ECE 5984 Virtualization Technologies

Detailed course schedule

Pierre Olivier

Outline

1) **Per-instructor course breakdown**

2) Part 1: Pierre

3) Part 2: Mohamed

4) Part 3: Sang-Hoon

Per-instructor course breakdown

- Part 1: Pierre Olivier, 01/16 to 02/19
  - **Introduction, software & lightweight virtualization**
- Part 2: Mohamed Karaoui, 02/21 to 03/28
  - **Hardware support for virtualization (Intel x86)**
- Part 3: Sang-Hoon Kim, 04/02 to 05/02
  - **ARM virtualization, Storage virtualization, Cloud Computing**

Outline

1) Per-instructor course breakdown

2) **Part 1: Pierre**

3) Part 2: Mohamed

4) Part 3: Sang-Hoon

Part 1 schedule (tentative)

- Wed 01/16 - General course presentation
- Mon 01/22 - Introduction to virtualization (1)
- Wed 01/24 - Project 01 starts, project presentation
- Mon 01/29 - Introduction to virtualization (2)
- Wed 01/31 - The Popek/Goldberg theorem
- Mon 02/05 - Virtualization without architectural support (1)
- Wed 02/07 - Virtualization without architectural support (2)
- Mon 02/12 - Unikernels (1)
- Wed 02/14 - Unikernels (2)
- Mon 02/19 - Containers

Pierre's part – Course topic	Week of 01/15		Week of 01/22		Week of 01/29		Week of 02/05		Week of 02/12		Week of 02/19	
	M	W	M	W	M	W	M	W	M	W	M	W
General Course presentation		■										
Introduction to virtualization			■									
Project introduction session				■								
The Popek/Goldberg Theorem					■							
Project session						■						
Virtualization without architectural support							■	■				
Unikernels									■	■		
Containers											■	
Pierre's project				▬	▬	▬	▬	▬	▬	▬	▬	▬

Outline

1) Per-instructor course breakdown

2) Part 1: Pierre

3) **Part 2: Mohamed**

4) Part 3: Sang-Hoon

Part 2 (tentative)

- Wed 02/21 - Introduction to Hardware Virtualization
- Mon 02/26 - CPU Virtualization (1)
- Wed 02/28 - CPU Virtualization (2)
- Mon 03/05 - Spring break, no course
- Wed 03/07 - Spring break, no course
- Mon 03/12 - MMU Virtualization (1)
- Wed 03/14 - MMU Virtualization (2)
- Mon 03/19 - Physical I/O
- Wed 03/21 - Virtual I/O without Hardware Support
- Mon 03/26 - Virtual I/O with Hardware Support (1)
- Wed 03/28 - Virtual I/O with Hardware Support (2)

Mohamed's part – Course topic	Week of 02/19		Week of 02/26		Week of 03/05		Week of 03/12		Week of 03/19		Week of 03/26	
	M	W	M	W	M	W	M	W	M	W	M	W
Introduction to hardware virtualization		■										
CPU virtualization			■	■								
MMU virtualization							■	■				
Physical I/O									■			
Virtual I/O without hardware support										■		
Virtual I/O with hardware support											■	■
Mohamed's project												

Outline

1) Per-instructor course breakdown

2) Part 1: Pierre

3) Part 2: Mohamed

4) **Part 3: Sang-Hoon**

Part 3 (tentative)

- Mon 04/02 - Virtualization in ARM processors (1)
- Wed 04/04 - Virtualization in ARM processors (2)
- Mon 04/09 - Virtualization in ARM processors (3)
- Wed 04/11 - Comparing ARM and x86 Virtualization Performance (1)
- Mon 04/16 - Comparing ARM and x86 Virtualization Performance (2)
- Wed 04/18 - Storage Virtualization (1)
- Mon 04/23 - Storage Virtualization (2)
- Wed 04/25 - Virtualization in the cloud (1)
- Mon 04/30 - Virtualization in the cloud (2)
- Wed 05/02 - Virtualization in the cloud (3)

Part 3 (tentative)

Sang-Hoon's part – Course topic	Week of 04/02		Week of 04/09		Week of 04/16		Week of 04/23		Week of 04/30	
	M	W	M	W	M	W	M	W	M	W
Virtualization in ARM processors	■	■	■							
Comparing ARM and x86 virtualization performance				■	■					
Storage Virtualization						■	■			
Virtualization in the cloud								■	■	
Sang-Hoon's project			▨	▨	▨	▨	▨	▨	▨	▨