University of Tehran
School of Electrical and Computer Engineering

Course	Advanced Operating Systems		
Course type, level, credit	Optional	Graduate	3 units
Field, Major	Computer Engineering	Software	
Co-requisite(s)	-		
Prerequisite(s)	-		
Prerequisite by topic	Undergraduate Operating System		
Goals	This course covers in detail many advanced topics in operating system/distributed system design and implementation. It examines the design and analysis of selected aspects of operating systems and distributed systems. Topics such as system design, Kernel, Scheduling, Memory management, concurrency, distributed system architectures such as Cloud, peer to peer and Grid Computing systems., Agents, Code/Process migration, Distributed File Systems, Naming, RPC, etc are covered with enough details.		
Outcome	1. deeply understand basic and ongoing problems in Operating systems and distributed systems and their implementations. 2. Importance of OS and its effect on the hardware. 3. Well understanding big and huge distributed systems such as clouds, peer to peers and importance of OS on their structures. 4. Understanding new technologies like virtualization and migration, etc.		
Topics			
Required software	1- Introduction (1 sessions) 2- Review of the undergraduate OS (1 session) 3- System design (1 sessions) 4- Operating system design (3 sessions) 5- Virtual machines (2 sessions) 6- IPC, Process, Scheduling, (5 sessions) 7- Distributed systems and multicore (2 sessions) 8- Concurrency (3 sessions) 9- Multicore systems (2 sessions) 10- Arch. and OS interaction (1 sessions) 11- Distributed system Arch. Including Clouds, Peer to Peer, Grid, Client-Server (6 sessions)		

	12- RPC and Migration (2 sessions) 13- Naming and Distributed file systems (if it was enough time)
Assignments	4 homework, paper reviews and projects
Projects	-
Grading	Assignments : 25 % Project: 25% Midterm exam: 25 % Final exam: 25 %
Textbook(s)	[1] "Distributed Systems" , Andrew Tanenbaum. 2007 Edition. [2] "Modern Operating Systems" , Andrew Tanenbaum The last Edition. [3] Select paper which will be available in the course site.
Further readings	[1] Many papers and articles which will be available in the website of the course.