and study different similarity measures• Study various search techniques in information retrieval systems• Know different cognitive approaches used in text retrieval systems and evaluation approaches• Study retrieval in multimedia systems and know various evaluation measures• Know about query languages and online IR system•

**Course Outcomes:** After successful completion of the course, students should be able to Analyze the information retrieval system and its capabilities• Analyze and apply appropriate data structures and indexing concepts• Ability to design different document clustering algorithms Implement retrieval systems for web search• tasks. Design an Information Retrieval System for web search tasks• Use the multimedia information retrieval of query languages•

UNIT – I : Introduction to Information Retrieval Systems: 12 Classes Definition of Information Retrieval System, Objectives of Information Retrieval Systems, Functional Overview, Relationship to Database Management Systems, Digital Libraries and Data Warehouses Information Retrieval System Capabilities: Search, Browse, Miscellaneous.

UNIT – II: Classes Cataloging and Indexing: History and Objectives of Indexing, Indexing Process, Automatic Indexing, Information Extraction Data Structure: Introduction to Data Structure, Stemming Algorithms, Inverted File Structure, N-Gram Data Structures, PAT Data Structure, Signature File Structure, Hypertext Data Structures.

UNIT - III : Automatic Indexing: Classes of Automatic Indexing, Statistical Indexing, Natural

Language, Concept Indexing, Hypertext Linkages Document and Term Clustering: Introduction to Clustering, 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 Information Visualization: Introduction to Information Visualization, Cognition and Perception, Information Visualization Technologies

UNIT - V : Text Search Algorithms: Introduction to Text Search Techniques, Software Text Search Algorithms, Hardware Text Search Systems . Multimedia Information Retrieval: Spoken Language Audio Retrieval, Non-Speech Audio Retrieval, Graph Retrieval, Imagery Retrieval, Video Retrieval.

TEXT BOOK: 1. Information Storage and Retrieval Systems – Theory and Implementation, Second Edition, Gerald J. Kowalski, Mark T. Maybury, Springer

REFERENCE BOOKS: 1. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.

2. Information Storage & Retrieval By Robert Korfhage – John Wiley & Sons.

3. Modern Information Retrieval By Yates and Neto Pearson Education.

ELECTRONIC RESOURCES: 1. <https://www.geeksforgeeks.org/IRS/IRS/>

MATERIALS ONLINE: 1. Course template

2. Tutorial question bank

3. Tech talk and Concept Video topics

4. Open-ended experiments

5. Definitions and terminology

6. Assignments

7. Model question paper – I 8. Model question paper – II

9. Lecture notes

10.E-Learning