Republic of Iraq
The Ministry of Higher Education
& Scientific Research

University: Hamdaniya
College: Education
Department: Computer Science
Stage: Forth
Subject: Operating Systems
Lecturer name:

Course Weekly Outline

Lessons	Hours
A-Introduction	
1-Introduction Definition, goals, influence on computer architecture	2
2-History of operating system Bare machines, advent of I/O devices, batch processing, off-line processing, spooling, buffering	
3-Types of operating systems Batch , Multiprogramming, time sharing, parallel, Distributed, and real time	4
B-Process	
1-Process concept Definition, process states, PCB,context switch	4
2-Process scheduling Scheduling queues, schedulers.	
3-Operations on processes process creation, process termination, process suspension, . . etc	
C-CPU scheduling	
1-Basic concepts Idea of multiprogramming, CPU-I/O burst cycle, CPU scheduler, preemptive and nonpreemptive scheduling, dispatcher	2
2-Scheduling criteria	
3-Scheduling algorithms FCFS, SJF, SRTF, priority(preemptive , nonpreemptive), time Slice RR, Multilevel queue, multilevel feedback queue.	4
D-Deadlocks	
1-System model	2
2-Deadlock characterization Necessary conditions, resource allocation graph,	
3-Methods of handling deadlock	
4-Deadlock prevention	4

5-Deadlock avoidance Safe state, Banker's Algorithm	
3-Deadlock detection Single instance of each resource type, several instances of each resource type, detection algorithm usage	2
4-Recovery from deadlock Process termination, resource preemption	
E-Memory Management	
1-Background Address binding, dynamic loading, dynamic linking, overlays.	4
2-Swapping	
3-Contigous memory allocation Single partition allocation, multiple partition allocation, external and internal fragmentation	
4-Paging	2
5-Structure of the page table Hardware support, protection, multilevel paging	2
6-Segmentation Basic method, hardware, implementation of segment tables, protection and sharing, fragmentation	
F-Storage Management	
a- file system Interface	
1-File concept File attribute, file operations, file types, file structure.	6
2-Access Methods Sequential access, direct access	
3-Directory structure Single level, two-level, tree-structured	
4-Protection Types of access, access lists and groups	
b- File system Implementation	
1-File system structure	4
2-File-system Implementation File system organization, allocation methods(contiguous, linked, indexed) .	
G-Mass storage Structure	
1-Disk structure	2
2-Disk scheduling FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK	
3-Disk management Disk formatting, boot block, bad block	4
4-Swap-space management	