UNIVERSITI TEKNOLOGI MARA

CSC545: MULTIMEDIA INFORMATION RETRIEVAL

Course Name (English)	MULTIMEDIA INFORMATION RETRIEVAL APPROVED
Course Code	CSC545
MQF Credit	3
Course Description	This course is intended to enable the student to understand the fundamentals of multimedia information access. The aim is to assist the student to an understanding of some of the techniques for the representation, retrieval and presentation of multimedia information held in digital libraries and on the web. Upon completion of the course, the student should be knowledgeable and competent in applying the concepts and should be capable of reading advanced textbooks and research literature in multimedia information retrieval areas.
Transferable Skills	1. Understand the concept of searching and retrieving multimedia data 2. Construct multimedia datasets 3. Develop a multimedia information retrieval system
Teaching Methodologies	Lectures, Blended Learning, Lab Work, Discussion
CLO	CLO1 Understand concepts and components of multimedia information retrieval CLO2 Build practical skills in multimedia information retrieval. CLO3 Construct problem solving using theories and methods of multimedia information retrieval
Pre-Requisite Courses	No course recommendations

Topics
1. 1. Fundamentals of MIR 1.1) 1.1 Motivations for multimedia information access 1.2) 1.2 The retrieval problem 1.3) 1.3 Basic multimedia search technologies 1.4) 1.4 Components of multimedia information retrieval system 1.5) 1.5 Applications of MIR
2. 2. Textual Information Storage and Retrieval 2.1) 2.1 Term extraction 2.2) 2.2 Information retrieval models 2.3) 2.3 Indexing, querying, ranking and retrieval
3. 3. Web Information Retrieval 3.1) 3.1 Distinct characteristics of the web 3.2) 3.2 Ranking problem 3.3) 3.3 Architecture of search engine 3.4) 3.4 Web crawling
4. 4. Content-Based Image Retrieval 4.1) 4.1 Architecture of CBVIR 4.2) 4.2 Feature extraction and representation 4.3) 4.3 Similarity measures and indexing schemes 4.4) 4.4 Colour, shape and texture-based retrieval
5. 5. Concept-Based Video Retrieval 5.1) 5.1 Architecture of Concept-Based Information Retrieval 5.2) 5.2 Bags of words /concepts 5.3) 5.3 Concept identification 5.4) 5.4 Concept indexing

6. 6. Digital Audio and Speech Retrieval 6.1) 6.1 Audio feature extraction 6.2) 6.2 Audio classification and retrieval 6.3) 6.3 Spoken document retrieval & query processing
7. 7. Performance Evaluations 7.1) 7.1 Recall 7.2) 7.2 Precision and F-Measure

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	A minimum of four individual assignments given depending on the topics. Each student is given 2 weeks to complete the assignment	30%	CLO2
Group Project	Assigned second week of class, presented on Week 13 and 14. A report describing the project should also be submitted and marked as 20%. Presentation and Q/A is marked as 20%. Group comprises minimum of two students and maximum of three students.	40%	CLO3
Online Quiz	Quiz	5%	CLO1
Test	Test 1	10%	CLO1
Writing Test	Test 2	15%	CLO3

Reading List	This Course does not have any book resources
Article/Paper List	This Course does not have any article/paper resources
Other References	• **Book Mathias Lux & Oge Marques 2013, *Visual Information Retrieval using Java and LIRE* , Morgan & Claypool Publishers** • **Book Stefan Butcher & Charles L.A. Clarke 2016, *Information Retrieval: Implementing and Evaluating Search Engines* , Massachusetts Institute of Technology** • **Book Chapter Grega Jakus and Veljko Milutinovi? 2013, *Concepts, Ontologies, and Knowledge Representation* , Springer** • **Book Ze-Nian Li and Mark S. Drew 2014, *Fundamentals of Multimedia*, Springer** • **Book Newton Lee 2014, *Facebook Nation: Total Information Awareness* , Springer**