

ESE 333 Real-Time Operating Systems

Course Review
Handed out: May 5, 2016

- Major class topics:
 - Process: multiprogramming, state, implementation, scheduling.
 - Interprocess communication: race conditions, critical sections, test and set lock, semaphores, semaphore implementation, monitors, message passing, equivalence of primitives.
 - Scheduling: FIFO, round robin, priority, multiple queues, shortest job first, guaranteed, real-time scheduling.
 - Memory management: base and bounds, swapping, paging, page replacement algorithms, segmentation, combined, working sets, implementation issues.
 - File systems: file operations, attributes, seek problem, directories, I-nodes, consistency, performance, protection, security.
 - Deadlock: conditions for deadlocks, resource allocation graphs, safe and unsafe states, banker's algorithm, interleaving, disk arm scheduling.
- Major concepts:
 - Locality.
 - Scheduling: best algorithms know future, but we use past instead.
 - Layering: scheduling, memory hierarchy, file systems.
 - Caching: CPU caches, block caches, translation buffers.

Final Exam (closed book):

Note: The final exam will be given during the university scheduled time in the classroom on Friday, May 13, 2016 from 11:15am to 1:45pm.