Prasad V. Potluri Siddhartha Institute of Technology:: Vijayawada.
Department of Computer Science and Engineering

I/II M.Tech. (CSE) (First Semester)

17CSCS1T6B **INFORMATION RETRIVAL SYSTEMS** **Credits: 4**

Elective - II

Lecture: 4 Periods/week **Internal Assessment: 40 Marks**
Semester end examination: 60 Marks

Course Description:

This course covers the fundamentals of Information Retrieval Systems. It also enlightens on different retrieval algorithms, various indexing and evaluating methods to IR problems. It also focuses on acquiring knowledge on various clustering techniques.

Course Outcomes:
At the end of this course student is able to:

CO1: Describe the basic information storage and retrieval concepts

CO2: Apply various data structures to store and represent information

CO3: Analyze effective information retrieval system using automatic indexing and clustering techniques

CO4: Identify applications of alternative search strategies and select appropriate search strategy for application

CO5: Describe various information visualization technologies

UNIT 1

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

Information Retrieval System Capabilities: Search, Browse, Miscellaneous

Cataloguing and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction.

UNIT 2

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

Automatic Indexing: Classes of Automatic Indexing, Statistical Indexing, Natural language, Concept indexing, Hypertext linkages.

UNIT 3

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

User Search Technique 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 4

Information Visualization Introduction, Cognition and Perception, Information Visualization Technologies

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

Text Books:

1. Kowalsky, Gerald, Mark T May bury: Information Retrieval Systems Theory and Implementation, Kluwer Academy Press,1997

References:

1. Modern Information Retrieval by Yates, Pearson Education
2. Information Storage and Retrieval by Robert Korfhage - John Wiley and Sons