CSE3008: Operating Systems

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Introduction

- **Schedule**
  - 13:30 – 14:45 (Mon), 16:30 – 17:45 (Wed)
  - Lecture room #330110 (Semiconductor Bldg.)

- **Instructor**
  - Jin-Soo Kim ([jinsookim@skku.edu](mailto:jinsookim@skku.edu))
  - Computer Systems Laboratory ([http://csl.skku.edu](http://csl.skku.edu))
  - Office: Semiconductor Bldg. #400630 (6th floor)
  - Tel: 031-299-4593
  - The best way to contact me is via email.
Computer Systems Track

CSE2003: System Programming

ICE2001: Data Structures

GEDD007: Logic Circuits

Advanced / Interdisciplinary

ICE3026: Embedded Systems

ICE3028: Embedded System Design

CSE3007: Database

ICE3008: Operating Systems

ICE3003: Computer Architecture

ICE3024: Digital Systems

ICE3026: Computer Networks

CSE2039: Programming Languages

ICE2003: System Programming

Core

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Fundamental

= Introduction to Computer Systems
What is OS?

- Computer systems internals

Software

Application

Operating Systems

Architecture

Hardware

CPU

Mem

I/O Devices
Why do we learn OS?

- To graduate

- To make a better OS or system.
  - Functionality
  - Performance/Cost
  - Reliability
  - Energy efficiency

- To make a new hardware up and running.
- To design OS-aware hardware.
- To understand computer systems better.
- Just for fun!
Topics

- Operating system structure overview
- Processes and threads
- CPU scheduling
- Synchronization
- Deadlocks
- Memory management
- Virtual memory
- Storage and I/O systems
- File systems
- Security
Prerequisites

- Prerequisites
  - CSE2003 (System Programming): Must!
  - ICE3003 (Computer Architecture): Recommended

- You should be familiar with the followings:
  - Basic computer organization
  - Process/thread concepts
  - How to write multi-process/multi-threaded programs
  - How to read from/write to files or networks
  - Shells and basic Unix/Linux commands
  - C programming skills
Course Plan

- Lectures
  - General operating system concepts
  - Case studies
    - Linux
    - Microsoft Windows
    - Solaris

- Hands-on projects
  - Will be announced later

- Course Homepage
  - [http://csl.skku.edu/CSE3008F09/Overview](http://csl.skku.edu/CSE3008F09/Overview)
Textbook

- Operating System Principles
  - Avi Silberschatz, Peter B. Galvin, and Greg Gagne,
    8th Edition,
    John Wiley & Sons, Inc.
    2008.
References (1)

- For General Operating System Concepts:
  - Modern Operating Systems
    (Second Edition)
References (2)

- For Linux:
  - Understanding the Linux Kernel
    (Third Edition)
  D. Bovet and M. Cesati,
References (3)

- For Windows:
  - Windows Internals
    (Fifth Edition)
    Mark E. Russinovich and
    David A. Solomon,
References (4)

- For Solaris:
  - Solaris Internals
    Richard McDougall and Jim Mauro,
References (5)

- For Introduction to Computer Systems:
  - Computer Systems: A Programmer’s Perspective
    Randal E. Bryant and David R. O’Hallaron,
Class Policies (1)

- **Grading Policy (subject to change)**
  - Midterm exam: 30%
  - Final exam: 30%
  - Projects: 30%
  - Class attendance: 10%
Class Policies (2)

- **Grading**
  - If you miss one or both of exams, you will fail this course.
  - Do not be late! You should be present when I take class attendance.
  - You have four “tokens”; these tokens can be used for unexcused absences and for excused absences as well.
Academic Integrity

- Cheating
  - What is cheating?
    - Sharing code: either by copying, retyping, looking at, or supplying a copy of a file.
  - What is NOT cheating?
    - Helping others use systems or tools.
    - Helping others with high-level design issues.
    - Helping others debug their code.
  - Penalty for cheating:
    - Anyone who involved in cheating will fail this course and get disciplinary actions from the University.
  - Ask helps to me or TAs if you experience any difficulty!
Questions?