Faculty of Computers and Information Technology

Information Storage and Retrieval

Information :

Course Code :	IS341	**Level** :	Undergraduate	**Course Hours :**	3.00- Hours

Department :	Department of Information Systems

Instructor Information :

Title	Name	Office hours
Lecturer	Ahmed Elsayed Mahmoud Yakoub	2
Teaching Assistant	Yomna Alaa Elsayed Aly Darwish	
Teaching Assistant	Hanan Hossam Eldeen Mohamed Abdelaziz	
Teaching Assistant	Salma Ahmed Elsayed Ahmad	

Area Of Study :

Define the basic concepts and theories of information systems retrieval.
Discuss the main concepts of information technology and the core algorithms
Discuss the recent paradigms considering information systems and retrieval as well as relevant fields.
Develop, and evaluate the most recent algorithms
Implement and evaluate effectively the merits of information storage and retrieval methods using appropriate analytical and technical skills
Use effectively communication skills

Description :

This course presents the study of file structures through an object-oriented approach allowing students to acquire the fundamental tools needed to design cost-effective and appropriate solutions to file structure problems. The course includes the following topics: indexing, consequential processing and the sorting of large files on disk and on tape, multilevel indexing and B-trees with its variants, indexed sequential access to files, hashing and extendible hashing. The course is supported with programming assignments on the studied topics.
Architecture of information storage and retrieval systems (IRS), models of IRS, IR systems, user interface in IRS, text analysis, the World Wide Web, spiders, ranking algorithms, digital libraries. Recent research in text retrieval and mining are emphasized. · Text information retrieval systems; efficient text indexing; Boolean, vector space, and probabilistic retrieval models; ranking and rank aggregation; evaluating IR systems. Text clustering and classification methods: Latent semantic indexing, taxonomy induction, cluster labeling; classification algorithms and their evaluation, text filtering and routing.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Define and explain the key concepts and models relevant to information storage and retrieval
2 -	Identify the salient features and apply recent research results in web search and recommender systems
3 -	Discuss the principles of Information Technologies

b.Intellectual Skills: :

1 -	Design, implement, and evaluate the core and advanced algorithms underlying a fully functional web search system

http://www.fue.edu.eg

2 -	Evaluate and verify different solutions using well-defined criteria

c.Professional and Practical Skills: :

1 -	Adapt different skills for information management, organization and retrieval
2 -	Use Web-based systems effectively

d.General and Transferable Skills: :

1 -	Use Information Retrieval techniques
2 -	Apply quantitative methods and skills in understanding and presenting cases
3 -	Work in a team effectively and efficiently considering time and stress management
4 -	Appreciate continuous professional development and lifelong learning

ABET Course outcomes :

1 -	Discuss the fundamental techniques for document representation and retrieval
2 -	Discuss indexing strategies and statistical models
3 -	Demonstrate different types of search algorithms and/or techniques
4 -	Apply the basic mathematics and science in computing and information
5 -	Select the modern techniques, up to date methods and tools for computing and information practice

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction	4	2	2
Boolean retrieval	4	2	2
The term vocabulary and postings lists	4	2	2
Dictionaries and tolerant retrieval	4	2	2
Index construction	4	2	2
Distributed and dynamic indexing	4	2	2
Index compression	4	2	2
Scoring and term weighting	4	2	2
Mid Term Exam	2		
Distributed and dynamic indexing	4	2	2
Index compression	4	2	2
Scoring and term weighting	4	2	2
Vector space model	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :

Interactive Lectures including Discussions
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)
Seminars
Case Studies

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	5.00	4	
Final Exam	40.00	14	
Midterm Exam(s)	20.00	9	
Practical Exam	10.00	11	
Presentations	5.00	12	
Quizzes	10.00	5	
Team Work Projects	10.00	10	

Course Notes :

An Electronic form of the Course Notes and all the slides of the Lectures is available on the Students Learning Management System (Moodle)

Recommended books :

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Web Sites :

www.ekb.eg