
جامعة الزيتونة الأردنية
Al-Zaytoonah University of Jordan



Course Syllabus

***According to JORDAN National Qualification
Framework (JNQF)***

**Course Name: Data & Information
Security**

Course Number: 0130315

General Course Information:

Course Title	Data and Information Security
Course Number	0130315
Credit Hours	3
Education Type	Face to Face
Prerequisites/Co-requisites	Computer Networks (0130214)
Academic Program	BSc.
Program Code	130
Faculty	Science and Information Technology
Department	Computer Science
Level of Course	3
Academic Year /Semester	3/2
Awarded Qualification	
Other Department(s) Involved in Teaching the Course	Cybersecurity
Language of Instruction	English
Date of Production/Revision	28, April 2025

Course Coordinator:

Coordinator's Name	
Office No.	
Office Phone Extension Number	
Office Hours	
E-mail	

Other Instructors:

Instructor Name	
Office No.	
Office Phone Extension Number	
Office Hours	
Email	

Course Description (English/Arabic):

English	This module focuses on the principles and practices of securing data and information in digital systems. Topics include encryption techniques, access control, authentication, network security, and threat analysis. Students will learn about common vulnerabilities, such as malware and phishing, and methods to safeguard against cyberattacks. The course also covers legal and ethical considerations in information security. Through hands-on exercises, students will gain practical experience in implementing security measures and using tools to detect and prevent security breaches. By the end of the module, students will understand how to protect sensitive data and maintain system integrity.
Arabic	تركز هذه المادة على المبادئ والممارسات الخاصة بحماية البيانات والمعلومات في الأنظمة الرقمية. تشمل الموضوعات تقنيات التشفير، التحكم في الوصول، المصادقة، أمن الشبكات، وتحليل التهديدات. سيتعلم الطلاب عن الثغرات الشائعة مثل البرمجيات الخبيثة والتصيد الاحتيالي، وطرق الحماية من الهجمات الإلكترونية.

يغطي المقرر أيضاً الاعتبارات القانونية والأخلاقية في أمن المعلومات.
من خلال التمارين العملية، سيكتسب الطلاب خبرة عملية في تنفيذ تدابير الأمان واستخدام الأدوات للكشف عن خروقات الأمان ومنعها.
بنهاية المادة، سيفهم الطلاب كيفية حماية البيانات الحساسة والحفاظ على سلامة النظام.

Textbook: Author(s), Title, Publisher, Edition, Year, Book website.

Principles of Information Security by Michael E. Whitman and Herbert J. Mattord, 2018. Sixth edition.
[https://unidel.edu.ng/focelibrary/books/Principles%20of%20Information%20Security%20by%20Whitman,%20Michael%20Mattord,%20Herbert%20\(z-lib.org\).pdf](https://unidel.edu.ng/focelibrary/books/Principles%20of%20Information%20Security%20by%20Whitman,%20Michael%20Mattord,%20Herbert%20(z-lib.org).pdf)

References: Author(s), Title, Publisher, Edition, Year, Book website.

- 1- Data and Information Security, by Mrs. Pushpa Prasanna Dr. Raj Kumar Goswami, Mrs. S. Nandhini Devi, Dr. Shweta A. Bansal (Author), 2023. <https://www.amazon.in/Information-Security-Nandhini-Prasanna-Goswami/dp/8196439741>
- 2- Foundations of Information Security- A Straightforward Introduction. By Jason Andress, 2019. [https://unidel.edu.ng/focelibrary/books/Foundations%20of%20Information%20Security%20A%20Straightforward%20Introduction%20by%20Jason%20Andress%20\(z-lib.org\).pdf](https://unidel.edu.ng/focelibrary/books/Foundations%20of%20Information%20Security%20A%20Straightforward%20Introduction%20by%20Jason%20Andress%20(z-lib.org).pdf)
- 3- An Introduction to Information Security by Michael Nieves, Kelley Dempsey, and Victoria Yan Pillitteri, 2017, 1st edition.
- 4- William Stallings and Lawrie Brown .Computer Security Principles and Practice, Pearson Education Limited (2018).

Course Educational Objectives (CEOs):

CEO1	Distinguish between various terms for data and information security, such as attacks, defense, identification, authentication, authorization, access control, cryptography, etc.
CEO2	Describe Legal, Ethical, and Professional Issues in Information Security.
CEO3	Describe planning for security, and security policy.
CEO4	Describe various techniques used for data encryption and implementation of information security
CEO5	Describe intrusion detection and prevention Systems, and other security tools.
CEO6	Describe cryptography tools.

Intended Learning Outcomes (ILO's):

Intended learning outcomes (ILOs)		Relationship to CEOs	Contribution to PLOs	Bloom Taxonomy Levels*	JNQF Descriptors**
K	K- Knowledge and Understanding				
ILO1K	Knowledge of information security concepts	CEO1	PLO2-K	1,2,5	K
ILO2K	Describe Legal, Ethical, and Professional Issues in Information Security.	CEO2	PLO1-K	1,2	K
S	S- Intellectual skills				
ILO1S	implementation of information security	CEO4	PLO3-S	1,2,4,5	S

ILO2S	Describe intrusion detection and prevention Systems, and Other Security Tools.	CE05	PL04-S	1,2,4,5	S	
C	C- Competencies					
ILO1C	Describe various techniques used for data encryption	CE04	PL06-C	1,2,3,4,5	C	
ILO2C	Describe planning for security, and security policy.	CE03	PL05-C	4,5,6	C	
D	D- Transferable skills					
ILO1D	Describe cryptography tools (Demonstrate teamwork spirit. Working and communicate effectively in groups)	CE06	PL07-D	2,3,4,5,6	D	
*Bloom Taxonomy Levels:						
Level #	1	2	3	4	5	6
Level Name	Remembering	Understanding	Applying	Analyzing	Evaluating	Creating
** Descriptor (National Qualification Framework Descriptors): K: Knowledge, S: Skill, C: Competency.						

Program Learning Outcome (PLOs):

(PLOs)	JNQF Descriptors**		
	K	S	C

PL01-K	Knowledge of professional ethics, social responsibility, and the regulations governing them.	√		
PL02-K	Understanding various programming techniques, the stages of software development, and the fundamental principles of security.	√		
PL03-S	Skill in applying mathematical concepts to analyze and design algorithms and verify their correctness		√	
PL04-S	Skill in using different programming languages and applying them to develop software and computer applications.		√	
PL05-C	The ability to analyze, design, and develop effective and reliable computer programs that meet user requirements and adhere to professional ethics.			√
PL06-C	The ability to keep up with continuous advancements in computer science, innovate, and work independently or as part of a team.			√
PL07-D	The ability to work collaboratively, communicate effectively, and demonstrate teamwork spirit.			

**** Descriptors according to the national qualifications framework (K: knowledge, S: skill, C: Competency)**

Weekly Schedule (please choose the type of teaching)

- Face to Face (F2F)**
 Hybrid (One – To - One)
 Online

Schedule of Simultaneous and their Topics:

Week	First Lecture (F2F)	Second Lecture (F2F)	ILOs	PLOs	JNQF Descriptor s*
1	Ch1: Introduction to Information Security Approaches to Information Security Implementation	Security in the Systems Development Life Cycle	ILO1K	PL01-K	K
2	Ch2: The Need for Security Threats and Attacks	Software attacks	ILO1K	PL01-K	K
3	Ch3: Legal, Ethical, and Professional Issues in Information Security Law and Ethics in Information Security	Ethics and Information Security.	ILO1K	PL01-K	K
4	Ch3: Planning for Security Information Security Planning and Governance	-Information Security Policy, Standards, and Practices - Continuity Strategies.	ILO2C	PL05-C	C
5	Ch4: Risk Management Risk Identification	-Risk Control - Quantitative Versus Qualitative Risk Management Practices	ILO2C	PL05-C	C
6	Ch5: Security Technology: Access Controls, Firewalls,	Protecting Remote	ILO1C	PL06-C	C

	and VPNs Access control & Firewalls	Connection			
7	Ch6: Security Technology: Intrusion Detection and Prevention Systems, and Other Security Tools Intrusion Detection and Prevention Systems	Scanning and Analysis Tools	ILO2S	PL04-S	S
Mid Term Exam					
9	Ch7: Cryptography - Foundations of Cryptology - Cipher Methods	-Cryptographic Algorithms -Cryptographic Tools	ILO1S	PL03-S	S
10	Ch7: Cryptography (continue) -Cryptographic Tools	-Cryptographic Tools	ILO1S + ILO1D	PL03-S + PL07-D	S +D
11	Ch7: Cryptography (continue) -Protocols for Secure Communications	Protocols for Secure Communications	ILO1S	PL03-S	S
12	Ch8: Physical Security - Physical Access Controls	- Fire Security and Safety	ILO2S	PL04-S	S
13	Ch9: Implementing Information Security - Information Security Project Management	- Technical Aspects of Implementation	ILO1S	PL03-S	S
14	Ch9: Implementing Information Security (continue) -Information Systems Security Certification and Accreditation	-Information Systems Security Certification and Accreditation	ILO1S	PL03-S	S
15	Projects Discussion				
16	Final Exam				

* K: Knowledge, S: Skills, C: Competency

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lecture.
- flipped learning.
- learning through projects.
- learning through problem solving.
- participatory learning

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences from exams and handing in assignments on time:

Midterm exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safety procedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.
- Online Activities (Course Videos, Practice labs, Discussion Forums, Quizzes) **20%**
- Midterm **30%**
- Final Exam **50%**

F- Available university services that support achievement in the course: **E-Learning Platform, Labs, Library.**

Required Equipment:

- PC / Laptop with webcam and mic
- Internet Connection
- Access to the ZUJ E-Learning Platform at <https://exams.zuj.edu.jo/>
- E-learning plan
- Satisfaction questionnaires for online and face-to-face learning
- Software for e-learning
- Training

Assessment Tools Implemented in the Course:

- Final Exam
- Midterm Exam
- Quizzes
- Homework
- Practice Labs
- Discussion Forums
- Periodic reports for learning assessment
- Improvement plans for online or face-to-face teaching.
- Others...

Responsible Persons and their Signatures:

Course Coordinator		Completed Date	/ /
		Signature	
Received by (Department Head)		Received Date	/ /
		Signature	