CSE 380: Introduction to Operating Systems

Fall 2003

Instructors

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Prerequisites

- CSE 240 or EE 300

Course Description

CSE 380 is to study the principles and fundamentals of operating systems. The subjects to be covered include: historical development of operating systems, concurrency, synchronization, mutual exclusion, files, CPU scheduling, memory management, virtual memory, replacement strategy, resource allocation and deadlock, real-time systems, interprocess communication, threads, protection and capability, security, distributed systems, and distributed algorithms. The importance of concurrent and distributed programming will be emphasized throughout the course.

Assignments, Exams and Grading

There will be a few simple programming assignments, as well written homework, quizzes and exams. No late assignments will be accepted unless prior arrangements are made. The major programming project will done in CSE 381: Operating Systems Lab. Grading for CSE 380 is independent of CSE 381; that is, CSE 380 and CSE 381 have separate and independent grades.

Final grade will be based on the exams, assignments, and quizzes: 20% for exam 1, 20% for exam 2, 35-40% for final exam, 20-25% for assignments and others.

Textbook

- A.S. Tanenbaum, *Modern Operating Systems*, Second Edition, Prentice Hall, 2001.

Recommended Supplementary Books

- A. Silberschatz and P.B. Galvin, *Operating System Concepts*, Fifth Edition, Addison-Wesley, 1998.
- Gary Nutt, *Operating Systems: A Modern Perspective*, Second Edition,Prentice Hall, 2000
- M.K. McKusick, K. Bostic, M.J. Karels and J.S. Quarterman, *The Design and Implementation of the 4.4 BSD Unix Operating System*, Addison-Wesley, 1996.
- B.W. Kernighan and D.M. Ritchie, *The C Programming Language*, Prentice-Hall, 1978.

Exam Dates

- Oct 9: Exam 1
- Nov 18: Exam 2
- TBD: Final Exam, 8:30 am

Tentative Syllabus

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Sep  4  Introduction to Operating Systems
Sep  9  Processes, System Calls
Sep 11  Unix Processes, Threads
Sep 16  Concurrent Programming, Mutual Exclusion
Sep 18  Synchronization, Semaphores
Sep 23  Monitors, Interprocess Communication
Sep 25  Scheduling
Sep 30  CPU Scheduling, Real-Time Scheduling
Oct  2  Deadlocks
Oct  7  Deadlocks
Oct  9  Exam 1
Oct 14  FALL BREAK
Oct 16  Memory Management
Oct 21  Virtual Memory
Oct 23  Paging, Working Set
Oct 28  Page Replacement
Oct 30  Disk I/O, Scheduling
Nov  4  RAID, File Systems
Nov  6  File Systems
Nov 11  Multiprocessor/Minicomputers
Nov 13  Distributed Systems
Nov 18  Exam 2
Nov 20  Distributed Algorithms
Nov 25  Distribuetd File Systems
Nov 27  THANKSGIVING DAY
Dec  2  Security
Dec  4  Protection
Dec ??  Final Exam
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