


QFO-AP-FI-MO02	اسم النموذج: Course Syllabus	جامعة فيلادلفيا
رقم الاصدار: 1 (Revision)	الجهة المصدرة: كلية تكنولوجيا المعلومات	
التاريخ: 2017/11/05	الجهة المدققة: عمادة التطوير والجودة	Philadelphia University
عدد صفحات النموذج:		

Course Title: Operating Systems	Course code: 750335
Course Level: 3	Course prerequisite: 750332
Lecture Time:	Credit hours: 3

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address

Course module description:

This course will provide an introduction to operating system design and implementation. The operating system provides a well-known, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. The operating system is responsible for allowing resources (e.g., disks, networks, and processors) to be shared, providing common services needed by many different programs (e.g., file service, the ability to start or stop processes, and access to the printer), and protecting individual programs from one another.

The course will start with a brief historical perspective of the evolution of operating systems over the last fifty years, and then cover the major components of most operating systems. This discussion will cover the tradeoffs that can be made between performance and functionality during the design and implementation of an operating system. Particular emphasis will be given to three major OS subsystems: process management (processes, threads, CPU scheduling, synchronization, and deadlock), memory management (segmentation, paging, swapping), file systems, and operating system support for distributed systems.

Course module objectives:

The aims of this module are to introduce the basic principles of computer systems organization and operation; to show how hardware is controlled by program at the hardware/software interface; to outline the basic OS resource management functions: memory, file, device (I/O), process management, and OS security/protection. Two

concrete examples of operating systems are used to illustrate how principles and techniques are deployed in practice.

Course/ module components

Textbook

Operating System Concepts, 9th Edition International Student Version
Abraham Silberschatz, Peter B. Galvin, Greg Gagne
ISBN: 978-1-118-09375-7 Addison-Wiley , 2013

Teaching methods:

Lectures, discussion groups, tutorials.

Learning outcomes:

A- Knowledge and Understanding :

- A1) List the basic Operating Systems Structure.**
- A2) List the concept of processes and threads.**
- A3) List the concept of processes synchronization, mutual exclusion and deadlock.**
- A4) List the concept of memory management techniques.**

B- Intellectual Skills :

- B1) Distinguish between a process and thread.**
- B2) Analyze and compare the different CPU Scheduling Techniques.**
- B3) Analyze and compare memory management strategies.**
- B4) Analyze and compare different techniques for process synchronization.**

C- Practical Skills:

- C1) Implement solutions of classical synchronization problems.**
- C2) Implement solutions of CPU Scheduling Algorithms.**
- C2) learn a specific Operating system environment and solve several resource management issues.**

D- Transferable Skills:

- D1) Discuss and work in a group in order to design and implement solutions of several resources management issues.**
- D2) Discuss and work in a group in order to study and present a case study operating system.**

Learning Outcomes Achievement

- **Development: A1, A2, A3, A4, B2, B3, B4, and C2 are developed through the lectures.**

**B1 and C1 are developed through tutorials and home works
D1 and D2 are developed through tutorials and lab sessions**

- **Assessment: A1, A2, A3, A4, B2, B3, C1 and C2 are assessed by quizzes and written exams, while D1, B1, B4 and D2 are assessed by assignments and labs work.**

Assessment instruments

- Short reports and/ or presentations, and Short research projects
- Quizzes.
- Home works
- Final examination: 50 marks

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
First examination	20
Second examination	20
Quizzes	10
Final project	10
Final examination:	40
Total	100

Documentation and academic honesty

- Documentation style (with illustrative examples)
- Protection by copyright
- Avoiding plagiarism.

Course/module academic calendar

week	Basic and support material to be covered	Homework/reports and their due dates
(1)	Operating system functions, the evolution of operating system.	
(2)	Operating system services, system structure.	
(3)	process description and control,	
(4)	process / CPU scheduling,	
(5)	cooperating processes	
(6) First examination	Thread overview	
(7)	Process synchronization: basic concepts	
(8)	semaphores, monitor, message passing	
(9)	Deadlocks	
(10)	Memory management: memory management	

	requirement	
(11) Second examination	memory partitioning	
(12)	paging, segmentation, segmentation with paging	
(13)	Virtual memory : Basic concepts, demand paging, page replacement	
(14)	- File management: File concepts, access methods, file organization,	
(15) Specimen examination (Optional)	file directories, file sharing, record blocking,	
(16) Final Examination		

Expected workload:

On average students need to spend 2 hours of study and preparation for each 50-minute lecture/tutorial.

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course.

Module references

Books

1. Operating Systems; William Stallings; Prentice Hall; 2001
2. Abraham Silberschatz; Operating System Concepts; Addison-Wesley; 2009 8th edition

Journals

Journal of computer and system sciences

Websites

www.pearsoned.co.uk

