

1.	Course Title	Operating System		
2.	Course Code	CCPS3533		
3.	Status	Faculty		
4.	Credit Hour	3 (2+1) 2 lecture (2 hours lecture x 14 weeks) 1 tutorials (1.5 hours per x 14 weeks)		
5.	Semester/Year	2/3		
6.	Prerequisites	CICT2523 Computer Architecture		
7.	Teaching method:	Distance Learning (Electronic)		
8.	Evaluation	Assessment and Marking Percentage: Participation 5% Quizzes 15% Project 15% Mid Sem Exam 15% Final Examination 50%		
9.	Lecturer			
10.	Objective of the Subject	To introduce the main components of a typical operating system and the services that it provides which can be summarized as follows : - Understand processes, inter-process communication, concurrent programming, scheduling, memory management, file systems, synchronization, device management and introduction to protection, security and networking in general. - Know the concept and structure of operating systems. - Understand security mechanisms of operating system.		
11.	Learning Outcomes	By the end of the subject, students should be able to: - Understand the concepts of Operating Systems. - Explain about the functionalities of the various components of an operating system. - Simulate various algorithms which are studied in this subject		
12.	Synopsis	This subject deals with the important aspects of a computer operating system, including processes, scheduling algorithms, and memory management. Concepts such as deadlocks, memory management, and file management are detailed..		
13.	Topics	Details	Lecture (Hrs)	Tutorial (Hrs)
	Week 1	INTRODUCTION TO OPERATING SYSTEMS - Early Systems, Simple Batch Systems, - Multiprogrammed Batched Systems, - Time Sharing Systems, Personal Computer Systems. - Distributed Systems and Real-Time Systems	2	1.5
	Week 2	COMPUTER-SYSTEM STRUCTURES - Computer-System Operating , I/O Structure. - Storage Structure, Storage Hierarchy. - Hardware Protection and General Systems. - Architecture.	2	1.5
	Week 3	OPERATING SYSTEMS STRUCTURES - System Components, Operating – Systems Services. - System Call, System Programs, Systems Structure. - Virtual Machines, System Design and Implementation and System Generation.	2	1.5
	Week 4	PROCESSES - Process Concept, Process Scheduling, - Operation on a Process, Cooperating Processes.	2	1.5

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		• Threads and Inter-process Communication		
	Week 5	CPU SCHEDULING • Basic Concepts, Scheduling Criteria. • Scheduling Algorithms, Multiple–Processor Scheduling.	2	1.5
	Week 6	CPU SCHEDULING • Real–Time Scheduling and Algorithm. • Evaluation.	2	1.5
	Week 7	DEADLOCKS • System Model, Deadlock Characterization, • Methods for Handling Deadlocks . • Prevention, Avoidance, Detection, Recovery and the Combined Approach.	2	1.5
	Week 8	DEADLOCKS • Prevention, Avoidance, Detection, Recovery and the Combined Approach.	2	1.5
	Week 9	MEMORY MANAGEMENT • Address Space, Swapping , Contiguous allocation, • Paging, segmentation and Paged Segmentation.	2	1.5
	Week 10	MEMORY MANAGEMENT • Paging, segmentation and Paged Segmentation.	2	1.5
	Week 11	VIRTUAL MEMORY • Demand Paging, Page Replacement, Page replacement Algorithms	2	1.5
	Week 12	VIRTUAL MEMORY • Frame Allocation and Thrashing	2	1.5
	Week 13	FILE SYSTEMS • Free Space Management, Directory. • Implementation, efficiency and Performance and Recovery.	2	1.5
	Week 14	FILE SYSTEMS • Free Space Management, Directory. • Implementation, efficiency and Performance and Recovery.	2	1.5
		Total contact hours	28	21
		Equivalent lecture hours	28	14
		Total lecture hours	42	
		Credit hours	3	
14.	Main reference: Textbook:	1. Abraham Silberschatz, Greg Gagne, and Peter Baer Galvin, Operating System Concepts 8th Edition Binder Ready Version (2008) 2. Richard Schlesinger and Jose Garrido, Principles of Modern Operating Systems (2007)		
15.	Additional References:	1. William Stallings,” Operating systems ” 5 th Edition, Prentice Hall, 2005. 2. Andrew S. Tanenbaum, Modern Operating Systems (3rd Edition) (GOAL Series) by (2007)		
	Other Materials:	All materials will be available to the students online.		