
	Daffodil International University Department of Computer Science and Engineering (CSE) Course Outline			
Course Code:	CSE 323			
Course Title:	Operating Systems			
Program:	B.Sc. in CSE			
Faculty:	Faculty of Science and Information Technology (FSIT)			
Semester:	Summer	Year:	2020	
Credit:	3.00	Contact Hour:	3.00	
Course Level:	L3T2	Prerequisite:	CSE 213, CSE 231	
Course Category:	Core Engineering			
Instructor Name:	Most. Hasna Hena			
Designation:	Assistant Professor			
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Class Hours:	Section	Class Day	Class Hours	Classroom
Google Classroom Code:				

1. Course Rationale

Operating systems are central to computing activities. An operating system is a program that acts as an intermediary between a user of a computer and the computer hardware. Two primary aims of an operating system are to manage resources (e.g. CPU time, memory) and to control users and software. Operating system design goals are often contradictory and vary depending of user, software, and hardware criteria. This course describes the fundamental concepts behind operating systems, and examines the ways that design goals can be achieved.

1.1.Course Objective

1. To learn the fundamentals of Operating Systems.
2. To learn the mechanisms of OS to handle processes and threads and their communication
3. To learn the mechanisms involved in memory management in contemporary OS
4. To gain knowledge on distributed operating system concepts that includes architecture, mutual exclusion algorithms, deadlock detection algorithms and agreement protocols
5. To know the components and management aspects of concurrency management
6. To learn programmatically to implement simple OS mechanisms.

1.2.Course Outcomes (CO's)

CO1	Able to explain the functions, facilities, structure of operating systems and fundamental operating system abstractions
CO2	Able to analyze the structure of operating system and design the applications to run in parallel either using process or thread models of different OS.
CO3	Able to analyze the performance and apply different algorithms used in major components of operating systems, such as scheduler, memory manager, concurrency control manager and mass-storage manager, I/O manager
CO4	Able to analyze and justify the various device and resource management techniques, managing deadlock situations for timesharing and distributed systems.

1.3.Program Outcomes (PO's)

Program Outcomes are reported in Appendix-I.

1.4.CO-PO Mapping [attainment level used for COs from 1(weak)-3(strong) correlation]

PO's \ CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2										
CO2		3	2									
CO3		2	3	2								
CO4		2		3								

1.5. CO Assessment Scheme

Assessment Task	CO's				Mark (Total=100)
	CO1	CO2	CO3	CO4	
Attendance	--	--	--	--	7
Class Test (CT1, CT2, CT3)	--	--	--	--	15
Assignment	--	--	--	--	5
Presentation	--	--	--	--	8
Midterm Examination	2	9.0	14	--	25
Semester Final Examination	-	5.0	20	15.0	40
Total Mark	2.0	14.0	34.0	15.0	100

2. Strategies and approaches to learning

2.1. Teaching and Learning Activities (TLA)

TLA1	Lectures twice a week using multimedia of different topics.
TLA2	Active discussion in class regarding efficient solving of the logical and mathematical problems.
TLA3	Group discussion and presentation regarding diverse problems and corresponding lectures.
TLA4	Evaluation of class performances to reach each student in a class for every topic.

3. Course Schedule and Structure

3.1. Textbook

Operating System Concepts, 9th edition by Silberschatz, Galvin, Gagne

3.2. Reference Books

Modern Operating Systems (Latest Edition): Andrew S. Tanenbaum

3.3.Course Plan/Lesson Plan

Week	Lesson.	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
1	Les. 1	Introduction to operating system	TLA1	(Silberschatz: ch 1)	CO1
	Les. 2	operating system Structures, functions, computing environment	TLA1 TLA2 TLA3	(Silberschatz: ch 1)	CO1,CO2
2	Les. 3	Operating System services, user interface, System calls	TLA1 TLA3	(Silberschatz: ch 2)	CO1 CO2
	Les. 4	Operating System structure, design and Implementation	TLA1 TLA3	(Silberschatz: ch 2)	CO1 CO2
3	Les. 5	Review Class (Class Test – 1, Assignment – 1)			
	Les. 6	Process concept, scheduling, Operations on processes	TLA1 TLA2	(Silberschatz: ch 3)	CO2
4	Les. 7	Scheduling Criteria, Scheduling algorithms	TLA1 TLA2 TLA4	(Silberschatz: ch 6)	CO2
	Les. 8	Scheduling algorithms	TLA1 TLA2 TLA4	(Silberschatz: ch 6)	CO3
5	Les 9	Scheduling algorithms	TLA1 TLA2 TLA4	(Silberschatz: ch 6)	CO3
	Les 10	(Class Test – 2, Assignment -2)			
6	Les 11	IPC, Threading Process coordination, synchronization,	TLA1, TLA2	(Silberschatz: ch 5)	CO2, CO4
	Les. 12	critical section problem, semaphores	TLA1, TLA2	(Silberschatz: ch 5)	CO2, CO3, CO4

Week	Lesson.	Topic	Teaching and Learning Activities (TLAi)	Textbook & Video Reference	Related CO's
Midterm					
8	Les. 13	Deadlock characterization, Methods for handling deadlocks	TLA3, TLA4	(Silberschatz: ch 7)	CO2, CO4
	Les. 14	Deadlock prevention, Deadlock avoidance, Deadlock detection	TLA2, TLA3	(Silberschatz: ch 7)	CO2, CO4
9	Les. 15	Deadlock avoidance algorithm	TLA4	(Silberschatz: ch 7)	CO4
	Les. 16	Deadlock avoidance algorithm	TLA4	(Silberschatz: ch 7)	CO4
10	Les. 17	Presentation			
	Les. 18	Memory management strategy	TLA2	(Silberschatz: ch 8)	CO3, CO3
11	Les. 19	Swapping, paging, segmentation	TLA2	(Silberschatz: ch 8)	CO4
	Less 20	(Class Test-3, Assignment – 2)			
12	Les. 21	Virtual memory management, Demand Paging	TLA2	(Silberschatz: ch 8)	CO2, CO4
	Les. 22	Page replacement	TLA4	(Silberschatz: ch 9)	CO3
13	Les. 23	Disk structure	TLA1 TLA2	(Silberschatz: ch 10)	CO1
	Les. 24	Disk scheduling, RAID structure	TLA4	(Silberschatz: ch 10)	CO3
(FINAL EXAM)					

4. Assessment Methods

4.1. Grading System

Numerical Grade	Letter Grade	Grade Point
80-100	A+	4.00
75-79	A	3.75
70-74	A-	3.50
65-69	B+	3.25
60-64	B	3.00
55-59	B-	2.75
50-54	C+	2.50
45-49	C	2.25
40-44	D	2.00
Less than 40	F	0.00

5. Additional Support for Students

- Student Portal:
<http://studentportal.diu.edu.bd/>
- Academic Guidelines
<https://daffodilvarsity.edu.bd/article/academic-guidelines>
- Rules and Regulations of DIU
<https://daffodilvarsity.edu.bd/article/rules-and-regulation>
- Career Development Center:
<https://cdc.daffodilvarsity.edu.bd/>
- For general queries:
<http://daffodilvarsity.edu.bd/>