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| المملكة العربية السعودية  وزارة التعليم العالي  **جامعة أم القرى**  الكلية الجامعية بالجموم – قسم الحاسب الآلي |  | Kingdom of Saudi Arabia  Ministry of Higher Education  **Umm Al-Qura University**  University College in Al-Jamoum  Computer Dept. |

Course Specification

1. **Course number and name:** (2316411-3) Operating Systems
2. **Credits and contact hours:** 3 Credits

(Lecture: 3/week – Practical Session: Non)

1. **Instructor’s or course coordinator’s name:** Dr. Kheir Eddine Bouazza
2. **Text books**
3. **Main Text book:** Andrew S. Tanenbaum, Modern Operating Systems, 3rd Edition, 2007.
4. **Reference:** J Peterson & A. Silberschatz, Operating System Concepts, 8th Edition, 2008.
5. **Specific course information**
6. **brief description of the content of the course (Catalog Description):**
7. This course introduces the theory and practice behind modern computer operating systems. The teaching approach covers both a theoretical perspective; the abstractions and algorithms, as well as a practical one; the mechanisms and how they are built.
8. **prerequisites or co-requisites:** Computer Architecture (2316315-3)
9. **indicate whether a required, elective, or selected elective course in the program:** required
10. **Specific goals for the course**

The student will be able to:

1. Understand the design and function of an operating system.
2. Explain a process and how processes are synchronized and scheduled.
3. Know different approaches for memory management.
4. Apply practical data structures and algorithms to implement an OS.

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| *Course*  *Goals* | *Program Outcomes* | | | | | | | | | | |
| SOa | SOb | SOc | SOd | SOe | SOf | SOg | SOh | SOi | SOj | SOk |
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| **Relationship of Course Goals to the Program Student Outcomes** | |
| **SOa** | An ability to apply knowledge of computing and mathematics appropriate to the discipline   * *Students apply knowledge of computing and design to programming assignments.* |
| **SOb** | An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.   * *Students analyze the main process and memory management problems.* |
| **SOc** | An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.   * *Students are required to evaluate different operating systems using different design criteria.* |
| **SOd** | An ability to function effectively on teams to accomplish a common goal.   * *Programming assignments are implemented in teams.* |

1. **Brief list of topics to be covered**

* Introduction to operating systems
* Operating system structures
* Process management
* Thread management
* CPU scheduling
* Process synchronization
* Deadlocks