Fall 2009

CEG 434/634-01: Concurrent Software Design

Douglas J. Kelly
Wright State University - Main Campus

Follow this and additional works at: https://corescholar.libraries.wright.edu/cecs_syllabi

Part of the Computer Engineering Commons, and the Computer Sciences Commons

Repository Citation
https://corescholar.libraries.wright.edu/cecs_syllabi/929

This Syllabus is brought to you for free and open access by the College of Engineering & Computer Science at CORE Scholar. It has been accepted for inclusion in Computer Science & Engineering Syllabi by an authorized administrator of CORE Scholar. For more information, please contact library-corescholar@wright.edu.
**Course Description:** This course provides an introduction to concurrent program design in the UNIX environment. Classical problems of synchronization, concurrency, and their solutions are examined through course projects, homework, and readings on operating system design.

**Time/Place:** TR 2000 – 2115 (8-9:15PM), Russ Engineering 154

**Professor Info:**
- **Name:** Dr. Douglas J. Kelly
- **Office:** Air Force Research Laboratory (AFRL), WPAFB
- **Office Hours:** TR 1900-2000, 2130-2200 or by appointment
- **Phone(s):** 937-656-4391 (w) daytime 0800-1630
  502-542-1646 (c) other-time
- **Email:** douglas.kelly@wright.edu
- **Website:** [www.cs.wright.edu/~dkelly](http://www.cs.wright.edu/~dkelly)

**GTA:**
- None.

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

**Text Books:**

**Grading:**
- Programming assignment* 30%
- Homework** 10%
- Midterm Exam 30%
- Final 30%

*Programming assignments are an individual effort.
**You may work with others on homework, but you must turn in your own individual work.

**Cheating:** Any form of cheating such as copied homework or programming code will result in a grade of zero for all parties and be reported to the Office of Judicial Affairs. Also, 10% per day for late unexcused work.
**Lectures:**

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

<table>
<thead>
<tr>
<th>Week</th>
<th>Reading</th>
<th>Contents</th>
</tr>
</thead>
</table>
| 1    | Robbins Ch. 1  
      | Silberschatz Ch. 1, 3 | Introduction, review of process management, process scheduling |
| 2    | Robbins Ch. 2, 3, 6  
      | Silberschatz Ch. 5 | Scheduling review, UNIX review. Basic UNIX inter-process communication |
| 3    | Robbins Ch. 8  
      | Robbins Ch. 18 | Asynchronous events – UNIX signals  
      |                    | Client server computing |
| 4    | Robbins Ch. 18, 20  
      | Gray Ch. 10 | Inter-process communication with sockets  
      |                    | User Datagram Protocol (UDP) |
| 5    | Silberschatz Ch. 4 | Threads  
      |                    | In-class Midterm Exam (Thursday, Oct 8th) |
| 6    | Robbins Ch. 12  
      | Silberschatz Ch. 6 | POSIX threads  
      |                    | Process synchronization |
| 7    | Silberschatz Ch. 6  
      | Robbins Ch. 13, 14  
      | Silberschatz Ch. 7 | Process synchronization  
      |                    | Deadlocks |
| 8    | Silberschatz Ch. 18 | Distributed Coordination |
| 9    | Silberschatz Ch. 19 | Real-Time Systems |
| 10   | Silberschatz Ch. 20 | Multimedia Systems |
| 11   | Tues., Nov 17th, 2009  
      | 8 P.M. – 10 P.M. | Final exam |