

OPERATING SYSTEMS

Jo, Heeseung

Class materials

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Instructor

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Course description

This course covers topics on general operating system concepts such as process management, memory management, I/O systems, and file systems, with the in-depth study on operating systems

Topics & Materials

Operating system course
Computer architecture review
Introduction
Architectural support for operating systems
Process
Thread
Thread implementation
Synchronization 1
Synchronization 2
Scheduling
Memory Management
Virtual memory 1
Virtual memory 2
Virtual memory 3
I/O
Storage
File system
File system internals

Prerequisites

Prerequisites

- C language
- [Computer architecture \(Required\)](#)
- System programming (Recommended)

You should be familiar with the followings:

- C programming skills
- Basic computer organization
- Data structure and algorithm understanding
- Unix/Linux system programming
- Multi-process/multi-threaded program concepts
- File I/O and network I/O concepts

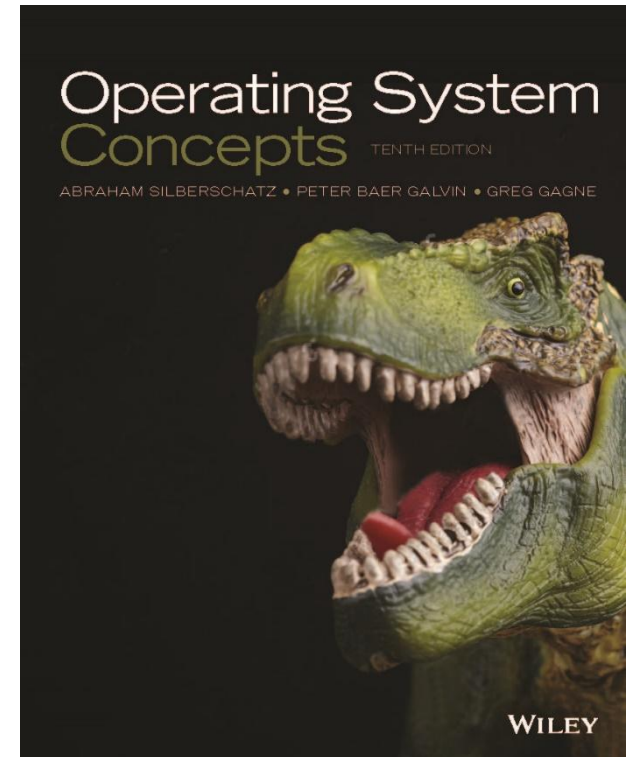
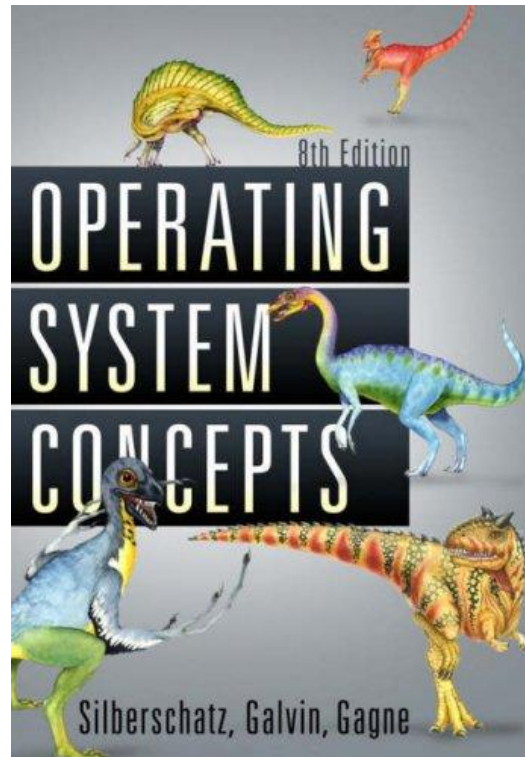
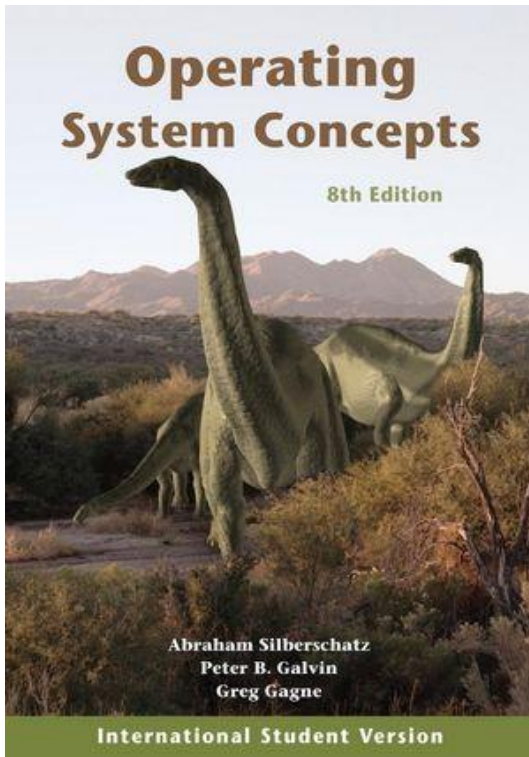
Timetable

교시 50	월	화	수(50)	목	금(50)
0교시 08:00 ~ 08:50					
1교시 09:00 ~ 09:50					
2교시 10:00 ~ 10:50					
3교시 11:00 ~ 11:50					
4교시 12:00 ~ 12:50					
5교시 13:00 ~ 13:50	컴퓨터구조 5118007-01 조희승 S4-1-106(21-106) 5교시	운영체제 5118020-01 조희승 S4-1-103(21-103) 5교시			
6교시 14:00 ~ 14:50	컴퓨터구조 5118007-01 조희승 S4-1-106(21-106) 6교시		운영체제 5118020-01 조희승 S4-1-103(21-103) 6교시		
7교시 15:00 ~ 15:50			운영체제 5118020-01 조희승 S4-1-103(21-103) 7교시		
8교시 16:00 ~ 16:50		운영체제 5118020-02 조희승 S4-1-103(21-103) 8교시		컴퓨터구조 5118007-01 조희승 S4-1-106(21-106) 8교시	
9교시 17:00 ~ 17:50		운영체제 5118020-02 조희승 S4-1-103(21-103) 9교시		운영체제 5118020-02 조희승 S4-1-103(21-103) 9교시	
10교시 18:00 ~ 18:50					

Textbook

Operating System Concepts

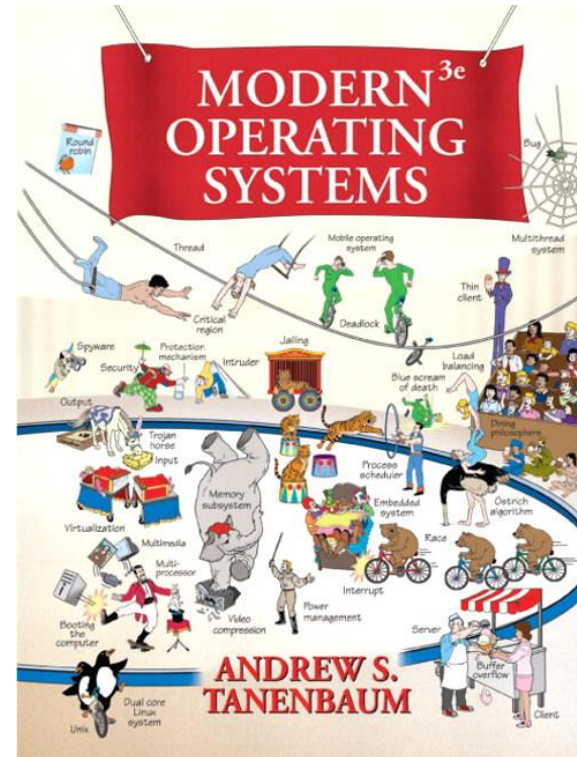
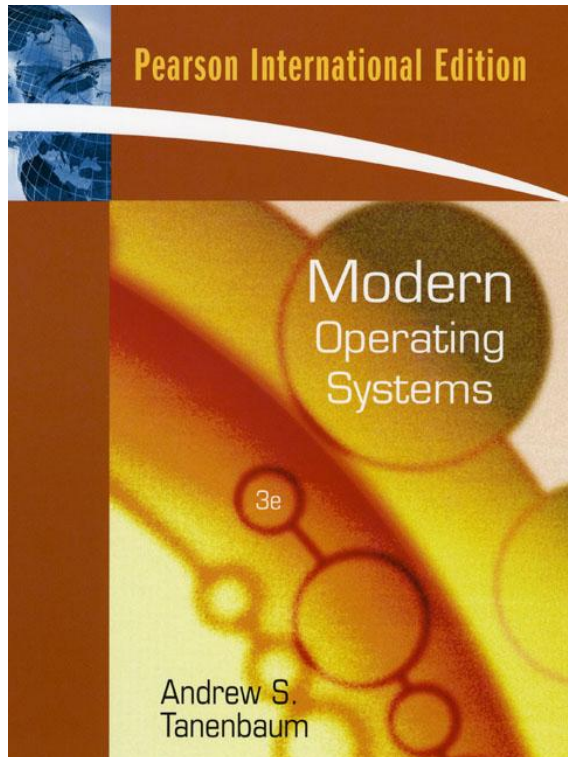
- Avi Silberschatz, Peter B. Galvin, and Greg Gagne, John Wiley & Sons, Inc.



Reference

Modern Operating Systems

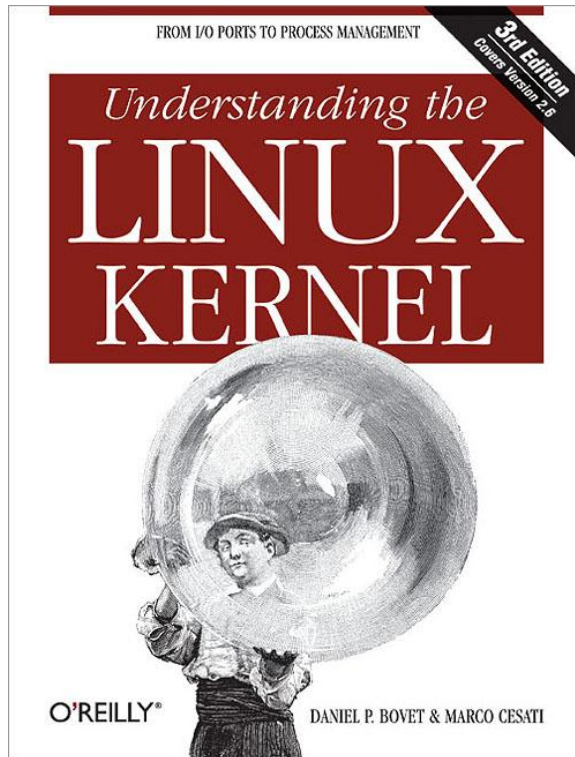
- Andrew S. Tanenbaum, Prentice-Hall



Reference

Understanding the Linux Kernel

- D. Bovet and M. Cesati, O'Reilly & Associates



Grading

Grading ratio (Subject to change)

- Exams: 60%
- Homework: 30%
- Etc: 10%

No cheating

- Sharing or copying of solutions
- Of course, cooperation on exams, homework, and projects
- Definitely F

Attendance policy

Do not be late!

- You should be present when I take class attendance

You can miss the class up to "three" times without any penalty

- More than 3 times, then D

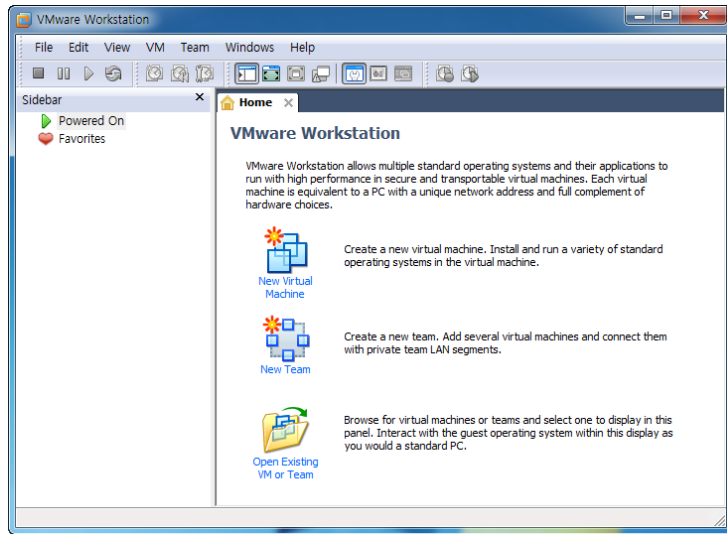
Reserved seat in class

- We will use reserved seat in this class for this semester
- Your seat will be reserved at the next class

OS playground

Using VMware

- Install your own
Linux / Unix / Windows / MacOS / ...



For homework

- Use VMware and ubuntu Linux 64-bit

Operating systems

http://en.wikipedia.org/wiki/Operating_system



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 - Asturianu
 - Azərbaycanca
 - বাংলা
 - Bân-lâm-gú
 - Башҡортса
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Operating system

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An **operating system** (OS) is a collection of software that manages [computer hardware](#) resources and provides common [services](#) for [computer programs](#). The operating system is a vital component of the [system software](#) in a computer system. Application programs usually require an operating system to function.

[Time-sharing](#) operating systems schedule tasks for efficient use of the system and may also include accounting for cost allocation of processor time, mass storage, printing, and other resources.

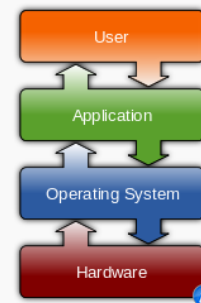
For hardware functions such as input and output and [memory allocation](#), the operating system acts as an intermediary between programs and the computer hardware,^{[1][2]} although the application code is usually executed directly by the hardware and will frequently make a [system call](#) to an OS function or be interrupted by it. Operating systems can be found on almost any device that contains a computer—from [cellular phones](#) and [video game consoles](#) to [supercomputers](#) and [web servers](#).

Examples of popular modern operating systems include [Android](#), [BSD](#), [iOS](#), [Linux](#), [Mac OS X](#), [Microsoft Windows](#),^[3] [Windows Phone](#), and [IBM z/OS](#). All these, except [Windows](#) and [z/OS](#), share roots in [UNIX](#).

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- 1 Types of operating systems
- 2 History
 - 2.1 Mainframes
 - 2.2 Microcomputers
- 3 Examples of operating systems
 - 3.1 UNIX and UNIX-like operating systems
 - 3.1.1 BSD and its descendants
 - 3.1.1.1 OS X
 - 3.1.2 Linux and GNU
 - 3.1.2.1 Google Chromium OS
 - 3.2 Microsoft Windows
 - 3.3 Other
- 4 Components
 - 4.1 Kernel
 - 4.1.1 Program execution
 - 4.1.2 Interrupts
 - 4.1.3 Modes
 - 4.1.4 Memory management

Operating systems



Common features

- Process management
- Interrupts
- Memory management
- File system
- Device drivers
- Networking (TCP/IP, UDP)
- Security (Process/Memory protection)
- I/O

[V](#) · [T](#) · [E](#)

Computer systems

Computer systems internals

