

**CENTRAL UNIVERSITY OF KERALA
DEPARTMENT OF COMPUTER SCIENCE
M.Sc. COMPUTER SCIENCE**

ELECTIVE COURSE					
COURSE CODE	COURSE TITLE	CONTACT HRS/WEEK			CREDITS
		LEC	LAB	TUT	
CSC5012	Information Retrieval Systems	2	2	1	4

Lec = Lecture, Tut = Tutorial, Lab = Practical

This is a theoretical and experimental **skill development course**.

Course Objective:

The objective of the course is to provide theoretical and practical aspects of information retrieval systems.

By completing this course, students will obtain the following course/learning outcomes:

1. Knowledge gained:
 - (i) Theoretical concepts for developing methods and algorithms for information retrieval systems
2. Skill gained:
 - (ii) Critical analyzing and logic skills in developing methods and algorithms for information retrieval systems
3. Competency gained:
 - (iii) Modelling and development of information retrieval systems and applications.

Prerequisites: Nil

Grading:

Lab implementation	– 5%
Participatory based group Project	– 10%
Assignment/Quiz/presentation	– 15%
Class Test	– 10%
Final Exam	– 60%

CSC5012 – Information Retrieval Systems

Module 1

Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses. Information Retrieval System Capabilities: Search, Browse, Miscellaneous

Module 2

Cataloging and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction. Data Structures: Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure.

Module 3

Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters.

Module 4

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, Cognition and perception, Information visualization technologies. Text Search Algorithms: Introduction, Software text search algorithms, Hardware text search systems. Information System Evaluation: Introduction, Measures used in system evaluation, Measurement example –TREC results.

References:

1. Kowalski, Gerald, Mark T Maybury: Information Retrieval Systems: Theory and Implementation, Kluwer Academic Press, 1997.
2. Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.
3. Yates, Modern Information Retrieval, Pearson Education, 1999.
4. Robert Korfhage, Information Storage & Retrieval, John Wiley & Sons, 1997.