Future Academy
Higher Future Institute for Specialized Technological Studies

Course Specification

1- Course information:

Course Code:	CSC432
Course Title:	Information Security
Year/level	4th
Academic Programs	Computer Science Program (B.Sc.)
Contact hours/ week	(Theoretical =2hrs, Practical=2hrs), Total=4hrs

2- Course aims:

State the basic concepts of information security, including CIA, security policies, security models, and security mechanisms. Explain concepts related to cryptography, including plain-text, cipher-text, the crypto-analysis, symmetric cryptography, asymmetric cryptography, digital signature, message authentication code, hash functions. Explain some of the encryption algorithms.

3- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding:

On successful completion of this course, the student should be able to:
a.1 Recognize the fundamental ideas, and theories pertaining to information security, and its applications related to the study program.
a.2 Understand the methods, procedures, and tools used in information security.
a.3 Recognize the requirements and criteria that apply to information security problems,
a.4 Define the needs and real-world practical constraints of information security

b- Intellectual skills:

On completing this course, the student should be able to:
b.1 Realize and evaluate the ideas, principles, theories, and methods
b.2 Make decisions that take into account the environmental impact, safety, quality, dependability, and balance of costs and benefits.
b.3 Compare between different algorithms

c- Professional and practical skills:

At the end of this course, the student will be able to:

c.1 Apply your thoughts thorough understanding of information security to projects and the use of it to solve real-world issues.

c.2 Use technological repositories, internet resources, and library-based materials to acquire a variety of basic skills.

 c.3 Communicate effectively in a variety of professional contexts through verbal, written, and visual methods.

d- General and transferable skills:

On successful completion of this course, the student should be able to:

d.1 Demonstrate abilities in time management, teamwork, group collaboration, and organizing.

d.2 Communicate effectively with others.

d.3 Apply communication skills techniques in Presentations and discussion.

d.4 Work with a teamwork.

4- Course contents

Topics/units	Number of hours		ILO's
	Lecture hours	**Practical hours**	
Overview of Information Security	2	2	a1, a4, b1,c1, c3, d1
Basic concepts	2	2	a1,a2, b1, c1-c3, d1-d4
Some types of attacks	2	2	a1, a3, b1, b2, c1-c3, d1-d4
Traditional Encryption algorithms	4	4	a2, a3, b2, b3, c1-c3, d1-d4
DES algorithm	2	2	a2, a4, b3, c1,c2, d1-d4
Diffie-Hellman algorithm	2	2	a2, a4, b3, c1, c2, d1-d4
Elgamal algorithm	2	2	a2, a4, b3, c3, d1-d4
Hash Functions	2	2	a2, a3, b1, b2, b3, c3, d1-d4
MAC and Digital signature	4	4	a2, a3, a4, b1, b2, c1-c3, d1-d4
VPN	2	2	a2, a4, b1, b2, c1-c3, d1-d4

5- Teaching and learning methods

Methods	a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2	d3	d4
Lectures	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Practical sections	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Self-learning														
Assays and reviews	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Discussion groups	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Brainstorming														
Blended-learning														
E-learning														

6- Teaching and learning methods for Low-achieving students

- Extra teaching hours for those who need help
- More quizzes to assess their ability for understanding the course
- Encourage the team work for those students with other advanced ones to increase their participation and understanding

7- Student assessment

Assessment method	Time	Grade weight (%)	ILOs
Written exam		60	a1-a4, b1-b3, c1-c3
Practical exam			
Oral exam		10	a1-a4, b1-b3, c1-c3
Mid-term exam		15	a1-a4, b1-b3, c1-c3
Others		15	a1-a4, b1-b3, c1-c3,d1-d4

8- List of references

8.1. Student notebooks:

- Comprehensive instructor notes ("PowerPoint slides") are available on the course web page ("Google Classroom")

8.2. Essential textbooks:

- *Computer Networks, by Andrew S. Tanenbaum. David J. Wetherall,2011, 5th Edition*

Cryptography and Network Security: Principles and Practice, WilliamStallings 6th Edition

Recommended textbooks:

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8.4. Journals, Periodical and Reports ……..etc.

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8.5. Websites

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Course Coordinator: *Dr. Rania Salama*
Head of department: *Prof. Dr. Yasser F. Ramadan*
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