City University of Hong Kong

Information on a Course
offered by Department of Computer Science
with effect from Semester A in 2009 / 2010

Part I

Course Title: Distributed and Interoperable Databases

Course Code: CS5480

Course Duration: One Semester

Credit Units: 3

Level: P5

Medium of Instruction: English

Prerequisites: Nil

Precursors: CS3402 Database Systems or equivalent

Equivalent Courses: Nil

Exclusive Courses: Nil

Part II

Course Aims

This course aims to develop the concepts and principles in storing and processing data in distributed and heterogeneous environments.

Course Intended Learning Outcomes (CILOs)
Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting (if applicable)
1.	understand the techniques and concepts of centralized database technology and systems;	20%
2.	perform a detailed analysis of the various requirements for distributed applications;	20%

3.	study and grasp the advanced concepts and techniques of distributed database systems;	20%	
4.	evaluate the pros and cons of current distributed database systems for newly emerging applications;	30%	
5.	analyze the trend of distributed database technology development.	10%	

Teaching and Learning Activities (TLAs)

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

Teaching pattern:
Suggested lecture/tutorial/laboratory mix: 2 hrs. lecture; 1 hr. tutorial.

CILO No.	TLAs	Hours/week (if applicable)
CILO 1	Lectures	Tutorial exercises
CILO 2	Lectures	Tutorial exercises
CILO 3	Lectures	Tutorial exercises
CILO 4	Lectures	Tutorial exercises
CILO 5	Lectures	Tutorial / Demonstration exercises

Assessment Tasks/Activities

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	Type of Assessment Tasks/Activities					Weighting (if applicable)	Remarks
CILO 1	Tutorial attendance		Quiz				
CILO 2	Tutorial attendance	homework	Quiz				
CILO 3	Tutorial attendance	homework	Quiz	Exam			
CILO 4	Tutorial attendance	homework		Exam			
CILO 5	Tutorial attendance	homework		Exam			
TOTAL	5%	10%	15%	70%	100%		

Grading of Student Achievement: Refer to Grading of Courses in the Academic Regulations and to the Explanatory Notes.

Examination duration: 2 hours

Percentage of coursework, examination, etc.: 30% CW; 70% Exam

Grading pattern: Standard (A+AA-…F)

For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

Part III

Keyword Syllabus

Principles, distribution transparency, fragmentation schemes, distributed queries, query optimization, distributed transactions, atomicity, concurrency control, deadlocks, timestamps, optimistic models, reliability, two phase commit protocol, object orientation, CORBA, open systems, interoperability, OLAP.

Syllabus

Principles of distributed databases
Levels of distribution transparency
Translation of global queries to fragment queries
Optimization of access strategies
Distributed transactions and characteristics
Concurrency control and deadlock handling
Two phase commit protocol
Object orientation and distributed object databases
Interoperability with CORBA
From OLTP to OLAP systems and applications

Recommended Reading
Text(s)

M.T. Ozsu and P. Valduriez, Principles of Distributed Database Systems, 2nd Edition, Prentice-Hall

Online Resources

http://softbase.uwaterloo.ca/~tozsu/ddbook/notes.html