



HCI 201

Prerequisite: Data Structures

Operating Systems

Credit Hour : 3+0

Fall - 2006

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Time and Place:

Lec:

Consulting Hours

By Appointment via Tel / Email

Class Room:

Course Objective:

A course in operating systems (OS) to teach students about the interface between user programs and computer hardware

This course examines the important topics in operating system design and implementation. The operating system provides a well-known, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. The operating system is responsible for sharing resources (e.g., disks, networks, and processors), providing common services needed by many different programs (e.g., file service, the ability to start or stop processes, and access to the printer), and protecting individual programs from one another.

The course will start with a brief historical perspective of the evolution of operating systems over the years, and then cover the major components of common operating systems. This discussion will cover the tradeoffs that can be made between performance and functionality during the design and implementation of an operating system. Particular emphasis will be given to three major OS subsystems: process management (processes, threads, CPU scheduling, synchronization, and deadlock), memory management (segmentation, paging, swapping), file systems, and operating system support for distributed systems.

Text Books:

- Operating System Concepts, 7th Edition, by *Silberschatz, Peter Baer Galvin, Greg Gagne*, published by John Wiley & Sons, Inc. ISBN 0-471-69466-5

Reference Books:

- Operating Systems, Fourth Edition. by William Stallings
- Modern Operating Systems, Second Edition by Andrew S. Tanenbaum

Main Topics to be Covered:

Few topics, but subject to change, to be covered are the following:

1. Introduction to Operating Systems
2. Operating System Structures
3. Processes
4. Threads
5. CPU Scheduling
6. Process Synchronization
7. Deadlocks

8. Main Memory
9. Virtual Memory
10. File-System Interface
11. File-System Implementation
12. Mass-Storage Structure
13. I/O Systems
14. Realtime systems
15. Case study - The Linux System

Weightage

Quizzes	10%
One Hour Tests	30 %
Assignments	10%
Term paper/project	10%
Final Test	40%

Grading Policy

Quiz policy

The quizzes shall be announced as well as unannounced. The missed quizzes will not be retaken and all quizzes shall count towards the total.

Assignments

At least one assignment will be given after completion of each major topic. The late assignments will not be accepted / graded and all assignments will count towards the total. Plagiarists will be severely penalized.

Tools / Software requirements

- Software relevant to the case study of the family of Microsoft Windows
 - Software relevant to the case study of the family of UNIX based operating systems
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