<table>
<thead>
<tr>
<th><strong>Module Code</strong></th>
<th>CS7IS3</th>
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<tbody>
<tr>
<td><strong>Module Name</strong></td>
<td>Information Retrieval and Web Search</td>
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<tr>
<td><strong>ECTS weighting</strong></td>
<td>5</td>
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<tr>
<td><strong>Term</strong></td>
<td>HT</td>
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<tr>
<td><strong>Contact Hours</strong></td>
<td>2 lecture hours per week</td>
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<tr>
<td><strong>Module Personnel</strong></td>
<td>Assistant Professor Seamus Lawless</td>
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### Learning Outcomes
Having completed the module the student will be able to:
- IS3LO1 Discuss the theoretical basis behind the standard models of IR (e.g. Boolean, Vector-space, and Probabilistic models);
- IS3LO2 Discuss how an IR system should be evaluated in terms of the system's performance and the user's satisfaction with the system;
- IS3LO3 Understand the concepts behind the different retrieval models;
- IS3LO4 Understand the techniques involved in retrieving information from the World Wide Web;
- IS3LO5 Describe the practical engineering issues raised by the implementation of a search engine for the Web;
- IS3LO6 Understand issues involved in developing classification and clustering techniques;
- IS3LO7 Describe the techniques used in advanced applications: e.g., Microblog search; social search.

### Module Learning Aims
This module aims to present students with an in-depth examination of the theoretical and practical issues involved in searching for information across large collections of documents, especially in the context of the World Wide Web.

The module will introduce students to the practical engineering issues raised by the design and implementation of an information retrieval system and the algorithmic approaches used in ranking and evaluation.

### Module Content
Specific topics addressed in this module include:
- Introduction to Web Search
- Boolean Retrieval
- Text Processing
  - Stopword Removal, Stemming, Spelling Correction…
- Index Construction and Compression
- Probabilistic Information Retrieval
- Computing Scores for Ranking
  - BM25, Vector Space Model, PageRank…
- Classification
  - Naïve Bayes, kNN, decision boundaries
- Evaluation
  - Precision, Recall, F-score, NDCG…
- Link Analysis
- Web Crawling
- Question Answering
- Personalisation

### Recommended Reading List

### Assessment Details
- Exam: 60%
- Coursework: 40%