Alexandria University (VT-MENA Program)
Faculty of Engineering,
Department of Computer and Systems Engineering

Graduate Course: Advanced Operating Systems
Instructor: Prof. Dr. Hussien Hassan Aly
Term: Spring 2010   Schedule: Mondays 1:00 PM to 3:40 PM

Course Objectives
Introduce the advanced topics and issues in distributed operating systems. During the course several technical papers will be presented by the students that cover essential or advanced topics related to the course.

Course Outline:
1. Introduction: *Hardware/Software concepts and design issues in distributed systems.*
2. Communications in distributed systems: *Layered, ATM, Client server, RPC, and Group communication.*
3. Synchronization in distributed systems: *Clock synchronization, Mutex, Election alg., Atomic Transaction, and Deadlocks.*
4. Processes & Processors in distributed systems: *Threads, System models, Processor allocation, Scheduling, Fault tolerance, Real time systems.*
5. Distributed Middleware: *CORBA, EJB, DCOM*
6. Distributed File Systems: *Design, Implementation, Trends.*
7. Distributed Shared Memory: *Definition, Consistency, Page-based shared memory, Shared-variable, Object-based shared memory.*
8. Security issues in distributed systems.
9. Current issues: Mobile systems, multimedia systems, embedded systems and sensor networks.

Grading policy:
Total : 100
Final Exam: 60
Class/Home work: 40

Text book
Distributed Systems, 2nd ed, by Tannenbaum and Van Steen, Prentice Hall 2007.