

Operation Systems

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Office hours: Wednesday 1~3 pm (EC442)

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Course Objective

- The course is designed to provide the fundamental concepts and design principles of operating systems for systems with multiple processing units.
- It does not concentrate on any particular hardware architectures. Instead, it discusses the general concepts and design principles that are applicable to a variety of systems.

Prerequisites and Text books

- Prerequisites :
 - Introduction to Operating Systems or
 - other related undergraduate courses
- Text Books :
 - "Operating System Concepts," 7th(8th) Edition, by A. Silberschatz, P. B. Galvin and G. Gagne, John Wiley & Sons Inc.
 - "Modern Operating Systems," 3rd(4th) Edition, by Andrew S. Tanenbaum and Herbert Bos, Pearson
 - "Distributed Operating Systems: Concepts and Design," by Pradeep K. Sinha, IEEE Press

Grading Policy

- 3 regular written exams:
 - the highest one (50%),
 - the middle one (35%), and
 - the lowest one (15%)
- Students are encouraged to submit proposals for exam questions with suggested answers
 - Good proposals may be selected in the exams

Class Schedule

- Part 1: operating system principles
 - Intro to OS, process management, memory management, file system, and disk management.
 - Pre-recorded videos in E3
 - 1st written exam in week 4 (3/12/2025) 10-12 am
 - Student suggested Q&A for 1st exam dues in 3/7/2025
- Part 2: systems with multiple processing units
 - Multiprocessor systems, multi-computer systems, distributed systems, and inter-process communication facilities (messaging and distributed shared memory)
 - Pre-recorded videos in E3
 - 2nd written exam in week 11 (4/30/2025) 10-12 am
 - Student suggested Q&A for 2nd exam dues in 4/25/2025

Class Schedule

- Part 3: distributed file systems and distributed synchronizations
 - File access model, file caching, file replication and fault tolerance, event ordering, mutual exclusion, clock synchronizations, leader election, and deadlock detection
 - Pre-recorded videos in E3
 - 3rd written exam in week 16 (6/4/2025) 10-12 am
 - Student suggested Q&A for 3rd exam dues in 5/30/2025
- The in-class lectures will be used for discussions and Q&A