



Course:	Advanced Networks Lab – 0907529 (1 Cr. – Core Course)
Catalog Data:	A set of experiments to give the student practical experience on the following topics: wireless networks, building wireless networks, configuring access points, configuring wireless bridges, basic wireless networks security, advanced router security, basic PIX firewall security, access control security, virtual local area networks (VLANs), Intra-VLAN routing, inter-VLAN routing, switch configuration, switch spanning tree protocol, dynamic host configuration protocol (DHCP), switch security.
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:	<ul style="list-style-type: none">• Computer Networking, A top-Down Approach, 8th Ed. James Kurose and Keith Ross, Addison Wesley 2021.• Cisco website (www.cisco.com) for technical data sheets of devices.
Course Website:	Files will be posted on Microsoft teams
Schedule Duration:	12 Weeks, 9 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:	<ol style="list-style-type: none">1. Introduce the students to computer wireless networks equipment and tools.2. Introduce the students to network security mechanisms used in wireless 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: <ol style="list-style-type: none">1. Design and build a wireless LAN.2. Design and implement a network security policy using access lists.3. Use VLANs and a group of related protocols that are used in the switched network environment.4. Troubleshoot wireless LANs, VLANs and security policies such as access lists.

Course Topics:

1. Virtual LANs (VLANs)
2. Inter VLAN routing
3. Scaling VLANs (VTP, DTP and STP)
4. Wireless Networks
5. Port Security on switches
6. Access Control List (ACL)
7. Network Address Translation (NAT)
8. Dynamic Host Configuration Protocol (DHCP)
9. Remote Access Protocols and Virtual Private Networks (VPN)

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 policies will be enforced in this regard.

Assessments:

In-lab performance, quizzes and exams.

Grading policy:

In-lab	10%
One theoretical quiz	10%
One practical quiz	10%
Practical midterm Exam	30%
Final Exam	40%

Instructors:

Eng. Rawan Aljamal (coordinator) r.aljamal@ju.edu.jo
 Eng. Batool batool_awawdeh1993@yahoo.com

Class Time and Location:

Section 1: Sunday	1:30 – 4:30 (Embedded systems lab)
Section 2: Thursday	1:30 – 4:30 (Computer Networks lab)
Section 3: Tuesday	1:30 – 4:30 (Embedded systems lab)

Program Outcomes (PO)

1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3	an ability to communicate effectively with a range of audiences
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Last Updated:

FEB 26, 2023