جامعة المجمعة
Majmaah University

Course Specifications

Institution:	Majmaah University
Academic Department :	Computer Science and Information
Programme :	Computer Science and Information
Course :	Network Security
Course Coordinator :	Dr Hassan Aly
Programme Coordinator :	Assoc. Prof. Y. Azzam
Course Specification Approved Date :	22/ 12 / 1435 H

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1 - Course title :	**Network Security**	Course Code:	**(CSI-432)**
2. Credit hours :	3 **(2 lecture + 2 lab)**		
3 - Program(s) in which the course is offered:	Computer Science and Information		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	**Dr Hassan Aly**		
6 - Level/year at which this course is offered :	**Elective**		

7 - Pre-requisites for this course (if any) :

- **Advanced Computer Networks (CSI 431)**

8 - Co-requisites for this course (if any) :

- **N/A**

9 - Location if not on main campus :

College of Science at AzZulfi

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	√	What percentage?	**80 %**
B - Blended (traditional and online)	√	What percentage?	**10 %**
D - e-learning	√	What percentage?	**10 %**
E - Correspondence		What percentage?	**……. %**
F - Other		What percentage?	**……. %**

Comments :

……

B Objectives

What is the main purpose for this course?

This course provides an introduction to the field of network security. Specific topics to be examined include security attacks, mechanisms, and services, network security, access security models, network security practice, Email security, IP security , web security, Intrusion detection , prevention systems , firewalls and virtual private networks , cellular and wireless network security.

This module aims :

1. To introduce students with the importance of security for computer systems.
2. To describe the security goals and the services of security system.
3. To explain available methods of defense.
4. To distinguish among Transport-Levels Security such as, Web Security Issues, Secure Sockets Layer (SSL) and Transport Layer Security (TLS).
5. To understand Wireless Network Security and explains the general idea of, IEEE 802.11 Wireless LAN Overview, IEEE 802.11i Wireless LAN Security, Wireless Application, Protocol Overview, Wireless Transport Layer Security and WAP End-to-End Security.

Briefly describe any plans for developing and improving the course that are being implemented :

1. Using group discussion.
2. Updating the materials of the course to cover the new topics of the field.
3. Increasing the ability of the students to implement the algorithms that are presented in the course.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
1. Introduction The importance of network security.	1	4
2. Key Distribution and User Authentication • Symmetric Key Distribution Using Symmetric Encryption • Kerberos • Key Distribution Using Asymmetric Encryption • X.509 Certificates • Public Key Infrastructure • Federated Identity Management	3	12
3. Transport-Level Security • Web Security Issues • Secure Sockets Layer (SSL) • Transport Layer Security (TLS) • HTTPS • Secure Shell (SSH)	3	12
4. Wireless Network Security • IEEE 802.11 Wireless LAN Overview • IEEE 802.11i Wireless LAN Security • Wireless Application Protocol Overview • Wireless Transport Layer Security • WAP End-to-End Security	3	12
5. IP Security • IP Security Overview • IP Security Policy • Encapsulating Security Payload • Combining Security Associations • Internet Key Exchange • Cryptographic Suites	3	12

6. Email Security • PGP • S/MIME • Domain Keys Identifications Mail	2	8

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	-	30	-	-	60
Credit	30	-	15	-	-	45

3. Additional private study/learning hours expected for students per week.

5 **Hours**

The private self-study of the attending student is crucial for this course. It includes:

- reading carefully the topics in the textbook or reference book,
- implementing security algorithms using C++ ,
- browsing the websites that concerned with the course,
- solving the exercises that are assigned in each chapter,
- discussing the course topics with the instructor in his office hours,

The total workload of the student in this course is then: 60 + 5 x 15 = 135 work hours.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Demonstrate knowledge and understanding of essential facts, concepts, theories and principles of secure networking systems, and its underpinning science and mathematics;	Lectures. Lab demonstrations. Case studies. Individual presentations.	Written Exam Homework assignments Lab assignments Class Activities Quizzes
1.2	Asses the threats, vulnerabilities, and risks to a computer network.		
1.3	Identify the standards of security protocols for Emails, web security, and IP security.		
2.0	**Cognitive Skills**		
2.1	Demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs in secure computer network systems;	Lectures. Lab demonstrations. Case studies. Individual presentations. Brainstorming.	Written Exam Homework assignments Lab assignments Class Activities Quizzes Observations
2.2	Apply relevant analytical and modeling techniques for specification and design of security based systems.		
3.0	**Interpersonal Skills & Responsibility**		
3.1	Set up, test and administer security systems for effective use;	Small group discussions. Whole group discussions. Brainstorming. Presentations.	Written Exam Homework assignments Lab assignments Class Activities Quizzes
3.2	Develop and implement a security plan as it relates to the network components of an organization		
4.0	**Communication, Information Technology, Numerical**		
4.1	Communicate ideas effectively in written form	Small group discussions. Whole group discussions. Brainstorming. Presentations.	Observations Homework assignments Lab assignments Class Activities
4.2	Make effective oral presentations, both formally and informally		
5.0	**Psychomotor**		
5.1	**N/A**		

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	First written mid-term exam	6	15%
2	Second written mid-term exam	12	15%
3	Presentation, class activities, and group discussion	Every week	10%
4	Homework assignments	After each chapter	10%
5	Implementation of presented protocols	Every two weeks	10%
6	Final written exam	16	40%
7	Total		100%

D. Student Academic Counseling and Support

Office hours: Sun: 10-12, Mon. 10-12, Wed. 10-12
Office call: Sun. 12-1 and Wed 12-1

Email: h.haly@mu.edu.sa
Mobile: 0538231332

E. Learning Resources

1. List Required Textbooks :

- W. Stallings, Network Security Essentials Applications and Standards, Prentice Hall, fifth Edition. 2013.

2. List Essential References Materials :

- Douglas Jacobson, Introduction to Network Security, Taylor & Francis, 2008.
- W. Stallings, Cryptography and Network Security: Principles and Practice, Prentice Hall, Six Edition. 2013.

3. List Recommended Textbooks and Reference Material :

- **Network Security.**

4. List Electronic Materials :

www.iacr.org

5. Other learning material :

- **N/A**

F. Facilities Required

1. Accommodation

- Classrooms and Labs as that available at college of science at Az-Zulfi are enough.

2. Computing resources

- Smart Board

3. Other resources

- N/A

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- Questionnaires (course evaluation) achieved by the students and it is electronically organized by the university.
- Student-faculty management meetings.

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :

- Discussion within the staff members teaching the course.
- Departmental internal review of the course.

3 Processes for Improvement of Teaching :

- Periodical departmental revision of methods of teaching.
- Monitoring of teaching activates by senior faculty members.
- Training course.

4. Processes for Verifying Standards of Student Achievement

- Reviewing the final exam questions and a sample of the answers of the students by others.
- Visiting the other institutions that introduce the same course one time per semester.
- Watching the videos of other courses by international institutions.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Course evaluation

- Exam evaluation
- Improvement plan

Course Specification Approved
Department Official Meeting No (6) Date 22 / 12 / 1435 *H*

Course's Coordinator		Department Head	
Name :	Assoc. Prof. H. Aly.	***Name :***	Assoc. Prof. Y. Azzam.
Signature :	.....	***Signature :***	.....
Date :	22/ 12 / 1435 *H*	***Date :***	22/ 12 / 1435 *H*