

GUJARAT TECHNOLOGICAL UNIVERSITY
C. K. Pithawalla College of Engineering & Technology – Surat
B.E. II year (IV-semester), Branch: Computer

Subject: Operating System

Subject Code: 2140702

Group No.	Roll No./Enrollment No.	ALA Topic	OEP Topic	Faculty
1	160090107011	Introduction: Basics of Operating Systems: Definition – Generations of Operating systems – Types of Operating Systems, OS Service, System Calls, OS structure: Layered, Monolithic, Microkernel Operating Systems – Concept of Virtual Machine	Windows	CKS
	160090107001			
	160090107020			
	160090107024			
	160090107040			
2	160090107057	Processes: Definition , Process Relationship , Process states , Process State transitions , Process Control Block ,Context switching – Threads – Concept of multithreads , Benefits of threads – Types of threads	Linux	CKS
	160090107034			
	160090107055			
	160090107037			
	160090107004			
3	160090107061	Process Scheduling: Definition , Scheduling objectives ,Types of Schedulers ,Scheduling criteria : CPU utilization, Throughput, Turnaround Time, Waiting Time, Response Time (Definition only) , Scheduling algorithms : Pre emptive and Non , pre emptive	Android	CKS
	160090107012			
	160090107052			
	160090107010			
	160090107046			
4	160090107049	Process Scheduling Algorithms: FCFS – SJF – RR , Multiprocessor scheduling : Types , Performance evaluation of the scheduling	iOS	CKS
	160090107044			
	160090107059			
	160090107025			
	160090107051			
5	160090107028	Interprocess Communication Race Conditions, Critical Section, Mutual Exclusion, Hardware Solution, Strict Alternation , Peterson’s Solution, The Producer Consumer Problem	Windows	CKS
	160090107027			
	160090107054			
	160090107060			
	160090107032			
6	160090107015	Semaphores, Event Counters, Monitors, Message Passing, Classical IPC Problems: Reader’s & Writer Problem, Dining Philosopher Problem etc	Linux	YMK
	160090107014			
	160090107058			
	160090107008			
	160090107013			
7	160090107047	Deadlocks: Definition,Deadlock characteristics , Deadlock Prevention , Deadlock Avoidance :banker’s algorithm, Deadlock detection and Recovery.	Android	YMK
	160090107042			
	160090107026			
	160090107019			
	160090107033			

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8	160090107017 160090107021 160090107045 160090107011 160090107031	Basic Memory Management: Definition ,Logical and Physical address map , Memory allocation : Contiguous Memory allocation – Fixed and variable partition – Internal and External fragmentation and Compaction ,	iOS	YMK
9	160090107023 160090107016 160090107029 160090107018 160090107009	Paging : Principle of operation – Page allocation – Hardware support for paging –,Protection and sharing – Disadvantages of paging, Basics of Virtual Memory – Hardware and control structures – Locality of reference, Page fault , Working Set , Dirty page/Dirty bit – Demand paging (Concepts only)	Windows	YMK
10	160090107041 160090107043 160090107056 160094107002	Page Replacement policies : Optimal (OPT) , First in First Out (FIFO), Second Chance (SC), Not recently used (NRU) and Least Recently used (LRU)	Linux	YMK
11	160094107001	Windows Operating System	Android	YMK
12	160090107030 160090107003 160090107053 160090107007	I/O Management Principles of I/O Hardware: I/O devices, Device controllers , Direct memory access Principles of I/O Software: Goals of Interrupt handlers , Device drivers	Android	CKS
13	160090107006 160090107038 160090107035	Device independent I/O software , Secondary-Storage Structure: Disk structure ,Disk scheduling algorithm	iOS	CKS
14	160090107005 160090107002 160090107022 160090107048	File Management File concept, Access methods, File types, File operation, Directory structure, File System structure, Allocation methods (contiguous,linked, indexed), Free-space management (bit vector, linked list, grouping), directory implementation (linear list, hash table),efficiency & performance	Windows	CKS
15	170093107014 170093107005 170093107001 170093107013	Security & Protection, Security Environment, Design Principles Of Security, User Authentication, Protection Mechanism : Protection Domain, Access Control List	Linux	YMK

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Group No.	Roll No./Enrollment No.	ALA Topic	OEP Topic	Faculty
16	170093107017	Unix/Linux Operating System Development Of Unix/Linux, Role & Function Of Kernel, System Calls, Elementary Linux command & Shell Programming, Directory Structure, System Administration	Android	YMK
	170093107007			
	170093107002			
	170093107012			
	170093107011			
17	170093107009	Linux command & Shell Programming	iOS	YMK
	170093107010			
	170093107008			

Instructions: Instructions for OEP topics:(submit both ppt and doc)

1. Background and Introduction (History, requirement and design goals of OS)
2. System Architecture
3. Process and thread management
4. Memory Management
5. File System
6. Security

Faculties: **Prof. Chetan K Solanki & Prof. Yogesh Kapuriya**