

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING - AI & ML

COURSE MODULE FOR THE SESSION 2026-27(ODD SEMESTER)

Academic Year: 2026 - 2027							
Department: Computer Science & Engineering -AIML							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BAI515B	INFORMATION RETRIEVAL	Elective		3	0	0	40
Objectives: CLO 1. Understand the need of an information retrieval system. CLO 2. Understand various retrieval models and the factors of evaluation. CLO 3. Explore on text, query and indexed based processing for information retrieval. CLO 4. Realize the importance of user interfaces for visualization and the web based search.							
Topics Covered as per Syllabus							
Module -1 Introduction: Information retrieval, IR problem, IR System, The web. User interfaces for search: Introduction, How people search, Search interfaces today, Visualization on search interfaces, Design and evaluation of search interfaces.							
Module -2 Modeling: IR models, Classic information retrieval, Alternative set theoretic models, Alternative algebraic models, Alternative probabilistic models, Other models.							
Module -3 Retrieval Evaluation: Retrieval metrics, Reference Collections, User-based evaluation Relevance feedback and Query expansion: A framework for feedback methods, Explicit relevance feedback, Explicit feedback through clicks, Implicit feedback through local analysis, Implicit feedback through global analysis Documents - Languages and Properties: Metadata, Document formats, Text properties, Document preprocessing, Organizing documents, Text compression							
Module -4 Indexing and Searching: Inverted indexes, Signature files, Suffix trees and suffix arrays, Sequential searching, Multi-dimensional indexing.							
Module -5 Web retrieval: The web, Search engine architectures, Search engine ranking, Managing web data, Search engine user interaction.							
Structured Text Retrieval: Structuring Power, Early text retrieval models, XML retrieval, XML retrieval evaluation.							

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TextBooks:

1. Ricardo BaezaYates and BerthierRibeiroNeto, Modern Information Retrieval, 2nd Edition, Pearson 2011

Reference Books:

1. Stefan Buettcher, Charles L. A. Clarke and Gordon V. Cormack, —Information Retrieval: Implementing and Evaluating Search Engines, The MIT Press, 2010.
2. Information Storage and Retrieval Systems: Theory and Implementation, Kowalski, Gerald, Mark T Maybury, Springer, 2nd Edition, 2002
3. Modern Information Retrieval, Ricardo Baeza-Yates, Pearson Education, 2007.

Web links and Video Lectures (e-Resources):

- <https://www.youtube.com/watch?v=cv7ztWilaAM>
- <https://www.youtube.com/watch?v=ecRMy60oBrA>
- <https://www.youtube.com/watch?v=dXHxPvAIwcI>
- https://www.youtube.com/playlist?list=PLpwnR8mPhhf8m7L_b9cSRLdjPW2soerAd
- <https://www.youtube.com/watch?v=m0oiAOgSQFw>
- <https://www.youtube.com/watch?v=yIuvahNq3wk>

Course outcomes: The students should be able to:

- CO 1. Identify the models and the tools for building an Information Retrieval system
 CO 2. Apply query based operations for information retrieval.
 CO 3. Use of text based operations for information retrieval from the documents.
 CO 4. Apply indexing and searching techniques for information retrieval.
 CO 5. Design user interface for search and retrieval of information from the web/documents.

Continuous Internal Evaluation (CIE): The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

SubjectCode	BAI515B			Title: Information Retrieval								
List ofCourse Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	Total
CO-1	2	2	1	1	1	1	1	1	1	1	2	14
CO-2	2	2	1	1	1	1	1	1	1	-	2	13
CO-3	3	2	1	2	2	2	2	1	1	-	2	18
CO-4	3	2	1	2	2	2	2	1	1	-	2	18
CO-5	2	2	1	1	1	1	1	1	1	1	2	14
Total	14	12	06	09	7	7	7	6	5	2	10	85

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The Correlation of Program Specific Outcome's (PSO's) and Course Outcome (CO's)

Subject Code	BAI515B	Title: Information Retrieval	
List of Course Outcome's	PSO1	PSO2	Total
CO-1	3	-	3
CO-2	3	-	3
CO-3	3	-	3
CO-4	3	-	3
CO-5	3	-	3
Total	15	-	15

Note: 3 = Strong Contribution 2 = Average Contribution 1= Weak Contribution

- = No Contribution