



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

CY101 Cybersecurity Fundamentals - JNQF Level: 7

Summer Semester 2024-2025

Course Catalog

3 Credit Hours. This course provides an overview of cybersecurity from essential concepts to professional background in cybersecurity topics, ethics, laws, authentication, access control, cryptography, vulnerabilities/threats detection and countermeasures of several aspects (database, web, OS, PC/Mobile applications and network), malware types and reverse engineering of viruses. By the end of this course, the student will learn a conceptual understanding in cybersecurity, overview of its technological environments, recognize the roles played in security management and defense, understand the operations and procedures in dealing with cyber threats/attacks and identify the key concepts of the cybersecurity ethics, laws, legal issues and digital forensics.

Teaching Method: Blended

Text Book

Title	Computer Security: Principles and Practice
Author(s)	William Stallings & Lawrie Brown
Edition	5th Edition
Short Name	Book
Other Information	

Instructor

Name	Dr. Khaled Alrawashdeh
Office Location	N2L1
Office Hours	
Email	kmalrawashdeh@just.edu.jo

Class Schedule & Room

Section 1:

Lecture Time: Sun, Tue : 10:00 - 11:30

Room: M2008

Prerequisites

Line Number	Course Name	Prerequisite Type
821018	HSS101CS Introduction To Programming	Prerequisite / Study

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2	Introduction: cybersecurity fundamentals and principles, differences from information security, objectives, roles, domains, threats and vulnerabilities issues.	From Book
Weeks 4, 5	Authentication: password authentication, password cracking approaches, electronic cards and biometrics authentication.	From Book
Weeks 5, 6	Access control: Access control policies and UNIX File Access Control.	From Book
Weeks 7, 8	Operating systems: OS security concepts	CH 6 From Book
Weeks 8, 9	Database security: Introduction to databases, security requirements, reliability and integrity, database injection, and prevention.	Ch 5 From Book
Weeks 10, 11	Network security: network concepts, network attacks, Countermeasures and network management. Denial of Service Attacks. Second exam: TBA	CH 24 From Book
Weeks 11, 12	Internet and Web Security: Web security concept, web browser attacks, obtaining users/web data, and email security strategies and email attacks.	CH 22, 23 From Book
Weeks 13, 14	Cloud computing security: cloud computing concepts, cloud security tools and techniques, cloud identity management and securing IaaS.	CH 13 From Book
Week 15	Final Exam Review	
Week 16	Final Exam	
Weeks 3, 4	Cryptography : Symmetric, Asymmetric encryption and digital signature.	From Book

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Students will be able to identify the basic terms and definitions of cybersecurity and understand its principles. [1SO1] [1L7K1]	14%	

Students will learn the different authentication and authorization schemes and understand the access control mechanisms. [1SO1] [1L7K1]	26%	
Students will learn the different types of malware and study the vulnerabilities and defenses of web applications and databases. [1SO2] [1L7S1]	19%	
Students will know the major steps of hardening the operating system and learn the different controls to secure computer networks. [1SO4] [1L7S2]	11%	
Students will learn the basic definitions of symmetric and asymmetric key cryptography and understand the concept of digital signatures. [1SO1] [1L7K1]	20%	

Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6
60	19		11		

Relationship to NQF Outcomes (Out of 100%)		
L7K1	L7S1	L7S2
60	19	11

Evaluation	
Assessment Tool	Weight
First Exam	25%
Second Exam	25%
Quizzes	10%
Final Exam	40%

Policy	
Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 20% of total classes are subject to failure. Penalties may be assessed without regard to the student's performance. Attendance will be recorded at the beginning or end of each class.
Exams and Quizzes	All exams and quizzes will be CLOSE-BOOK. The format for the exams is generally as follows: Multiple-choice, True/False, and/or Short essay questions.
Makeup Exams	Makeup exams should not be given unless there is a valid excuse. Arrangements to take an exam at a time different than scheduled MUST be made before the scheduled exam time. By university regulations, students should bring a valid excuse authenticated through valid channels in JUST. Important Note: There will be NO MAKEUP for the quizzes
Code of Conduct	Exams need to be done individually. Copying of another student's work, even if changes are subsequently made, is inappropriate, and such work will not be accepted. Cheating or copying from a neighbor on the exam is an illegal and unethical activity and standard JUST policy will be applied. All graded assignments must be your work.

