



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Network Engineering And Security Department

NES451 Basics Of Information System Security

First Semester 2020-2021

Course Catalog

3 Credit Hours. Classical cryptography, substitution ciphers, permutation (transposition) cipher, symmetric cryptography, stream ciphers (RC4, A5/1), block ciphers(DES, 3DES). Asymmetric cryptography, Diffie-Hellman key exchange, certificates, basics of public key infrastructure (PKI). Authentication (passwords, biometrics), authorization (Access control lists, capabilities), multi-level security, security modeling, firewalls, CAPTCHA?s, intrusion detection systems, software flaws, buffer overflow, viruses, worms, trojan horses, and other forms of malicious code.

Text Book

Title	Information Security: Principles and Practice
Author(s)	Mark Stamp
Edition	2nd Edition
Short Name	Ref#1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Computer Security: Principles and Practice	William Stallings	3rd Edition	

Instructor

Name	Dr. BAHA' ALSAIFY
Office Location	E1-L3
Office Hours	Sun : 11:30 - 13:00 Mon : 10:00 - 11:30 Tue : 11:30 - 13:00 Wed : 11:00 - 12:30
Email	baalsaify@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue : 10:00 - 11:30 Room: منصة الكترونية
Section 2: Lecture Time: Sun, Tue : 08:30 - 10:00 Room: منصة الكترونية

Teaching Assistant
Shefa' Mubarak(Sections 1, 2)

Prerequisites		
Line Number	Course Name	Prerequisite Type
1753110	NES311 Data Communication	Prerequisite / Study
1753010	NES301 Probability And Queuing Theory	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction	ch1 From Ref#1
Weeks 2, 3	Crypto Basics	ch2 From Ref#1
Weeks 4, 5	Intro to Symmetric Crypto	ch3 From Ref#1
Weeks 6, 7	Intro to Public Key Crypto	ch4 From Ref#1
Weeks 8, 9	Authentication	ch7 From Ref#1
Weeks 10, 11	Authorization	ch8 From Ref#1
Week 12	Simple Authentication Protocols	ch9 From Ref#1
Weeks 13, 14	Software Flaws and Malware	ch11 From Ref#1

Mapping of Course Outcomes to Program Student Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Describe the main security goals. [1SO4]	7%	MidTerm Exam, Final Exam
Understand the classical and basic encryption techniques such as (Substitution ciphers, transposition ciphers, one-time pad cipher). [1SO1]	11%	MidTerm Exam, Final Exam
Define basic cryptographic concepts (confusion, diffusion, avalanche effect). [1SO1]	2%	MidTerm Exam

Explain modern cryptographic symmetric and asymmetric ciphers. [1SO1]	13%	MidTerm Exam, Final Exam, Quizzes and Assignments
Understand access control techniques and technologies. [1SO4]	23%	MidTerm Exam, Final Exam, Quizzes and Assignments
Define the different models used for intrusion detection. [1SO4]	14%	Final Exam, Quizzes and Assignments
Explain simple authentication protocols and the techniques used to provide authentication (Challenge response, time stamps, using symmetric keys, using asymmetric keys, mutual authentication, PFS). [1SO4]	8%	Final Exam, Quizzes and Assignments
Explain the main software security threats (Buffer overflow, worms, viruses, race conditions, Trojan horses). [1SO4]	22%	Final Exam

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
26			74			

Evaluation	
Assessment Tool	Weight
MidTerm Exam	30%
Final Exam	50%
Quizzes and Assignments	20%

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 exam should not be given unless there is a valid excuse.
Drop Date	Last day to drop the course is before the 12thweek of the current semester.
Cheating	Standard JUST policy will be applied.
Attendance	1. Excellent attendance is expected. 2. According to the JUST policy, a student will receive the grade of ZERO (35%) "failed for absence" if he misses more than 20% of the classes. 3. Attendance will be taken by calling the names or passing a sign-up sheet. 4. If you miss a class, it is your responsibility to find out about any announcements or assignments you may have missed.
Workload	Average work-load student should expect to spend is 6 hours/week.
Graded Exams	Graded exam papers will be returned within a week.

Participation	Participation in the class will positively affect your performance. Disruption and side talks will possibly result in dismissal from class. No eating or chewing gums are allowed in class.
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