Faculty: Information Technology	
Department: Cybersecurity	**Program: Bachelor**
Academic Year: 2023/2024	**Semester: 1st**

Course Plan

First: Course Information

Course No.: 1506341	*Course Title: Networks and Information Security*	*Credit Hours: 3*	*Theoretical: 2*	*Practical: 1*
Prerequisite No. and Title: 1501340 – Computer Networks, 1506140 – Cybersecurity Fundamentals	*Section No.: 1*	*Lecture Time: 11-12 (Sun, Tue, Thu)*		
Level in JNQF	*7*			
Type Of Course:	☐ *Obligatory University Requirement* ☐ *Elective University Requirement* ☐ *Obligatory Faculty Requirement* ☐ *Elective Faculty Requirement* ■ *Obligatory Specialization Requirement* ☐ *Elective Specialization Requirement* ☐ *Ancillary course*			
Type of Learning:	☐ *Face-to-Face Learning* ■ *Blended Learning (2 Face-to-Face + 1 Asynchronous)* ☐ *Online Learning (2 Synchronous+ 1 Asynchronous)*			

Second: Instructor's Information

Course Coordinator					
Name: Dr. Ali Abu Zaid				*Academic Rank: Assistant Professor*	
Office Number: 238 B	*Extension Number: 2001*			*Email: aliabuzaid@zu.edu.jo*	
Course Instructor					
Name: Dr. Ali Abu Zaid				*Academic Rank: Assistant Professor*	
Office Number: 238 B	*Extension Number: 2001*			*Email: aliabuzaid@zu.edu.jo*	
Office Hours:	*Sunday*	*Monday*	*Tuesday*	*Wednesday*	*Thursday*
	10:00-11:00	*-*	*10:00-11:00*	*-*	*10:00-11:00*

Third: Course Description

This course introduces the technologies behind computer security. Topics include: principles of computer security; access control, endpoint protection, intrusion detection and prevention, encryption and decryption; cloud computing security challenges, security mechanisms in computer programs, operating systems, databases and networks; administration of computer security and legal and ethical issues.

Fourth: Course Objectives

1. Introducing the Student to the Concepts and Principles of Information Security.
2. Guiding the Student to Understand and Analysis the Main Networks Threats and Attacks.
3. Developing the Student's Ability to Deal with Cryptography Algorithms to Encrypt and Decrypt Data.
4. Developing the Student's Ability to Understand How to Detect and Prevent Potential Security Incidents.
5. Expanding the Student's Skills to Deal with Needed Network Security Tools.
6. Providing the Student with the Skills of Current Network Protection Strategies.

Fifth: Learning Outcomes

Level descriptor according to (JNQF)	*CILOs Code*	*CILOs* If any CLO will not be assessed in the course, mark NA.	*Associated PILOs Code* *Choose one PILO for each CILO**	*Assessment method* *Choose at least two methods*
Knowledge	**K1**	Provide the Students with the Concepts and Principles of Information Security.	**PK3**	• Mid-term Exam • Final Exam
	K2	Describe the Effect of Vulnerabilities, Threats, Attacks on Information and Networks	**PK3**	• Practice • Assignments • Mid-term Exam • Final Exam
	K3	Explain the Access Control in Operating System, Application and Network.	**PK3**	• Mid-term Exam • Final Exam
	K4	Express How to Increase the Protection Level for Networks.	**PK4**	• Mid-term Exam • Final Exam
Skills	**S1**	Recommend an Appropriate Cryptography Algorithm to Encrypt and Decrypt Data.	**PS1**	• Practice • Assignments • Mid-term Exam • Final Exam
	S2	Evaluate Network Security Access Controls.	**PS2**	• Practice • Assignments • Mid-term Exam • Final Exam
	S3	Choose an Existing and Suitable Software Tool for Computer and Network Security.	**PS3**	• Practice • Assignments • Mid-term Exam • Final Exam
	S4	Examine and Manage Secure Systems.	**PS4**	• Practice • Assignments • Mid-term Exam • Final Exam
	S5	Analyze the Typical Attack Scenarios and how Controls Against Attacks Work.	**PS5**	• Practice • Assignments • Mid-term Exam • Final Exam
Competencies	**C1**	Utilize Different Working Methods for Dealing with System Exploit Attempts and Incidents.	**PC3**	• Practice • Assignments

	C2	Develop Effective Communication Skills and Discussion with the Students to Deliver the Required Skills and Providing Them with Knowledge about Information and Network Security Techniques and Tools.	**PC4**	• Practice • Assignments

*CILOs: Course Intended Learning Outcomes; PILOs: Program Intended Learning Outcomes; For each CILO, the PILO could be the same or different.

Sixth: Learning Resources

Main Reference:	***Security in Computing, Security+ CompTIA***		
Authors: Charles P. Pfleeger, and Shari Lawrence Pfleeger Mike Chapple and David Seidl	***Issue No.: 8th***	***Print:***	***Publication Year: 2021***
Additional Sources and Websites:	• Moodle. • Network Security Essentials: Applications and Standards, Wm. Stallings, Prentice Hall, Fifth Edition, 2013. • Network Security - Private Communication in a Public World, Charlie Kaufman, Radia Perlman and Mike Speciner, Prentice Hall, Englewood Cliffs, New Jersey, 1995. • Handbook of Applied Cryptography, Alfred J. Menezes, Paul C. van Oorschot and Scott A. Vanstone, 1996.		
Teaching Type:	■ ***Classroom*** ■ ***Laboratory*** □ ***Workshop*** ■ ***MS Teams*** ■ ***Moodle***		

Seventh: Course Structure

Lecture Date	Course Intended Teaching Outcomes (CILOs)	Topics	Teaching Procedures*	Teaching Methods**	References***
15/10/2023		Syllabus overview	Face-to-Face	Lecturing	Textbook
17/10/2023	K1, K2	Introduction To Computer and Network Security (What is Computer Security)	Face-to-Face	Lecturing	Textbook
19/10/2023	K2, S1	Computer and Network Security encryption, decryption	Asynchronous	Video	Textbook

22/10/2023	K2	Network Security attacks, authorization and authentication	Face-to-Face	Lecturing	Textbook
24/10/2023	K1, K2, S1	Threats, Attacks, and Vulnerabilities	Face-to-Face	Lecturing	Textbook
26/10/2023	K2, S1	Attacks types, Passive attack and Active attack	Asynchronous	Video	Textbook
29/10/2023	K1, S1	Confidentiality, Integrity and availability	Face-to-Face	Lecturing	Textbook
31/10/2023	K2, S3, S4	Authentication and authorization	Face-to-Face	Lecturing	Textbook
2/11/2023	K3, S2	Secure Coding	Asynchronous	Video	Textbook
5/11/2023	S2, K2, K3	Access Control	Face-to-Face	Lecturing	Textbook
7/11/2023	S2, K2, K3	Designing and Coding for Security	Face-to-Face	Lecturing	Textbook
9/11/2023	S2,S3, K3, K4	Setup Your Own Kali Linux Virtual Machine	Asynchronous	Video, Practice Lab	Textbook
12/11/2023	S2, K2,	Digital Signature	Face-to-Face	Lecturing	Textbook
14/11/2023	S2, K2, K3, K4	Issues in Cryptography	Face-to-Face	Lecturing	Textbook
16/11/2023	S2, K2, K3, K4	Symmetric and asymmetric	Asynchronous	Video	Textbook
19/11/2023	S2, K2, K3, K4	Cryptography Attack Issues in Cryptography	Face-to-Face	Lecturing	Textbook
21/11/2023	S2, K2, K3, K4	Authentication Methods	Face-to-Face	Lecturing	Textbook
23/11/2023	S2, K2, K3, K4	Cloud Computing (writing report)	Asynchronous	writing a report	Textbook
26/11/2023	S2, K2, K3, K4	Virtualization Cloud Security Issues	Face-to-Face	Lecturing	Textbook
28/11/2023	S2, K2, K3, K4	Endpoint Protection, Detection and Response	Face-to-Face	Lecturing	Textbook
30/11/2023	S2, K2, K3, K4	Credential Harvesting Using Site Cloning	Asynchronous	Video, Practice Lab	Textbook
Midterm Exam 3/12/2023 – 14/12/2023					
3/12/2023	S1,S2, S3, K1, K2, K3, K4	Service Hardening Operating System Hardening	Face-to-Face	Lecturing	Textbook
5/12/2023	S1, S3, K1, K2, K3	Secure Protocols Designing secure Network	Face-to-Face	Lecturing	Textbook
7/12/2023	S1, S3, K3, K4	Using Ipconfig to View and Modify Network	Asynchronous	Video, Practice Lab	Textbook

		Information on Windows, Using Ifconfig to View and Modify Network Information on Linux			
10/12/2023	S1, S3, K1, K2, K3, K4	Intrusion Detection Systems	Face-to-Face	Lecturing	Textbook
12/12/2023	S1, S3, K1, K2, K3, K4	Intrusion Prevention Systems	Face-to-Face	Lecturing	Textbook
14/12/2023	S1, S3, K2, K3, K4	How IDS and IPS Used to Mitigate Attacks	Asynchronous	Video	Textbook
17/12/2023	C1, C2	Firewalls	Face-to-Face	Lecturing	Textbook
19/12/2023	S4, S5, K3,	Attacking and Assessing Networks	Face-to-Face	Lecturing	Textbook
21/12/2023	S4, S5, K3, K4	Type of Wireless Networks attacks	Asynchronous	Video	Textbook
24/12/2023	S4, S5, K2, K3	Wireless Networks	Face-to-Face	Lecturing	Textbook
26/12/2023	S5, K2, K3, K4	Mobile Security	Face-to-Face	Lecturing	Textbook
28/12/2023	S4, S5, K2, K4	How to Use MD5 Checksums to Determine if a File Contains Malware	Asynchronous	Video, Practice Lab	Textbook
31/12/2023	S4, S5, K1, K2, K3	Vulnerability scans	Face-to-Face	Lecturing	Textbook
2/1/2024	S4, S5, K1, K3, K4	Penetration Testing	Face-to-Face	Lecturing	Textbook
4/1/2024	S4, S5, K1, K4	Penetration Testing tools	Asynchronous	Video, Practice Lab	Textbook
7/1/2024	S4, S5, K1, K3	Benefits of Penetration Testing	Face-to-Face	Lecturing	Textbook
9/1/2024	S4, S5, C1, K3, K4	Penetration Test Types	Face-to-Face	Lecturing	Textbook
11/1/2024	S4, S5, K3, K4	Pentest Box	Asynchronous	Video, Practice Lab	Textbook
14/1/2024	S4, S5, K3, K4	Web Application Vulnerability	Face-to-Face	Lecturing	Textbook
16/1/2024	C1, C2, S2, K1 K2	Virtual Private Network	Face-to-Face	Lecturing	Textbook
18/1/2024	C1, C2, S2, S1 K2, K3	Running a Vulnerability Scan with Nessus	Asynchronous	Practice Lab	Textbook
Final Exam 21/1/2024-1/2/2024					

*Teaching procedures: (Face-to-Face, synchronous, asynchronous). ** Teaching methods: (Lecture, video….).
*** Reference: (Pages of the book, recorded lecture, video….)

Eighth: Assessment Methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning		Specific Course Output to be assessed **If any CILO will not be assessed in the course, mark NA.										
				K1	K2	K3	K4	S1	S2	S3	S4	S5	C1	C2
First Exam														
Second Exam														
Mid-term Exam			30	✓	✓	✓	✓	✓	✓					✓
Participation														
Asynchronous Activities			20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quizzes														
Assignments														
Group presentation														
Final Exam			50	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Total out of 100			100											

Ninth: Course Policies

- All course policies are applied to all teaching patterns (online, blended, and face-to-face Learning) as follows:
  a. Punctuality.
  b. Participation and interaction.
  c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).

Approval	Name	Date	Signature
Head of Department	Dr. Mohammad Rasmi AL-Mousa	12/10/2023	
Faculty Dean	Prof. Dr. Mohammad Hassan	12/10/2023	