FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Computers and Information Technology

Operating Systems-2

Information :

Course Code :	CS432	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours
Department :	Department of Computer Science				

Instructor Information :

Title	Name	Office hours
Professor	Howida Abdel Fattah Saber Shedeed	2
Professor	Howida Abdel Fattah Saber Shedeed	2
Teaching Assistant	Basant Adel Enany Ali	1
Teaching Assistant	Basant Adel Enany Ali	1

Area Of Study :

Apply the basic concepts of process and thread.
Combine and evaluate different methods to manage the real memory.
Analyze the requirements of synchronization and design a solution for these requirements. Compare and evaluate methodologies from range of techniques and methods to implement a file system.
Use effectively communication skills.
Understand knowledge that enhances skills in protection and security.
Show a complete understanding of distributed systems.

Description :

File systems: File concept, access methods, directory systems, file protection. Processes synchronization: Process Concept, the producer/consumer problem, the critical section problem, semaphores, Distributed operating systems: distributed systems structures, distributed file systems, distributed coordination, network structures.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Discuss fundamental concepts related to processes and threads in operating systems
2 -	Describe the up to date technologies used to support Inter-process communication in operating systems.
3 -	Explain the principles and techniques of synchronization, virtual memory, file system management and implementation, I/O systems, interrupts, protection and security, distributed systems and SMP.
b.Intellectual Skills: :	
1 -	Analyze different problems in operating systems.
2 -	Propose a set of alternative solutions fora given operating system problem.
3 -	Select and justify the appropriate models in operating systems for a given problem domain.
4 -	Compare and differentiate between algorithms, methods and techniques that solve the operating systems problems.
c.Professional and Practical Skills: :	
1 -	Analyze, Design, Implement and test computer based systems.

2 -	Apply, design methodologies, programming languages, and different supporting tools for the development and documentation of operating system concepts.
3 -	Acquire and manage different information about the implementation of the operating systems using scientific literature and web sources.
d.General and Transferable Skills: :	
1 -	Work on a team to develop solutions for operating systems problems
2 -	Apply communications skills in presentation and report writing for operating systemsôconcepts and modules.
3 -	Apply quantitative methods and skills in understanding and presenting OS cases.

ABET Course outcomes :	
1 -	Understand the basic concepts of process and thread.
2 -	Compare and evaluate different methods to manage the real and virtual memory.
3 -	Analyze the requirements of synchronization and design a solution for these requirements.
4 -	Compare and evaluate methodologies and tecchniques to implement a file system.
5 -	Acquire knowledge that enhances skills in system protection and security.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Process, and threads concepts overview	4	2	2
Inter-process communication and synchronization overview	4	2	2
Semaphores and classical problems (i.e., dinning philosophers, producer-consumer, reader ï writer, sleeping barber, etc.)	4	2	2
Memory management overview	4	2	2
Virtual memory concept, demand paging , page replacement and frame allocation	4	2	2
File system concepts and structure	4	2	2
Implementing file systems	4	2	2
Input/output systems	4	2	2
Mid Term Exam	2		
nterrupts	4	2	2
Protection and Security	4	2	2
Distributed systems	4	2	2
Student Presentations	4	2	2
Final Exam	2		

Teaching And Learning Methodologies :
Interactive Lectures including Discussions
Tutorials
Practical Lab Sessions
Self-Study (Project / Reading Materials / Online Material / Presentations)
Case Studies

Problem Solving

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	8.00	4	
Final Exam	40.00	14	
Midterm Exam (s)	20.00	9	
Presentations	8.00	12	
Quizzes	10.00	5	
Research and Reporting	7.00		
Team Work Projects	7.00		

Course Notes :

An Electronic form of the Course Notes and all the slides of the Lectures is available on the Students Learning Management System (Moodle)

Web Sites :

IEEE Transactions on Parallel and Distributed Systems. https://www.computer.org/web/tpds