PROPOSAL TO INTRODUCE A NEW COURSE

1. COURSE DETAILS

1.1 Course ID
COMP67??

1.2 Course name - Long
Information Retrieval and Web Search

1.3 Course name - Abbreviated
Information Retrieval and Web Search

1.4 Course Authority	**ext/email**
Wei Wang	**57162 / weiw@cse.unsw.edu.au**
John Shepherd	**56494 / jas@cse.unsw.edu.au**
Xuemin Lin	**56493 / lxue@cse.unsw.edu.au**

1.5 Organisational Unit responsible for course

School: CSE   Faculty: Engineering

Academic Group Code (Faculty): ENG

Academic Organisation Code (Owner): COMPSC

1.6 Justification of Proposal
Information retrieval is a fundamental discipline in Computer Science, and plays a fundamental role in Web Search. With the popularity of electronic media and the World Wide Web, it has been an essential part in many important application areas.

This course will cover the models, principles, algorithms, implementations, and applications of information retrieval and Web search and mining. After taking this course, students are expected to obtain a basic understanding of the information retrieval models and systems and be familiar with issues and solutions related to Web search and mining.

Currently, there is no such course in CSE.

1.7 Consultation Process
The Head of School, and the Database Group

1.8 Units of credit (UOC)	**Session/s offered**	**Hours Per Week**
6	S2	3

1.9 Pre-requisites: COMP2911 or COMP9024
     Co-requisites: N/A
     Exclusions:

1.10 Proposed Entry in the Faculty Handbook

> **Information retrieval**: (a) Document modeling. (b) Inverted index construction and compression. (c) Vector space model and ranking methods. (d) Probabilistic and language models. (e) Evaluation methods. (f) Relevance feedback and query expansion.
> **Web Search**: (a) Web search engine architecture. (b) Web crawling and indexing. (c) Web structure and usage analytics.
> The lecture materials will be complemented by projects and assignments.

1.11   Is this course replacing an existing course?

NO

1.12   Undergraduate / Postgraduate

1.13   Elective

1.14   Program stage
(Undergraduates) usually taken in Stage III (first offered in s2,2010)

1.   Program/s in which course is be available

All CSE undergraduate and postgraduate programs.

1.16   Proposed teaching methods and assessment practices
Examinable (formal) and assignments
1.17   Assessment grades to be used
Full range of grades (HD, DN, CR, PS, FL)

1.18   Mode of delivery

Internal   X

External

Other (specify)

1.18.1 Multi-mode Delivery Guidelines
The following issues should be addressed in proposals for Multi-mode delivery:
- parity in admission requirements to ensure that the integrity of programs at UNSW was not compromised;
- administrative processes relating to enrolments and dealing with students overseas;
- content and standard of courses and assuring comparability with on-campus courses;
- by whom and how courses were to be delivered;
- assessment procedures; and
  - availability of library resources.

Note: The business components of off-shore proposals are considered by the International Strategies Committee (ISC) chaired by the Deputy Vice-Chancellor (Research) whilst the Academic Board approves the academic aspects of proposals for offshore delivery of existing programs. The ISC considers (i) partnership arrangements; (ii) whether the impact on the faculty of staff going overseas has been considered; and (iii) whether appropriate steps have been taken to register the program in the country concerned.

The Postgraduate Coursework Committee has wished to ensure that the following issues have been addressed in proposals for offshore delivery: parity in admission requirements to ensure that the integrity of programs at UNSW is not compromised; administrative processes relating to enrolments and dealing with students overseas; content and standard of courses

and assuring comparability with on-campus courses; by whom and how courses are to be delivered; assessment procedures and availability of library resources.

Proponents should contact the Office of the Deputy Vice-Chancellor (Research) regarding this committee.

1.19 Information Technology Requirements for students

Standard for Computer Science and Engineering

1.20 Textbooks

Set textbooks:
- Christopher D. Manning, Prabhakar Raghavan and Hinrich Sch¸tze, Introduction to Information Retrieval, Cambridge University Press. 2008.

Recommended references:
- Ricardo Baeza-Yates and Berthier Ribeiro-Neto, Modern Information Retrieval, Addison Wesley. 1999.
- Bing Liu, Web Data Mining -- Exploring Hyperlinks, Contents and Usage Data. Springer. 2006.
- Soumen Chakrabarti, Mining the Web: Discovering Knowledge from Hypertext Data. Morgan Kaufmann. 2002.
- Selected papers from conference proceedings of SIGIR, WWW, CIKM, KDD, ICDM, SDM, ACL, EMNLP, etc.

Proposed syllabus

Week	Description
1	Admin and Introduction to IR • Administrative issues • Introduction to Information retrieval and World Wide Web
2	IR basics • Boolean retrieval • Document modeling and preprocessing
3	Indexing • Inverted index (construction, querying, and maintenance) • Inverted index compression
4	Vector space model • Bag of words model • Tf*idf ranking • Query processing algorithms
5	IR evaluation • Precision, recall, MAP • Standard test collection, e.g., TREC • Result snippets
6	Relevance feedback and query expansion • Explicit and implicit relevance feedback • Different query expansion and query rewriting methods
7	Probabilistic and Language models • Probabilistic model • Language model
8	Web search engine basics • Web characteristics • Near duplicate detection
9	Web crawling and indexing • Crawler architecture

10	Web structure and usage analytics
	- link analysis (PageRank, HITS) - Spam detection - Web content and usage analyses - Collaborative filtering - Social network analysis
11	Recent advances in Web Search and Information Retrieval
	Introducing the state-of-the-art on a specific topic (e.g., near duplicate document detection, multimedia retrieval, sponsored search, etc.)
12	- Recent advances in Web Search and Information Retrieval (cont'd) - Reivew and catch-up

1.21   Industrial experience component
n/a

2.   RESOURCE STATEMENT

2.1   Enrolments
Estimated or proposed enrolments for the next three years.

2010:   50

2011:   80

2012:   100

2.2   Resource Requirements

Staffing Requirements:

Hours per week

5   Full-time Academic Staff

6   Part-time Teaching Staff

0   General Staff

Field Costs: n/a

Studio/Laboratory Requirements: n/a

Materials Requirements: n/a

Equipment Costs: n/a

Computing Requirements: Standard for CSE courses, and already available

Library Requirements: Standard textbook requirements for a course of this size

Capital Funds Requirements: n/a

2.3   Servicing Implications:

n/a

2.4   Teaching Arrangements:

(i)   Will other units contribute on a regular basis to the teaching of this course?

     NO

(ii)   If so, which units are involved and what proportion of the course will they teach?

2.5   Alternative Delivery Arrangements:

n/a

2.6   Details of Tuition Fees:

Proposed fee: Standard for an Engineering course of this type

3.   AUTHORISATION

3.1   University Librarian's Endorsement

I have examined the Library needs related to the above proposal and certify that existing Library holdings, staffing, services and accommodation are adequate / inadequate (delete one) to cover the demands that are inherent in it.

Appropriate arrangements for the use of digitised material to support this course have been made by the Course Authority with the University Librarian.

Further Comments:

University Librarian
   /   /2005

3.2   Head of School's Approval

I have examined the resource implications of the above proposal in regard to staff, space, materials, equipment, capital funds, and computing, and certify that the School can cover the demands that are inherent in it.

Further Comments:

Head of School
   /   /2005

3.3   Dean's Approval

I have examined the resource implications of the above proposal in regard to staff, space, materials, equipment, capital funds, and computing, and certify that:

(Tick whichever is applicable)

3.3.1   (i)   the proposal involves no additional resources. (A statement from the Head of School explaining how this can be achieved must be provided); or

(ii)   the proposal involves additional resources and it is proposed to redeploy existing resources within the faculty. (A statement from the Head of School explaining how

this will be achieved must be provided); or

(iii)   the proposal involves additional resources to be obtained as set out below; or

(iv)   the additional resources essential to bring the proposal into effect cannot be found within resources available to the faculty.

3.3.2   **Fees** (delete if not applicable):

- a fee will not be charged for this program (other than HECS)

- a fee will be charged for this program for local fee-paying students

- a fee will be charged for international students

If a fee is to be charged the Dean certifies as follows:

I have ensured that the Vice-Chancellor has been advised of the proposed fee arrangements, and note that approval of fee arrangements is needed before the new program can be implemented.

3.3.3   the proposal conforms to the University's commitment to Equal Opportunity in Education.

Statement from Head of School on Source of Additional Resources and/or Further Comments:

Dean
   /   /2009

Please click on link for
DISABILITY GUIDELINES FOR ACADEMIC STAFF PREPARING COURSES