The University of Jordan
College of Engineering & Technology
Department of Computer Engineering
Fall Term – A.Y. 2014-2015

Course:	Advanced Networks Lab – 0907529 (1 Cr. – Core Course)
Catalog Data:	A set of experiments to give the student the practical experience on the following components: wireless networks and networks security, installing wireless adapters, building adhoc wireless networks, configuring access points, configuring wireless bridges, basic wireless networks security, advanced router security, basic PIX firewall security, basic VPN configuration.
Prerequisites by Course:	CPE0907528 Computer Networks lab
Prerequisites by Topic:	The student is expected to have a good background in wireless networks and network security principles. Also, basic knowledge of VLANs and spanning tree protocol.
Textbook:	Lab theory sheets provided by instructors.
References:	• Computer Networking, A top-Down Approach, 4th Ed. James Kurose and Keith Ross, Addison Wesley 2008. • Cisco website (www.cisco.com) for technical data sheets of devices.
Course Website:	http://networklab-ju.ucoz.com/
Schedule Duration:	16 Weeks, 10 labs, 3 hour each (including exams).
Minimum Student Material:	Text book, class handouts, some instructor keynotes, calculator and access to a personal computer and internet.
Minimum College Facilities:	Lab with whiteboard and projection display facilities, library, and computational facilities. Networking switches, routers, connecting cables, simulation software, high efficiency desktop computers, and network testing equipment.
Course Objectives:	1. Introduce the students to computer wireless networks equipment and tools. 2. Introduce the students to network security mechanisms used in wirless and wired networks. 3. Introduce the students to the use of spanning tree protocols for switching and virtual LANs.
Course Outcomes and Relation to ABET Program Outcomes:	Upon successful completion of this course, a student should be able to: 1. Design and build a wireless LAN. [b] 2. Design and implement a network security policy using access lists. [b] 3. Use VLANs in a switched network environment. [k] 4. Troubleshoot wireless LANs and VLANs. [k] 5. Troubleshoot security policies such as access lists. [k]
Course Topics:	1. Experiments Description 2. Lab Preparations 3. Syllabus Distribution & lab Introduction 4. Introduction to Wireless LANs

5. Access Points
6. WLAN Security
7. Access Control Lists (ACL)
8. Network Address Translation (NAT)
9. Virtual LANs (VLANs)
10. VLAN Trunking Protocol (VTP)
11. Spanning Tree Protocol (STP)

Computer Usage: Extensive use of desktop computers for network device configuration and simulation.

Attendance: Class attendance will be taken every lab and the university's polices will be enforced in this regard.

Assessments: In-lab performance, quizzes and exams.

Grading policy:

In-lab performance	15%
Quizzes	15%
Midterm Exam	30%
Final Exam	40%

Instructors:

Class Time and Location:

Program Outcomes (PO)

a	An ability to apply knowledge of mathematics, science, and engineering
b	An ability to design and conduct experiment as well as to analyze and interpret data.
c	An ability to design a system, component, or process to meet desired needs , within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d	An ability to function on multidisciplinary teams
e	An ability to identify, formulate, and solve engineering problems
f	An understanding of professional and ethical responsibility.
g	An ability to communicate effectively
h	The broad education necessary to understand the impact of engineering solutions in a gloabal, economic, environmental, and societal context
i	A recognition of the need for, and an ability to engage in life-long learning
j	Knowledge of contemporary issues
k	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Last Updated: SEPTEMBER 21, 2014