



Department of Computer & Networks
Paitaxt private Institute

Network Security

Course Book

Second Year- First Semester

Lecturer

Brwa Khalil Abdullah

Academic Year: 2018/2019

Course Title: Network Security.
Credits: 1 Theoretical + 2 Practical hours.

Department of Computer and Networks
Lecturer in Charge: Brwa Khalil Abdullah

1. Course name	Network Security
2. Lecturer in charge	Brwa Khalil Abdullah
3. Department/ College	Computer and Networks Department.
4. Contact	
5. Time (in hours) /week	1 theoretical + 2 Practical weekly hours.
6. Office hours	
7. Course code	
8. Teacher's academic profile	Lecturer Assist.
9. Keywords	OSI Model, Protocols, Security, Attacks, Passwords, Firewall, IDS, VPNs.
10. Course overview:	<p>This course aims to introduce the students to secure networking. It will introduce basic and some advanced concepts in security, and their implementation in networks.</p> <p>In this course students will also learn how to analyze and assess security of network installations in different setups.</p>
11. Course objective:	<p>The objectives behind giving this course can be listed as below:</p> <ol style="list-style-type: none">1. Introduce basic and some advanced concepts in security, and their implementation in networks.2. Analyze and assess security of network installations in different setups.3. Identify some of the factors driving the need for network security.4. Identify and classify particular examples of attacks.5. Identify physical points of vulnerability in simple networks.

12. Student's obligation

In this course, attendance is one of the mandatory tasks for students. Also, Assignments play an important role in keeping track of comprehending all the skills and problem-solving methods for topics. Exams are the true criterion for measuring the depth of students' understanding to the given material.

13. Forms of teaching

This course consist of lectures, tutorial, and laboratory classes. The lectures will devote to the presentation of new material. The tutorial reinforces the concepts via exercise, and show the material from a different perspective. The laboratory sessions will be used for practical exercises illustrating the material and providing hands-on experience.

14. Assessment scheme

The 100 marks will be divided into:

Mid-term 1 Exam	20 %
Mid-term 2 Exam	20%
Classroom Participation and Attendance	5%
Quiz	5%
Final Exam	50 %
Total	100%

15. Student learning outcome:

By the end of the course, students should be able to:

1. Provide security assessment of networks.
2. Explain common network vulnerabilities and attacks
3. Use the basic concepts of secure communication via insecure networks to design secure architectures.
4. Explain the requirements of real-time communication security and issues related to the security of web services.
5. Explain the requirements of non-real time security (email security) and ways to provide privacy, source authentication, and message integrity.
6. Implement security management in networks.
7. Defense mechanisms against network attacks.
8. Identify the possible threats to each mechanism and ways to protect against these threats.

16. Course Reading List and References:

1. [Corporate Computer Security \(3rd Edition\) - File Upload.](#)
2. [TCP/IP Protocol Suite \(4th Edition\) .](#)
3. [Network Security Tutorial - Training - apnic.](#)
4. [Download Network Security Tutorial \(PDF Version\) - Tutorialspoint](#)

17. The Topics:

**Lecturer's
name**

Theoretical + Practical

18. Theoretical Topics (If there is any)

Brwa Khalil
Abdullah

Week	Lecture No	Topics
	1	Introduction to the Networks <ul style="list-style-type: none">• What is a network• Types of Network• Network devices
	2	Network Security Fundamentals <ul style="list-style-type: none">• Why We Need Security• Definitions and Concepts• Risk vs. Vulnerability
	3	Network Security Basics <ul style="list-style-type: none">• What is network Security?• Network Security Goal• Network Security Objectives• What do we need to control• Network Security Principles
	4	Vulnerabilities, Threats, Attacks

	5	The OSI Model Layers in the OSI	
	6	TCP/IP Protocol Suite Layers in the TCP/IP Protocol	
	7	IPv4	
	8	Security of TCP/IP protocol	
	9	E-mail Security	
	10	Web Page Security	
	11	Layard security and attack mitigations Attacks in Different Layers	
	12	Network Layer Security	
	13	Link-Layer Security	
	14	Transport Layer Security	
	15	Application Layer Security	
	16	Security Technologies and Mechanisms	
	17	Firewalls	
	18	Intrusion Detection System	
	19	Virtual Private Network	
	20	Reviewing	
	Final Examination		

19. Extra notes:

It will be our pleasure to respond to any question or query from the students during our office hours so we can together reach the required level of understanding for students in order to be well prepared for the examinations.

20. Peer review

This course book had been reviewed and it can be considered as a suitable course book for the subject of Network Security due to its well organized topics, good covering material, and accurate timing consideration.

Lecturer

Brwa Khalil Abdullah