

**Faculty of Computers and Information Technology**

**Operating systems -1**

**Information :**

**Course Code :** CS231

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Faculty of Computers and Information Technology

**Instructor Information :**

| Title              | Name  | Office hours |
|--------------------|---|--------------|
| Lecturer           | Khaled Ahmed Morsy Ahmed                    | 5            |
| Teaching Assistant | Nada Emad Abdelsalam Hussien                | 3            |
| Teaching Assistant | Mahinda Mahmoud Samy Ahmed Zaki Zidan       | 1            |
| Teaching Assistant | Yousef Samir Saad Zaghloul Abdulazeem Allam |              |

**Area Of Study :**

Define knowledge that enhances skills in fundamental area of operating systems.  
 Use and adopt fundamental of memory management, including virtual memory management.  
 Solve problems of deadlock using mathematical knowledge.  
 Use all available principles and tools of process scheduling and evaluation process synchronization and system files.

**Description :**

This course provides an overview of operating system concepts. It provides a comprehensive survey of operating system concepts, operating system structure, process and thread concepts, CPU scheduling techniques, Deadlock, Synchronization, memory management methods. Also, it provides a comparative discussion to file systems

**Course outcomes :**

**a.Knowledge and Understanding: :**

|     |   |
|-----|---|
| 1 - | Identify the up to date technologies used to support operating systems. |
| 2 - | Describe methodologies, practices and tools used in operating systems   |
| 3 - | Define the fundamental concepts of operating systems.                   |

**b.Intellectual Skills: :**

|     |  |
|-----|--|
| 1 - | Compare and differentiate between methods and techniques used in operating systems.  |
| 2 - | Select appropriate methodologies and techniques for a given problem solution and setting out their limitations, restrictions and errors. |
| 3 - | Illustrate design a solution for operating systems problems considering limitations and constrains.                                      |

**c.Professional and Practical Skills: :**

|     |  |
|-----|--|
| 1 - | Apply operating systems programming languages different supporting tools.    |
| 2 - | Evaluate the risks and safety aspects related to computer operating systems. |

3 - Run computer operating systems in different physical environment.

**d.General and Transferable Skills: :**

1 - Apply quantitative methods and skills in understanding operating systems.

2 - Exploit a range of learning resources.

**ABET Course outcomes :**

1 - Comprehend and define the fundamental concepts of operating systems.

2 - Demonstrate understanding of methodologies, practices and tools used in operating systems.

3 - Able to solve problems of deadlock using mathematical knowledge.

4 - Compare and evaluate methods and techniques used in operating systems.

5 - Select appropriate methodologies and techniques for a given problem solution and setting out their limitations, restrictions, and errors.

**Course Topic And Contents :**

| Topic   | No. of hours | Lecture | Tutorial / Practical |
|---|--------------|---------|----------------------|
| Operating System Overview                             | 4            | 2       | 2                    |
| Computer System Organization and Structure            | 4            | 2       | 2                    |
| Memory and data storage structure                     | 4            | 2       | 2                    |
| Operating System Structure , System Calls             | 4            | 2       | 2                    |
| Process Concept                                       | 4            | 2       | 2                    |
| CPU Scheduling  | 4            | 2       | 2                    |
| Deadlocks (system model, characterization)            | 4            | 2       | 2                    |
| Deadlock prevention – safe state – deadlock detection | 4            | 2       | 2                    |
| Mid Term Exam   | 2            |         |                      |
| Memory Management                                     | 4            | 2       | 2                    |
| Thread concepts                                       | 4            | 2       | 2                    |
| Synchronization                                       | 4            | 2       | 2                    |
| File System   | 4            | 2       | 2                    |
| Final Exam  | 2            |         |                      |

**Teaching And Learning Methodologies :**

Interactive Lectures including discussion

Practical Lab Sessions

Self-Study (Project / Reading Materials / Online Material / Presentations)

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|-----------------------|-------------------|---------|-------------|
| Final Exam            | 40.00             | 14      |             |
| Midterm Exam (s)      | 20.00             | 9       |             |

---

|                        |       |   |  |
|------------------------|-------|---|--|
| Others<br>(Attendance) | 10.00 |   |  |
| Practical Exam         | 10.00 |   |  |
| Quizzes                | 10.00 | 5 |  |
| Research and Reporting | 10.00 |   |  |

**Course Notes :**

Course Notes are available with all the slides used in lectures in electronic form on Learning Management System (Moodle)

**Web Sites :**

[www.ekb.eg](http://www.ekb.eg)