

Course Code	Course Title	Credits	Lectures /Week
USCSP6032	Information Retrieval – Practical	1	3
1	Document Indexing and Retrieval <ul style="list-style-type: none"> • Implement an inverted index construction algorithm. • Build a simple document retrieval system using the constructed index. 		
2	Retrieval Models <ul style="list-style-type: none"> • Implement the Boolean retrieval model and process queries. • Implement the vector space model with TF-IDF weighting and cosine similarity. 		
3	Spelling Correction in IR Systems <ul style="list-style-type: none"> • Develop a spelling correction module using edit distance algorithms. • Integrate the spelling correction module into an information retrieval system. 		
4	Evaluation Metrics for IR Systems <ul style="list-style-type: none"> • Calculate precision, recall, and F-measure for a given set of retrieval results. • Use an evaluation toolkit to measure average precision and other evaluation metrics. 		
5	Text Categorization <ul style="list-style-type: none"> • Implement a text classification algorithm (e.g., Naive Bayes or Support Vector Machines). • Train the classifier on a labelled dataset and evaluate its performance. 		
6	Clustering for Information Retrieval <ul style="list-style-type: none"> • Implement a clustering algorithm (e.g., K-means or hierarchical clustering). • Apply the clustering algorithm to a set of documents and evaluate the clustering results. 		
7	Web Crawling and Indexing <ul style="list-style-type: none"> • Develop a web crawler to fetch and index web pages. • Handle challenges such as robots.txt, dynamic content, and crawling delays. 		
8	Link Analysis and PageRank <ul style="list-style-type: none"> • Implement the PageRank algorithm to rank web pages based on link analysis. • Apply the PageRank algorithm to a small web graph and analyze the results. 		
9	Learning to Rank <ul style="list-style-type: none"> • Implement a learning to rank algorithm (e.g., RankSVM or RankBoost). • Train the ranking model using labelled data and evaluate its effectiveness. 		
10	Advanced Topics in Information Retrieval <ul style="list-style-type: none"> • Implement a text summarization algorithm (e.g., extractive or abstractive). • Build a question-answering system using techniques such as information extraction 		