Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IT 512	Operating Systems	1	4	0	0	3	8

Prerequisites	
Admission Requirements	

Language of Instruction	English
Course Type	Elective
Course Level	Masters Degree
Objective	This class aims at deepening the notions described during the operating systems introductory class from second year, and the computer hardware class from third year. More precisely, it includes the concepts of process, memory management, input-output management, file system and process communication/synchronization. Laboratory sessions rely on the POSIX version of the C language in order to apply the abstract notions studied during class.
Content	1. Giriş 2. Gerekli hatırlatmalar 3. İşlemler (process) 4. İş parçacıkları (threads) 5. İşlemlerin düzenlenmesi 6. Bellek yönetimi 7. Sayfalama (paging) 8. Sanal bellek 9. İşlemler arası iletişim 10. Senkronizasyon sistemleri
References	1. Course Slides and Notes 2. Operating System Concepts, International Student Version, Abraham Silberschatz, Wiley. 3. Operating systems, William Stallings, Prentice Hall 4. Modern Operating Systems, Andrew Tanenbaum, Prentice Hall

Theory Topics

Week	Weekly Contents
1	Introduction to Operating Systems, Computer Architecture Review, Evolution of OS
2	Operating Systems Structure Process Definition
3	Introduction to Linux Operating System and Programming
4	Processes and Threads
5	Processes and Threads Practice
6	Inter-Process Communication
7	Inter-Process Communication Practice
8	Introduction to Scheduling Algorithms
9	Performance Analysis of Scheduling Algorithms
10	Synchronization Methods, Semaphores, Monitors
11	Synchronization Practice
12	Memory Management

Week	Weekly Contents
13	Virtual Memory Management
14	Kernel Programming