Jordan University of Science and Technology
Faculty of Computer & Information Technology
Software Engineering Department

SE431 Software Security
Second Semester 2021-2022

Course Catalog
3 Credit Hours. 3 Credit hours (3 h lectures): Theory and practice of software security, focusing in particular on some common software security risks, including buffer overflows, race conditions, and on identification of potential threats and vulnerabilities early in design cycle. Emphasizes methodologies and tools for identifying and eliminating security vulnerabilities, techniques to prove absence of vulnerabilities, ways to avoid security holes in new software, and essential guidelines for building secure software: how to design software with security in mind from the ground up and to integrate analysis and risk management throughout the software life cycle.

Text Book	
Title	Computer Security: Principles and Practice
Author(s)	William Stallings, Lawrie Brown
Edition	3rd Edition
Short Name	Ref #1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #2	Security in Computing	Charles P. Pfleeger, Shari L. Pfleeger	4th Edition	
Ref #3	Computer Security	Dieter Gollmann	2nd Edition	
Ref #4	Matt Bishop "Introduction to Computer Security"	Addison Wesley	1st Edition	

Instructor	
Name	**Dr. HAMZA ALKOFAHI**
Office Location	-
Office Hours	Sun : 12:00 - 13:00 Mon : 14:30 - 16:00 Tue : 12:00 - 13:00 Wed : 14:30 - 16:00 Thu : 12:00 - 13:00
Email	hoalkofahi@just.edu.jo

Class Schedule & Room
Section 6: Lecture Time: Wed : 13:00 - 14:30 Room: SE02-N1L0

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2	Introduction	**Chapter 1** From **Ref #1**
Weeks 3, 4	Access Control	**Chapter 4** From **Ref #1**
Weeks 5, 6, 7	Software Security	**Chapter 11,12** From **Ref #1**
Weeks 8, 9	Intrusion Detection	**Chapter 6** From **Ref #1**
Weeks 10, 11, 12	Malicious Software (Viruses and other Malicious Code)	**Chapter 7** From **Ref #1**
Weeks 3, 4, 5	Cryptography	**Chapter 2,19,20** From **Ref #1**
Week 16	Database Security	

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Comprehend basic security terminologies, and specifically the basic goals of software security, that is, confidentiality, integrity and availability. [1SM1p, 1SM3p]	20%	Midterm, Final, Assignments and Lab
Use the proper authentication method based on the application being used. And accordingly use the proper access control mechanism. [1D2p]	25%	Midterm, Project, Final, Assignments and Lab

Distinguish between the different types of malwares and use the proper techniques to protect against them. [1EA4p, 1ET6p]	20%	Project, Final, Assignments and Lab
Identify and describe different types of widely used encryption algorithms such as DES. AES and RSA and their applications in the real life. [1EA1p, 1EP1p]	20%	Final, Quizzes
Able to practice secure programming. [1ET4p, 1EP1p, 1EP6p]	5%	Final
How to comprehensively remediate common web application vulnerabilities. How to apply defensive application design and coding practices to avoid security vulnerabilities. [1D2p, 1D3p, 1D4p]	5%	Final
Carry out exercises related to the Security. Investigate different security protocols. [1D4p, 1EP3p]	5%	Final

Relationship to Program Student Outcomes (Out of 100%)																												
A	B	C	D	E	F	G	H	I	J	K	SM1p	SM2p	SM3p	EA1p	EA2p	EA3p	EA4p	D1p	D2p	D3p	D4p	D5p	D6p	ET1p	ET2p	ET3p	ET4p	ET5p	ET6p	EP
											10		10	10			10		26.67	1.67	4.17						1.67		10	11.

Evaluation	
Assessment Tool	**Weight**
Midterm	20%
Project	10%
Final	50%
Assignments and Lab	15%
Quizzes	5%

Policy	
Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 10% 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.
Homework/Lab	Students are expected to keep up with the material as it is presented and submit assignments on time. Students are expected to do their work individually. Any students do the work in teams will be considered an attempt for cheating.
Exams	All exams are closed book.

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