Winter 2008

CEG 434/634-01: Concurrent Software Design

Paul Bender

Wright State University - Main Campus

CEG 434/634

Concurrent Software Design

Syllabus

Winter Quarter, 2008

Time/Place: Lecture: 2:15 – 3:30 PM, T/R, RC154

Instructor: Mr. Paul Bender, 326 Russ Engineering Center
Email: bender.13@wright.edu
Office Hours: 1:00-2:00 pm, Tu,R

Prerequisite: CS400, CEG433/633, Operating Systems.
Expected background: discrete mathematics, data structure, C or C++ programming experience in UNIX.

Course Description: This course is a continuation of CEG433 provides an introduction to concurrent program design in the UNIX environment. Classical problems of synchronization, concurrency, and their solutions are examined through course projects and through readings on operating system design.
Continuation of CEG 433. Processes and semaphores. Classical problems and solutions of synchronization and concurrency. File system integrity and robustness. Paging and segmentation. Overview of device drivers. Design of OS internals.

Text Books: *Required*: Operating System Concepts, 6th or 7th Ed, Silberschatz and Galvin, Addison-Wesley, 2002.
Recommended: Unix Systems Programming: Communication, Concurrency and Threads, 2nd Ed., Robbins and Robbins, Prentice Hall, 2003.
References: Interprocess Communications in Linux: The Nooks and Crannies, John S. Gray, Prentice Hall, 2003.

Website: CEG434-634 in WebCT.

Grading: Programming assignments (3) – 35 %
Homework assignments (3 or 4) – 15%
Midterm Exam – 25%
Final – 25%

Dept. of Computer Science & Engineering
Wright State University

Lectures:

The following tentative schedule defines in greater details what material is covered in the course and when it is covered.

Week	Reading	Contents
1	Silberschatz Ch. 1	Welcome and introduction
2	Silberschatz Ch. 4, 6	Process management, process scheduling, CPU Scheduling
3	Robbins Ch. 3, 4	UNIX I/O, UNIX process control
4	Robbins Ch. 6, 8	Basic UNIX inter-process communication, Asynchronous events – UNIX signals
5	Robbins Ch. 18,20 Silbershatz Ch. 15	**Midterm Exam (Tuesday)** Client server computing
6	Robbins Ch. 18,20 Silbershatz Ch. 15	Inter-process communication with socket **Project #1 Due**
7	Silberschatz Ch. 5 Robbins Ch. 12	Threads
8	Silberschatz Ch. 6 Robbins Ch.13,14	Process synchronization (critical sections, semaphores, etc.) **Project #2 Due**
9	Siberschatz Ch.8 Robbins Ch. 14	Deadlocks
10	Sibershatz Ch. 9-14	Selected topics in Shared Memory and File Systems I/O
11		**Final Exam (Thursday)** **Project #3 Due**