

City University of Hong Kong

Information on a Course  
offered by Department of Electronic Engineering  
with effect from Semester A/B in 2009/2010

This form is for completion by the Course Co-ordinator/Examiner. The information provided on this form will be deemed to be the official record of the details of the course. It has multipurpose use: for the University's database, and for publishing in various University publications including the Blackboard, and documents for students and others as necessary.

Please refer to the Explanatory Notes attached to this Form on the various items of information required.

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**Part I**

Course Title:	Digital Storage Technology
Course Code:	EE4217
Course Duration:	One Semester (13 weeks)
No. of credits:	3
Level:	B4
Medium of Instruction:	English
Prerequisites ( <i>Course Code and Title</i> ):	EE2331 Data Structure & Algorithm and EE3203 Microprocessor System Design
Precursors ( <i>Course Code and Title</i> ):	Nil
Equivalent Course ( <i>Course Code and Title</i> ):	Nil
Exclusive Courses: ( <i>Course Code and Title</i> ):	Nil

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**Part II**

**1. Course Aims:**

This course aims to provide students with the knowledge in digital storage technologies. Challenges in latest complex information management environment, storage technology solutions (such as DAS, NAS, SAN), information availability and business continuity, common storage management roles and responsibilities will be covered in depth.

## 2. Course Intended Learning Outcomes (CILOs)

(state what the student is expected to be able to do at the end of the course according to a given standard of performance)

Upon successful completion of this course, students should be able to:

No.	CILOs	Importance, if applicable (1 = most important)
1.	Understand logical and physical components of an information storage infrastructure	1
2.	Understand and evaluate different storage systems architectures	1
3.	Define backup, recovery, disaster recovery, business continuity and replication, and examine emerging technologies	1
	Identify components of managing and monitoring the data center	1
5.	Define information security and identify different storage virtualization technologies	1

## 3. Teaching and Learning Activities (TLAs)

*Indicative of the possible activities and tasks designed to facilitate students' achievement of the CILOs. Fine details will be provided for students upon the commencement of the course.*

CILO 1 – 5	Large class activities <sup>1</sup> , Small group activities <sup>2</sup> , Self-learning activities <sup>3</sup>
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Note:

1. Possible Large class activities include: lecturing, work-along exercise, chapter preview and review, think-pair-share, one minute paper, etc.
2. Possible Small group activities include: in-class exercise, problem Q&A, case study and reporting, etc.
3. Possible Self-learning activities include: guided on-line exercise through Blackboard, self-test multiple choice and short questions, etc.

### Timetabling Information

Pattern	Hours
Lecture:	26
Tutorials:	13
Laboratory:	0
Other activities:	0

## 4. Assessment Tasks/Activities

*Indicative of the possible activities and tasks designed to assess how well the students achieve the CILOs. Fine details will be provided for students upon the commencement of the course.*

Coursework:	30%	
Examination:	70%	2 Hours

To pass the course, students are required to achieve at least 30% in the examination.

<b>CILO No.</b>	<b>Type of assessment tasks/</b>	<b>Weighting (if applicable)</b>	<b>Remarks</b>
1,2,3,4,5	Quizzes and Test	30%	
1,2,3,4,5	Assignments/Case Studies		
1,2,3,4	Examination	70%	

### 5. Grading of Student Achievement:

Refer to Grading of Courses in the Academic Regulations (Attachment) and to the Explanatory Notes

<b>Letter Grade</b>	<b>Grade Point</b>	<b>Grade Definitions</b>	<b>Description of Student Achievement</b>
A+ A A-	4.3 4.0 3.7	Excellent:	Strong evidence of grasp of all CILOs excellently.
B+ B B-	3.3 3.0 2.7	Good:	Evidence of good grasp of all CILOs.
C+ C C-	2.3 2.0 1.7	Adequate:	Evidence of satisfactory grasp of all CILOs.
D	1.0	Marginal:	Evidence of satisfactory grasp of 3 CILOs and some evidence of the remaining 2 CILOs.
F	0.0	Failure:	Little or no evidence of grasp of any CILOs.

### 6. Constructive Alignment with Programme Outcomes

<b>PILO</b>	<b>How the course contribute to the specific PILO(s)</b>
1,3,5	This course contributes to Programme Outcomes by teaching elements of them, and giving students practice via their applications.
4	An ability to function effectively and responsibly as a team member is appropriate to the degree discipline. Students will work in groups of 2-3 for case studies and split the work amongst them and coordinate the design into a practical system.
7	An ability to communicate effectively is appropriate to the degree discipline. Students will work in groups of 2-3 for case studies and split the work amongst them and coordinate the design into a practical system with a report.

### Part III

#### Keyword Syllabus:

#### Storage Technology Foundations

Data Storage Solutions; and Data Center Infrastructure.

#### Storage Systems Architecture

Components of a host; Connectivity; Physical Disks; RAID Arrays; Disk Storage Systems.

#### Networked Storage

Direct Attached Storage (DAS), Network Attached Storage (NAS), FC and IP Storage Area Networks (SAN), Content Addressed Storage (CAS).

#### Business Continuity

Business Continuity Overview; Backup and Recovery; Local Replication and Remote Replication; Basic Disaster Recovery Techniques.

Monitoring and Managing the Data Center

Monitoring the data center; and Managing the data center.

Securing Storage and Storage Virtualization

Securing Storage Infrastructure Identify; and Virtualization technologies.

**Recommended Reading:**

Information Storage and Management Participant Guide Volume 1 & 2 (EMC Education Services, July 2008)

T. Clark: Designing Storage Area Networks: A Practical Reference for Implementing Fibre Channel and IP SANs (Addison-Wesley, 2003, ISBN 0321136500)

J. Carolan, S. Radeztsky, P. Strong & E. Turner: Building N1™ Grid Solutions: Preparing, Architecting, and Implementing Service-Centric Data Centers (Prentice Hall, 2005, ISBN 0131482017)

T. Petrocelli: Data Protection and Information Lifecycle Management (Prentice Hall, 2006, ISBN 0131927574)

R. Snevely: Enterprise Data Center Design and Methodology, 1/e (Prentice Hall, 2006, ISBN 0130473936)

P.S. Weygant, Clusters for High Availability: A Primer of HP Solutions, 2/e (Prentice Hall, 2001, ISBN 0130893552)

J.R. Shapiro & M. Policht: Building High Availability Windows Server™ 2003 Solutions, 1/e (Addison-Wesley 2005, ISBN 0321228782)

**Online Resources (if any)**

Nil

**Prepared by:**

Course Examiner(s) (Tel): 27887778 \_\_\_\_\_

Course Lecturer(s), if other than the Course Examiner LM Cheng \_\_\_\_\_

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Date: 3 Oct 2008 \_\_\_\_\_

**Signature of teaching staff involved:**

Course Examiner: \_\_\_\_\_

Course Lecturer(s), if other than the Course Examiner \_\_\_\_\_

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