

## **EC521- Communication Networks**

### **CREDIT HOURS**

3 Hours

### **CONTACT HOURS (Hours/week)**

Lecture: 2; Tutorial: 2

### **COURSE COORDINATOR**

Dr. Ashraf Mamdouh

### **TEXT BOOK**

B. Forouzan, "Data Communications and Networking ", 4<sup>th</sup> ed. New York: McGraw-Hill, 2007.

### **COURSE DESCRIPTION**

Basic Concepts of a Network - Physical Layer - Internet Protocol and subnetting - Network address translation protocol and IPv6 - Routing algorithms - Routing standards - Local Area Network topologies - Wireless LANs - Networking and Internetworking Devices - VOIP - Transport Layer - New trends in networking

### **PREREQUISITE:**

EC 422

### **RELATION OF COURSE TO PROGRAM**

Required

### **COURSE INSTRUCTION OUTCOMES**

The student will be able to:

- Identify major applications of networking.
- Describe the internetworking equipment.
- Learn about data communication protocols.

### **TOPICS COVERED**

- Basic Concepts of a Network
- Physical Layer
- Internet Protocol and subnetting
- Network address translation protocol and IPv6
- Routing algorithms
- Routing standards
- Local Area Network topologies
- Wireless LANs
- Networking and Internetworking Devices
- VOIP
- Transport Layer
- New trends in networking

**CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF CRITERION 5:**

<b>Professional component Content</b>			
<b>Math and Basic Sciences</b>	<b>Engineering Topics</b>	<b>General Education</b>	<b>Other</b>
	✓		

**RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:**

<b>Student Outcomes</b>		<b>Course aspects</b>
A	An ability to apply knowledge of mathematics, science, and engineering	
B	An ability to design and conduct experiments, analyze and interpret data.	
C	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health, and safety, manufacturability, and sustainability	c <sub>1</sub> c <sub>3</sub>
D	An ability to function on multi-disciplinary teams.	
E	An ability to identify, formulate, and solve engineering problems	e <sub>2</sub> e <sub>3</sub>
F	An understanding of professional and ethical responsibility	
G	An ability to communicate effectively	g <sub>3</sub>
H	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and social content	h <sub>1</sub>
I	A recognition of the need for, and an ability to engage in life-long learning.	i <sub>1</sub>
J	A knowledge of contemporary issues within and outside the electrical engineering profession.	j <sub>1</sub>
k	An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.	k