

CS 551: Operating Systems Design and Implementation

Objectives

- This course introduces the students to the fundamental principles of operating systems design, and gives them hands-on experience with operating systems installation, design and implementation.
- The students apply what they learned about operating systems design to practical implementation, by modifying and extending the MINIX Operating System.
- MS Windows XP and LINUX are briefly discussed as case studies.

Prerequisites

- CS 450.

Syllabus

- Introduction
- OS history
- MINIX and MINIX installation
- Processes
- MINIX Processes, booting, messages, interrupts and system calls, IPC
- Scheduling
- MINIX clock, clock task, and clock handler
- MINIX system task
- I/O hardware, I/O software
- MINIX I/O, MINIX terminals, and MINIX terminal driver
- MINIX memory management, fork, exit, wait, exec
- MINIX file system, block cache, i-node, super-block, and file descriptor management
- MINIX Block Devices, MINIX RAM Disk, and MINIX Hard Disk
- Case Studies: MS Windows XP, Linux
- Projects/Presentations

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