

MC504: Operating Systems

Since 2010.

Prerequisite: MC404 / EA869

Description:

Process concept: concurrency, critical regions, scheduling. Concepts on addressing space and virtual memory management, paging and segmentation. File systems: hierarchy, protection, organization and security. Input/Output management. Case studies.

Programme:

1. Definitions of processes and threads
2. Process communication and synchronization
 - a. Critical region
 - b. Semaphores
 - c. Monitors
 - d. Synchronous and asynchronous messaging
3. Process scheduling
 - a. Batch scheduling
 - b. Dynamic scheduling
 - c. Scheduling in real time
4. Memory management
 - a. Virtual memory
 - b. Paging
 - c. Segmentation
5. File systems
 - a. Organization
 - b. Hierarchy
 - c. Protection: forms of attack, access lists, capabilities
6. Input / Output Management
7. Case studies

Recommended Literature:

- I. A. S. Tanenbaum, 2007, Modern Operating Systems, 3rd edition, Prentice Hall, 2007
- II. A. S. Tanenbaum, Sistemas Operacionais Modernos, 3rd edition in portuguese, Prentice-Hall, 2010
- III. A. Silberschatz, P. Galvin, J. Peterson, Operating Systems Concepts, 8th edition, John Wiley and Sons, 2008
- IV. W. Stallings, Operating Systems: Internals and Design Principles, 6th edition, Prentice Hall, 2008