



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Cybersecurity Department

CY471 Operating Systems Security

Second Semester 2023-2024

Course Catalog

3 Credit Hours. This course introduces the fundamentals of operating systems (OS) security. The coverage includes access control mechanisms, memory protections, and OS-level mechanisms (hardware and software) and policies to protect against attacks and threats such as rootkits and malware. The course also includes the concepts of virtual machines and their use to understand and analyze modern OSs (including mobile OSs) in order to identify OS-related risks, threats, and vulnerabilities. Furthermore, this course consists of a set of laboratory experiments that provides hands-on experience in this topic.

Teaching Method: On Campus

Text Book

Title	Operating System Concepts
Author(s)	Avi Silberschatz, Peter Baer Galvin, Greg Gagne
Edition	10th Edition
Short Name	ref2
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
ref1	Introduction to Operating System Security	Trent Jaeger	1st Edition	
Ref3	Windows Internals Part 1	Pavel Yosifovich, Alex Ionescu, Mark E. Russinovich, and David A. Solomon	7th Edition	

Instructor

Name	Dr. Heba Alawneh
Office Location	-

Office Hours	
Email	hzalawneh@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 08:30 - 10:00 Room: M2008

Prerequisites		
Line Number	Course Name	Prerequisite Type
1772610	CY261 Cryptography	Prerequisite / Study
1773710	CY371 Linux Operating System Laboratory	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Security of Computer Systems	Ch16 From ref2
Weeks 2, 3	Access Control Fundamentals	Ch17 From ref2
Weeks 4, 5	Isolation and Authorization	
Weeks 6, 7	Buffer Overflow	
Weeks 8, 9	Authentication	
Week 10	Security Fails in OS History	
Weeks 11, 12	Secure Virtual Machine Systems	From ref1
Weeks 13, 14, 15	OS Reference Monitor	

Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6

Policy	
Exams	1. May include: Definitions, True/False, Multiple-Choice, Analysis and Descriptive formats. 2. Use only your own tools: calculator, pens and ruler 3. Instructions on the first page of the exam are quite important. 4. Not abiding by the rules is a reason for dismissal from the exam.
Makeups	Makeup exams should not be given unless there is a valid excuse.
Drop Date	The last day to drop the course is before the 12th week of the current semester.
Cheating	Standard JUST policy is applied.

Attendance	1. Excellent attendance is expected. 2. According to the JUST policy, a student will receive a grade of ZERO (35%) "failed for absence" if they miss more than 20% of the classes. 3. Attendance will be taken by calling, or through quizzes. 4. If you miss a class, it is your responsibility to find out about any announcements or assignments you may have missed.
Graded Exams	Exam grades will be published online (on JUST elearning system), and midterm exams will be solved and discussed during class time.

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