City University of Hong Kong

Information on a Course
offered by Department of Computer Science
with effect from Semester A in 2012 / 2013

Part I

Course Title: Distributed Systems

Course Code: CS6223

Course Duration: One Semester

Credit Units: 3

Level: P6

Medium of Instruction: English

Prerequisites: CS5222 Computer Networks and Internets or
　　　　　　　　CS5275 High Speed Multimedia Networks or
　　　　　　　　EE5412 Telecommunication Networks or equivalent

Precursors: Nil

Equivalent Courses: Nil

Exclusive Courses: Nil

Part II

Course Aims

This course aims at developing evaluation and design skills of distributed computer systems.

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

No.	CILOs	Weighting (if applicable)
1.	identify the fundamental concepts of distributed systems and design principles;	2 weeks

2.	design and implement client-server based systems by using Socket communication;	1 week
3.	design and implement client-server based systems by using RPCs;	2 weeks
4.	describe the concepts of distributed file systems, database systems, and transaction processing systems;	4 weeks
5.	describe and critique basic technologies of network security and secure protocols;	3 weeks

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	Class room teaching & tutorials	
CILO 2	Class room teaching and lab sessions	
CILO 3	Class room teaching, lab sessions and assignments	
CILO 4	Class room teaching and tutorials	
CILO 5	Class room teaching and tutorials	

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	Mid-term exam, final exam		
CILO 2	Exams and assignment		
CILO 3	Exams and assignment		
CILO 4	Final exam		
CILO 5	Final exam		

Grading of Student Achievement: Refer to Grading of Courses in the Academic Regulations for Taught Postgraduate Degrees.

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
Distributed systems architectures; Interprocess communications, RPC; multitreaded processes, client-server communication, server structures, multiple servers, concurrent and distributed programming; distributed file services, caching, coherence protocols, name service, fault tolerance; reliability and availability; Software reliability approaches, recovery techniques, distribution and duplication; Fault management; Distributed algorithms, distributed time, clock synchronization protocols, distributed coordination; network security, cryptography, security protocols.

Syllabus
1. Distributed time and clocks
2. Inter-Process Communication (IPC) in distributed systems
3. Client-server model and programming using RPCs (remote procedure calls)
4. Distributed file systems and distributed database systems
5. Distributed Transaction processing and management
6. Cryptography, network security and security protocols

Recommended Reading
Text(s)
Coulouris, G.F, Dollimore, J., and Kindberg, T., Distributed Systems - concepts and design, (4th Ed), Addison-Welsley, 2005

A. S. Tanenbaum and M. V. Steen, Distributed Systems - principles and paradigms, (2nd edition), Pearson, 2007

Online Resources
Distributed System Course by Paul Krzyzanowski at
ttp://www.cs.rutgers.edu/~pxk/rutgers/syllabus.html