

Operating Systems

- **Course number and name:**
CC 418 – Operating Systems
- **Credits and contact hours**
Credits Hours: 3Hrs
Contact Hours: In Lecture 2Hrs, In Tutorial 2Hrs, and In Lab 2Hrs
- **Instructor’s or course coordinator’s name**
Coordinator Name: Dr. Sherif Fadel
- **Text book, title, author, and year**
 - William Stallings, “Operating Systems: Internals and Design Principles”, 4th Edition, Prentice Hall, 2001.
- **Specific course information**
 - a. **Catalog description**
Introduction to modern operating systems - Concepts, structure, design principles, implementation issues and mechanisms of operating systems
- Scheduling - Filesystem - Memory management - Interprocess Communication – Microkernels - Linux – Pintos
 - b. **prerequisites or co-requisites**
Prerequisites: CC410
 - c. **Type of the course (required, elective, or selected elective course) in the program**
Required Course
- **Specific goals for the course**
 - a. **Specific outcomes of instruction**

After the completion of this course the students will be able to:

	Course Learning Outcomes	SO
1	Understand the concepts of operating systems.	A
2	Understand the management of computer resources and solve sample resource management problems.	C
3	Master the practical OS features, algorithms, designs and techniques.	C,D
4	Evaluate the performance of the OS.	A

Topics to be covered

- Introduction and Computer System Overview
- Operating System Overview
- Process Description and Control
- Threads
- Concurrency: Software Approaches for Mutual Exclusion
- Concurrency: Other approaches for mutual exclusion (hardware support and OS semaphores)
- Concurrency: Deadlock prevention, avoidance, and detection
- Memory Management
- Virtual Memory: Hardware and Control Structures
- Virtual memory page replacement algorithm
- Uniprocessor Scheduling
- Disk Scheduling
- Filesystem