Vidyavardhaka Sangha®, Mysore
VIDYAVARDHAKA COLLEGE OF ENGINEERING
Autonomous Institute, Affiliated to Visvesvaraya Technological University, Belagavi
(Approved by AICTE, New Delhi & Government of Karnataka)
Accredited by NBA | NAAC with 'A' Grade
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# Course Content

| SEMESTER – VI | | |
|---|---|---|
| **Course Name** | **: Information Retrieval** | **Course Code: 21IS645** |
| **Number of Lecture Hours / Week** | **:03** | **CIE Marks : 50** |
| **Number of Tutorial / Practical Hours / Week** | **:00** | **SEE Marks : 50** |
| **Total Number of Lecture + Tutorial/Practical Hours** | **: 40** | **SEE Duration : 03 Hours** |
| **L:T:P** | **: 3:0:0** | **CREDITS : 03** |

**Course Prerequisites**
Knowledge of Basic probability and statistics, problem-solving skills, logical thinking, and discrete mathematics are required to learn the course.

**Course Overview**
The goal of the course is to provide internal detail about the search engine operation. This course elaborates the fundamentals of information retrieval (IR), study of indexing, search, relevance, classification, organization, storage, browsing, visualization, etc.

**Course Learning Outcomes (CLO)**
This course will enable students to,
- Be Familiar with the theoretical concepts of Retrieval models.
- Understand the difficulty of representing and retrieving documents.
- Examine standard methods of Web Indexing and retrieval.

| MODULES | TEACHING HOURS |
|---|---|
| **MODULE 1**<br>**Introduction:** Motivation, Basic concepts, Past, present, and future, The retrieval process.<br>**Modeling:** Introduction, A taxonomy of information retrieval models, Retrieval: Ad hoc and filtering, A formal characterization of IR models, Classic information retrieval.<br>**SLT:** Probabilistic Model<br>**Textbook-1: Ch 1.1-1.4,2.1-2.5** | **08** |
| **MODULE 2**<br>**Retrieval Evaluation:** Introduction, Retrieval performance evaluation, Reference collections.<br>**Query Languages:** Introduction, keyword-based querying, Pattern matching, Structural queries, Query Protocols. **SLT:** Hierarchical Structure<br>**Textbook-1: Ch 3.1-3.3, 4.1-4.5** | **08** |
| **Module 3**<br>**Text and Multimedia Language and Properties:** Introduction, Metadata, Text, Markup Languages, Multimedia.<br>**Text Operations**: Introduction, Document preprocessing, Document clustering, Text compression. | **08** |

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|---|---|
| **SLT:** Comparing text compression techniques.<br>**Textbook-1: Ch 6.1-6.5, 7.1-7.5** | |
| **MODULE 4**<br>**Indexing & Searching:** Introduction, Inverted Files, Other indices for text, Boolean queries, Sequential searching.<br>**SLT*:*** Pattern matching<br>**Textbook-1: Ch 8.1-8.6** | **08** |
| **MODULE 5**<br>**Parallel and Distributed IR:** Introduction, Parallel IR, Distributed IR. Trends and Research issues<br>**SLT*:*** Query Processing<br>**Textbook-1: Ch 9.1-9.4** | **08** |
| **Text Books:**<br>**1.** Ricardo Baeza-Yates, Berthier Ribeiro-Neto: Modern Information Retrieval, Pearson,2011 | |
| **Reference Books**<br>**1.** Dr. Madhavi Vaidya and Yashowardhana Sowale: Information Retrieval-Wiley,2021 | |
| **Course Outcomes (COs)**<br>At the end of the course students will be able to | |
| **CO1** | Explain the process of retrieving information, retrieval performance and reference collections. |
| **CO2** | Apply different classical information retrieval model, indexing and searching techniques to retrieve user relevant data. |
| **CO3** | Analyze parallel and distributed IR techniques. |
| **CO4** | Demonstrate various information retrieval techniques using appropriate IDE |

## CO – PO – PSO Matrix

| CO | PO | | | | | | | | | | | | PSO | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 |
| **CO1** | 2 | | | | | | | | | | | | | | *2* | |
| **CO2** | *2* | | | | | | | | | | | | | | *2* | |
| **CO3** | | 2 | | | | | | | | | | | | | *2* | |
| **CO4** | | | | | 2 | | | | *2* | | | | | | *2* | |
| **AVG.** | **2** | | 2 | | **2** | | | | **2** | | | | | | **2** | |