

Midterm

Shared memory model

1. Transition systems
 - Interleaving as a means of explaining the execution of concurrent threads
 - paths
2. Deadlock, livelock
3. Race conditions
4. Atomicity
5. MEP Problem: good properties required of a solution to a Critical Section
 - Mutual exclusion
 - Absence of livelock
 - Freedom from starvation
6. Non-solutions to the MEP
7. Solutions
 - Dekker
 - Peterson
 - Bakery

Complex atomic actions

1. implemented by modern hardware

Semaphores

1. Classical synchronization problems
 - Producers/consumers
 - Readers/writers
 - MEP problem
 - Dining philosophers
2. Additional Synchronization problems from eb4 and eb5

Monitors

1. Classical synchronization problems
 - Producers/consumers
 - Readers/writers
 - Implement semaphores
 - Barrier (One-time-use barrier)
2. Additional synchronization problems from eb6