

CSC 460 Operating Systems

CATALOG DESCRIPTION:

CSC 460 Operating Systems (3,0,3) Internal structures and algorithms for file systems, I/O, memory management and process scheduling; examples drawn from contemporary operating systems such as UNIX and Windows NT. PREREQ: C or better in CSC 362 and CSC 364.

LAST TAUGHT: Spring 2009 (M. Truta)

SCHEDULED LAB USAGE: None

STUDENT BACKGROUND EXPECTATIONS:

1. Programming knowledge in C/C++ and Java. (from CSC 362: Computer Systems).
2. Data structure knowledge (from CSC 364: Data Structures and Algorithms).

CORE TOPICS COVERED:

1. Operating-System Structure
2. Process Management
 - a. Processes
 - b. Threads
 - c. CPU Scheduling
 - d. Process Synchronization
 - e. Deadlocks
3. Memory Management
 - a. Main Memory
 - b. Virtual Memory
4. Storage Management
 - a. File-System Interface
 - b. File-System Implementation
 - c. Mass-Storage Structure
 - d. I/O Systems
5. Protection and Security

MOST RECENT TEXTBOOK USED :

Operating System Concepts, A. Silberschatz, P.B. Galvin, and G. Gagne (Wiley, 2009).
Chapters Covered: 1-15.

SOFTWARE REQUIRED:

Any C/C++ compiler on Unix. Permissions to use fork().
JVM on both Unix and Windows.

STUDENT WORK

Programming assignments and exams.

LEARNER OUTCOMES

Students will be able to...

1. Understand the operating system structure.
2. Understand the concepts of process and thread, scheduling, process synchronization, and deadlock.
3. Be familiar with memory and storage management components of an OS.
4. Understand protection and security issues of an Operating System.
5. Implement various techniques used in CPU scheduling, memory management, and storage management.

CROSS-LISTINGS

CSC 560