

# EE 4374 --- Operating Systems Design

## Spring 2014

**Instructor:** Dr. Michael McGarry  
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**Texts:** Operating System Concepts Essentials  
by Abraham Silberschatz, Peter Galvin, and Greg Gagne  
TCP/IP Sockets in C (2<sup>nd</sup> Edition)  
Michael Donahoo and Kenneth Calvert

### Optional Reference Texts:

The C Programming Language by Brian Kernighan and Dennis Ritchie  
UNIX Systems Programming: Communication, Concurrency and Threads  
by Kay Robbins and Steven Robbins

**Course Description:** Design and implementation of single and multiuser operating systems. Topics include OS structure, process management, interprocess communication within and between CPUs, memory management, file systems, and I/O. Contemporary operating systems provide design examples.

**Prerequisite:** *EE 2372 Software Design I* and *EE 4379 Computer Arch.* (C or better)

**Class Hours:** Tuesdays and Thursdays 12PM to 1:20PM, Bus. Bldg. Room 326

**Office Hours:** Tuesdays and Thursdays 1:30PM to 3PM, ENG A-340

### Course Outline:

Week 1: Introduction (Chap. 1)  
Weeks 1-2: Operating Systems Structures (Chap. 2)  
Week 3: Introduction to Processes/Threads (Chaps. 3 and 4)  
Weeks 4-5: Process Scheduling (Chap. 5)  
Weeks 6-7: Process Synchronization (Critical Section Problem) (Chap. 6)  
Week 7: Network Communication (Intro to Socket Programming) (Textbook 2)  
Week 8: **Midterm Exam**  
Weeks 8-9: Deadlocks: Characterization and Prevention (Chap. 7)  
Weeks 10-11: Memory Management (Chaps. 8 and 9)  
Weeks 12-13: File Systems (Chaps. 10 and 11)  
Weeks 14-15: Input/Output Systems (Chap. 13)

**Grading:**

Participation	5%
Homework/Quizzes	20%
Labs	25%
Midterm	25%
Final	25%

**Academic Dishonesty:**

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