COMP 4430 - Operating Systems 2

Course Description

Calendar entry

Design and implementation of modern operating systems. Detailed analysis of an open source modern operating system and hands-on experience with its kernel and major components. Prerequisites: COMP 3430.

Outline

This course is a senior level course that provides an in-depth examination of design and implementation of today's operating systems. An existing open source operating system, such as Linux or OpenBSD, will be used throughout the term as a case study to discuss the implementation of major building blocks of today's operating systems. It is primarily targeted to students who are enthusiastic to learn about the design and implementation of operating systems as well as low level systems software. A "sand-box" lab will be used for dissecting the source code of a modern operating system for hands-on assignments and projects.

1. Overview of operating systems (1 week).
2. Detailed examination of today's modern operating systems, (e.g., Linux, Windows, and Solaris) (2 weeks).
3. Internals of a sample open source operating system (1 week).
4. Kernel design and implementation: process management, scheduling, and synchronization (3 1/2 weeks).
5. Advanced topics
   - Device driver design and implementation (2 weeks).
   - File system implementation (2 weeks).
   - Design, implementation, and management of (dynamically) loadable OS components (1 1/2 weeks).

Textbook

None.