Faculty: Information Technology	
Department: Computer Science Program: Bachelor	
Academic year: Semester:	

Course Plan

First: Course Information

Course No.: 1501430	Course Name: Operating Systems	Credit Hours: 3	Theoretical: 3	Practical: 0
Prerequisite No. and Title: 1501221		Section No. :	Lecture Time:	
Type Of Course:	☐ Obligatory University Requirement ☐ Elective University Requirement ☐ Obligatory Faculty Requirement ☐ Elective Faculty Requirement ■ Obligatory Specialization Requirement ☐ Elective Specialization Requirement ☐ Ancillary course			
Type of Learning:	☐ Face-to-Face Learning ■ Blended Learning (2 Face-to-Face + 1Asynchronous) ☐ Online Learning (2 Synchronous+1 Asynchronous)			

Second: Instructor's Information

Course Coordinator:		
Name:	Academic Rank:.	
Office Number:	Extension Number:	Email:
Course Instructor:		
Name:		Academic Rank:
Office Number:	Ext. Number:	E-mail:
Office Hours:	Sunday Monday Tuesday Wednesday Thursday	

Third: Course Description

The course is about OS basic concepts, process management, deadlock, CPU scheduling, memory management, file and disk management, input-output systems, and case studies.

Fourth: Course Objectives

- Students will learn how Operating Systems are Important for Computer Systems.
- To make aware of different types of Operating Systems and their services.
- To learn different process scheduling algorithms and synchronization techniques to achieve better performance of a computer system.
- To know virtual memory concepts.
- To learn secondary memory management.

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	CILOs Code	CILOs If any CLO will not be assessed in the course, mark NA.	Associated PILOs Code Choose one PILO for each CILO*	Assessment method Choose at least two methods
Knowledge	K1	Gain knowledge of operating systems.	PK1	Mid-term Exam, Final Exam, Quizzes, and Assignments
	K2	Gain knowledge of the different design and implementation philosophies used in operating systems.	PK1	Mid-term Exam, Final Exam, Quizzes, and Assignments
	K3	Demonstrate knowledge of essential facts and concepts in operating systems and computing.	PK1	Mid-term Exam, Final Exam, Quizzes, and Assignments
	K4	Gain knowledge of the underlying architecture and organization of the operating	PK1	Mid-term Exam, Final Exam,

		system and the different designs used.		Quizzes, and Assignments
Skills	S1	Develop skills in Problem solving	PS1	Mid-term Exam, Final Exam, and Assignments
	S2	Model and Design process	PS1	Mid-term Exam, Final Exam, and Assignments
	S3	Apply methods and tools in Operating Systems strategies	PS2	Mid-term Exam, Final Exam, and Group presentation
	S4	Demonstrate critical and strategic thinking skills in creating and improving OS strategies.	PS4	Mid-term Exam, Final Exam, and Group presentation
Competencies	C1	Establish strong interpersonal and communication skills necessary for successful collaboration.	PC1	Group presentation
	C2	Establish strong awareness of Teamwork and Leadership	PC2	Group presentation
	C3	Will do independent learning and continue professional development in Operating Systems.	PC2	Final Exam
	C4	Apply research skills, critical thinking to contribute to the advancement of computing innovative ideas in Operating Systems.	PC4	Final Exam

*CILOs: Course Intended Learning Outcomes; PILOs: Program Intended Learning Outcomes; For each CILO, the PILO could be the same or different.

Sixth: Learning Resource

Main Reference:	An Introduction to Operating Systems	
Author: dietel and dietel	**Issue No.:** 2nd ed.	**Publication Year:** 2013
Additional Sources & Websites:	• Abraham Silberschatz, Operating Systems Concepts, Addison Wesley. • Andrew Tanenbaum, Modern Operating Systems, Addison Wesley.	
Teaching Type:	■ **Classroom** ☐ **Laboratory** ☐ **Workshop** ■ **MS Teams** ■ **Moodle**	

Seventh: Course Structure

Week	Course Intended Teaching Outcomes (CILOs)	Topics	Teaching Procedures*	Teaching Methods**	References***
1	K1,K2,K3 , S4	Introduction: History generations of Operating Systems, multi-user OS	Face-to-Face	Lecture, In class Questions	Text book
		Introduction: History time sharing, future trends Process Concepts: What is a process?			
	K4,S1,S2	Introduction to OS.	Asynchronous	Videos	Moodle
2	K1,K2,K3,S4	Process states operation on processes	Face-to-Face	Lecture, In class Questions	Text book
		operation on processes		Lecture, In class Questions	
	K4,S1,S2	Introduction to OS part	Asynchronous	Videos	Moodle
3	K1,K2,K3	interrupt processing	Face-to-Face	Lecture, In class Questions	Text book
		PCB			
	K4,SS2	On line Quiz	Asynchronous	Quiz	Moodle
4	K1, K2,K3, S2	Signals and communications	Face-to-Face	Lecture, In class Questions	Text book
	K3, S1	Job and processor Scheduling, multilevel feedback queue.			
	K4,S1	Operating systems comparisons (windows, Unix, Linux, android, IOS).	Asynchronous	Assignment	Moodle

5	K4, S1	Scheduling levels, objectives criteria	Face-to-Face	Lecture, In class Questions	Text book
	K3, S1, S4	Scheduling Algorithms			
	K4, S1, S2		Asynchronous	Videos	Moodle
6	K4, S1, S2	Scheduling Algorithms	Face-to-Face	Lecture, In class Questions	Text book
	K4, S1, S2	Multilevel feedback queue.		Lecture, In class Questions	
7	K4, S1, S2	Scheduling levels , objectives criteria	Face-to-Face	Lecture, In class Questions	Text book
		Scheduling Algorithms	Asynchronous	Assignment	Moodle
Midterm Exam					
8	K4, S1	Scheduling algorithms Multilevel feedback queue.	Face-to-Face	Lecture, In class Questions	Text book
	K4, S1, C1,C2,S4	Asynchronous Concurrent Processes: Parallel processing		Lecture, In class Questions	Text book
	K4, S1, S2	Deadlock	Asynchronous	Videos	Moodle
9	K4, S1, S2,C1,C2, C3, S4	Mutual exclusion, critical section, Dekker's algorithm, hardware solution, semaphores, Counting semaphores, case studies.	Face-to-Face	Lecture, In class Questions	Text book
	K4, S1, S2	Dekker algorithms	Asynchronous	Videos	Moodle
10	K4, S1, C1,C4, C5, S4	Deadlock: Deadlock concepts Indefinite postponement Recovery.	Face-to-Face	Lecture, In class Questions	Text book
	K4, K2, C1,C2 ,S1	Real Storage: Storage organization, storage hierarchy contiguous vs. noncontiguous storage allocation			
	K3, S3,C1,C2	Presentations from students	Asynchronous	Videos	Moodle

11	K2,S1	fixed partition multiprogramming Virtual Storage Organization	Face-to-Face	Lecture, In class Questions	Text book
	K2, S2	Virtual Storage Management: Basic concepts			
	K4, S1, S2	Paging	Asynchronous	Videos	Moodle
12	K3, S3	Page replacement strategies.	Face-to-Face	Lecture, In class Questions	Text book
		Page replacement strategies.			
13	K4, S3	Page replacement strategies.	Face-to-Face	Lecture, In class Questions	Text book
	K4, S1, S2	Memory and fragmentation	Asynchronous	Videos	Moodle
14	K4, S3	Review	Face-to-Face	Lecture	Text book
	K4, S1, S2	Memory Page Placement	Asynchronous	Videos	Moodle
Final Exam					

* Teaching procedures: (Face-to-Face, synchronous, asynchronous). * * Teaching methods: (Lecture, video…..).
** * Reference: (Pages of the book, recorded lecture, video….).

Eighth: Assessment Methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning	Specific Course Output to be assessed **If any CILO will not be assessed in the course, mark NA.											
				K1	K2	K3	K4	S1	S2	S3	S4	C1	C2	C3	C4
First Exam															
Second Exam															
Mid-term Exam			30	✓	✓	✓	✓	✓	✓	✓	✓				
Participation															
Asynchronous Activities															
Quizzes			5	✓	✓	✓	✓								
Assignments			10	✓	✓	✓	✓	✓	✓						
Group presentation			5							✓	✓	✓	✓		
Final Exam			50	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Total out of 100			100												

Ninth: Course Policies

- All course policies are applied to all teaching patterns (online, blended, and face-to-face Learning) as follows:
  a. Punctuality.
  b. Participation and interaction.
  c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).

Approval	Name	Date	Signature
Head of Department			
Faculty Dean			