Welcome to SSE2030: Introduction to Computer Systems

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Sungkyunkwan University
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Introduction

- **Basic information**
  - 15:00 – 16:15 (Tuesday & Thursday)
  - Lecture room #400102 (Semiconductor Bldg.)
  - Homepage: [http://csl.skku.edu/SSE2030F10/](http://csl.skku.edu/SSE2030F10/)

- **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 by email.
Goal:

How does the computer system work?

or

How does your program run?
Course Outline (2)

- Computer systems
Course Outline (3)

- Computer systems internals

Software

Architecture

Hardware

CPU

Mem

I/O Devices

Operating Systems

Application

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### Levels of abstraction

<table>
<thead>
<tr>
<th>Application programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data structures &amp; algorithms</td>
</tr>
<tr>
<td>Programming languages &amp; compilers</td>
</tr>
<tr>
<td>Operating system</td>
</tr>
<tr>
<td>Architecture</td>
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<tr>
<td>Microarchitecture</td>
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<tr>
<td>Hardware description languages</td>
</tr>
<tr>
<td>Digital logic</td>
</tr>
<tr>
<td>VLSI layout</td>
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<tr>
<td>Processing, Fabrication</td>
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<td>Chemistry, Physics</td>
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Course Plan

Topics

- Digital systems
- Representing and manipulating information
- Assembly programming
- Compilers
- Linkers and loaders
- Processor architecture
- Memory hierarchy
- Operating systems
- Performance optimization
## System Software Track

<table>
<thead>
<tr>
<th>2학년</th>
<th>3학년</th>
<th>4학년</th>
</tr>
</thead>
<tbody>
<tr>
<td>2학기</td>
<td>1학기</td>
<td>2학기</td>
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</tbody>
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### 2학년
- 자료구조 및 알고리즘
- 컴퓨터시스템 개론

### 3학년
- 소프트웨어 공학
- 컴퓨터구조
- 프로그래밍 언어와컴파일러
- 시스템 운영체제
- 컴퓨터 네트워크

### 4학년
- 멀티코어 시스템
- 임베디드시스템 설계
- 임베디드시스템 실습
- 마이크로프로세서 실험
- 마이크로프로세서 실험
- 디지털 시스템
- SoC 설계
Prerequisites

- C programming skills (GEDD07)
- Basic knowledge of UNIX/Linux systems

- ICE2001: Logic circuits
- SSE2029: Data structures and algorithms or ICE2002: Data structures
Course Components

- Lectures
  - Concepts
  - Backgrounds

- Reviews & Quizzes
  - On topics covered in previous classes

- Projects
  - Mostly on assembly programming
  - Design, implementation, measurement, optimization
Textbook

- **Computer Systems:**
  A Programmer’s Perspective
  
  
  - Authors’ homepage:
    [http://csapp.cs.cmu.edu](http://csapp.cs.cmu.edu)
References (1)

- **C Programming**
  - *C Programming Language*, (Second Edition)
References (2)

- **Assembly Programming**
  - *The Art of Assembly Language Programming*, Randall Hyde,
    http://webster.cs.ucr.edu/
  
  - Intel Architectures Software Developer’s Manual,
    Volume 1: Basic Architecture
    Volume 2: Instruction Set Reference
    Volume 3: System Programming Guide
Class Policies (1)

- **Grading Policy (subject to change)**
  - Class attendance (10%)
  - Projects (45%)
  - Exams, Quizzes (45%)

- 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 have four “tokens”; these tokens can be used for unexcused absences and for excused absences as well (i.e., up to four absences will be OK).
Class Policies (2)

- **Project Policy**
  - You will work on each project alone
  - The submission status will be posted on the course homepage.
  - Only the assignments submitted before the deadline will receive full credit.
  - 25% of the credit will be deducted for every single day delay.
Class Policies (3)

- Cheating Policy

  - “Copying all or part of another person’s work, or using reference material not specifically allowed” are forms of cheating and will not be tolerated.
  - For a student involved in an incident of cheating, the following policy will apply:
    - You will get zero points in the particular project and the final grade will be lowered by one grade (e.g., B+ → B)
    - For serious offenses, you will get F and this will be notified to the department chair.
  - Share useful information: helping others use systems or tools, helping them with high-level designs or debug their code is NOT cheating!
Any Questions?