جامعة الإسراء
ISRA UNIVERSITY

Course Syllabus

According to JORDAN National Qualification Framework (JNQF)

Course Name: Computer Networks Security

Course Number: 06043256

General Course Information:

Course title	Computer Networks Security
Course number	06043256
Credit hours	3 hrs.
Education type	Face to Face
Prerequisites/corequisites	0640224
Academic Program	Cyber Security
Program code	644
Faculty	Information Technology
Department	Cyber Security
Level of course	3
Academic year /semester	1st semester, 3rd year
Awarded qualification	Bachelor
Other department(s) involved in teaching the course	Networks
Language of instruction	English
Date of production/revision	October 19, 2021

Course Coordinator:

Coordinator's name	Dr. Shadi R Masadeh
Office No	4225
Office Phone extension number	962 6 4711710 ext. 2405
Office Hours	TBA
Email	Shadi.almasadeh@iu.edu.jo

Other Instructors:

Instructor name	
Office No	
Office Phone extension number	
Office Hours	
Email	

Course Description *(English/Arabic)*:

English	Introduction to network security; network security requirements, security policy; cryptography and its applications to network security; network security threats; applications of cryptography; secret key and public key cryptographic algorithms; hash functions; authentication; security for electronic mail; Firewalls and intrusion detection techniques; building secure channels; hardening network systems and potential threats to network systems
Arabic	مقدمة لأمن الشبكة ؛ متطلبات أمن الشبكة ، سياسة الأمن ؛ التشفير وتطبيقاته على أمن الشبكة ؛ تهديدات أمن الشبكة ؛ تطبيقات التشفير. المفتاح السري وخوارزميات تشفير المفتاح العام ؛ وظائف التجزئة المصادقة؛ الأمن للبريد الإلكتروني ؛ تقنيات الجدران النارية وكشف التسلل ؛ بناء قنوات آمنة تقوية أنظمة الشبكة والتهديدات المحتملة لأنظمة الشبكة

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

1. [Cryptography and Network Security principles and practicies, William Stallings, Prentice Hall, 2011. ISBN: 0-13-111502-2
2. Introduction to Cryptography and Network Security, Behrouz A. Forouzan. McGraw-Hill International Edition 2008.. ISBN: 978-0-07-110223-0
3. Network Security, NehaGhai.S.K. Kataria and Sons Edition 1st 2012

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

Recommendedbook (s), assigned reading and audio-visuals:

1. https://www.youtube.com/watch?v=GqmQg-cszw4

Course Educational Objectives (CEOs):

1.	Learn concept of Computer Networks security
2.	Learn Types of attacks and threats
3.	Learn techniques of key managements
4.	Learn web security, Email security, IP security and Wireless security
5.	Learn types of firewalls and VPN
6.	Learn what are the Intruders and types of malicious Software.

Intended Learning Outcomes (ILO's):

1.	Subject Intended learning outcomes (ILOs) describe what students are expected to know and be able to do at the end of the course. These outcomes are related to the knowledge, skill and competence that students acquire:	**Relationship to CEOs**	**Contribution to PLOs**	**Bloom Taxonomy Levels***	**Descriptors****
2. A	**Knowledge and Understanding:**				
3. A1	List the basics of network security requirements and services	1	C,f	1	C,S
4. A2	List the concept of security policy	1,2,3,5	f	1	S
A3	List the concepts Security Prevention, Detection and Recovery	3,6	C,f	1	S,C

5. B	**Intellectual skills:**				
6. B1	State the basic requirements and policies to design, implement and evaluate a security system	1,2	C,f	2	C,S
7. B2	Ability to distinguish between NW protocols	1,5	B,c,f	2	C,S
8. C	**Subject specific skills:**				
9. C1	Use cyberoam firewall security software training	2.3	e	3	C
10. D	**Transferable skills:**				
11. D1	Applying the delivered ciphering techniques	3,4,5	a	4	K
12. D2	Design and implement a fully secured network design between client and server	2,3,4	B,c,f	4	S,C

***Bloom Taxonomy Levels**

Level #	1	2	3	4	5	6
Level Name	Knowledge	Comprehension	Application	Analysis	Evaluation	Synthesis

**** Descriptor (National Qualification Framework Descriptors): K : Knowledge, S: Skill, C: Competency.**

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the (_____) program will demonstrate:	Descriptors**		
	K	S	C

a.	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	√		
b.	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline		√	
c.	Communicate effectively in a variety of professional contexts			√
d.	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.			√
e.	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.			√
f.	Apply security principles and practices to maintain operations in the presence of risks and threats. [CY]		√	
g.				
h.				

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

Weekly Schedule *(please choose the type of teaching)*

■ **Face to Face**

□ **Hybrid** *(**2 Lectures** Face – To - Face **+1 Lecture** Asynchronous)*

□ **Hybrid (***1* ***Lectures*** *Face – To - Face* ***+1 Lecture*** *Asynchronous)*

□ **Online** *(**2 Lectures** Synchronous **+1 lecture Asynchronous**)*

Topic	Weeks	Achieved ILOs	Evaluation Methods	Reference	**DS
Introduction to Network security	1	1,2	Examples	Slides	K
Security Attacks & Threats	2	1,2	Assignment + quiz	Slides	K
Malicious software	2,3	2,4,6	Assignment + quiz	Slides	C
Web security	4,5	1, 4	Assignment + quiz	Slides	C
Firewalls	6,7	1, 5	Assignment	Slides	S
Email Security	8,9	1, 2,4	Assignment + quiz	Slides	S
IP security	10,11	1,4	quiz	Slides	S
Intruders	12	1,2,3,5	Written Exam	Slides	S
Wireless security	13	3,4,	Written Exam	Slides	K

** **DS (Descriptors) - K: Knowledge, S: Skills, C: Competency**

Teaching Methods and Assignments:

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

- Interactive videos
- Practice Labs
- Discussion Forums
- Quizzes
- Other Interactive online activities
- Reports

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) **30%**
- Midterm **20%**
- Final Exam **50%**

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

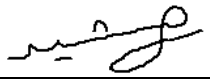
Required equipment:

- **PC / Laptop with webcam and mic**
- **Internet Connection**
- **Access to the IU E-Learning Platform at: https://elearn.iu.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	**Dr. Shadi Masadeh**	**Completed Date**	**19 / 10 / 2021**
		Signature	

Received by (Department Head)	**Dr . Hasan Kanaker**	**Received Date**	/ /
		Signature	