Introduction

- **Schedule**
  - 13:30 – 14:45 (Mon & Wed)
  - Lecture room: 산학협력센터 #85529

- **Course homepage**
  - [http://csl.skku.edu/SWE3004S13/](http://csl.skku.edu/SWE3004S13/)
About Me

- Jin-Soo Kim
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  - Computer Systems Laboratory
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  - Office hours: Monday & Wednesday
  - The best way to contact me is by email.
## Where Are We?

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* SWE3004: Operating Systems | Spring 2013 | Jin-Soo Kim (jinsookim@skku.edu)
What is OS?

- Computer systems internals

Software

System calls

Operating Systems

Application

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!
Prerequisites

- C programming skills
- Basic knowledge of UNIX/Linux systems
- GE4B029 (Basis and Practice in Programming)
- SWE2001 (System Program)
- ICE3003 (Computer Architecture)
Operating System Concepts

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 (Sixth Edition)
    Mark E. Russinovich, David A. Solomon, and Alex Ionescu,
References (4)

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

- For Introduction to Computer Systems:
  - Computer Systems: A Programmer’s Perspective
Course Plan

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

- Hands-on projects
  - Using Pintos instructional OS
Lectures: Topics

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

- Lab session
  - A separate class with a TA
  - Once a week (mandatory)
  - Project announcement
  - Q&A
  - Hints & helps
  - Oral tests
  - ...

Project Schedule

- Project 0 (Warming-up) 2 weeks, ~3/15
- Project 1 (Threads) 2 weeks, ~3/29
- Project 1 Oral test 1 week, ~4/5
- Project 2 (User programs) 3 weeks, ~5/3
- Project 2 Oral test 1 week, ~5/10
- Project 3 (Virtual memory) 4 weeks, ~6/7
- Project 3 Oral test 1 week, ~6/14

- This schedule is subject to change
- These are individual projects
Class Policies (1)

- **Grading Policy (subject to change)**
  - Class attendance: 10%
  - Exams: 35%
    - Midterm: 15%
    - Final: 20%
  - Projects: 55%
    - Project 0: 5%
    - Project 1: 10%
    - Project 2: 15%
    - Project 3: 25%
Class Policies (2)

- Class Attendance Policy
  - If you miss one or both of exams, you will fail this course.
  - Do not be late! You should be present in the lecture room when I take class attendance.
  - You can miss the class up to “four” times without any penalty.
    - Including lab sessions
    - For unexcused absences and for excused absences as well
  - There will be a (small) bonus for students who attend all the classes and lab sessions.
Class Policies (3)

- **Cheating Policy**
  - What is cheating?
    - Copying another student’s solution (or one from the Internet) and submitting it as your own
    - Allowing another student to copy your solution
  - 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:
    - Severe penalty on the grade and report to dept. chair
  - Ask helps to your TA if you experience any difficulty
Questions?