Al-Imam Muhammad Ibn Saud Islamic University
College of Computer and Information Sciences

Course Syllabus [Computer Networks]

Course Code	Course Name.	Credit Hours	Lec.	Lab	Prerequisites
IT340	Computer Networks	4	4	0	IT360

Course Description:

This course is to select, design, deploy, integrate, and administer network and communication infrastructures in an organization. It includes fundamental concepts in the design and implementation of computer networks and their protocols. Also, it includes layered network architectures, applications, transport, congestion, routing, data link protocols, local area networks. A top-down approach will be emphasized during the course starting from the application layer down to the data link layer.

Course Topics:

Week	Tentative Schedule
Week 01	Introduction and overview of the Internet: Protocol layers and service models.
Week 02	OSI and Internet protocols. Concepts of delay and Quality of Service (QoS).
Week 03	Application layer: Application layer protocols and client-server model.
Week 04	Sockets programming: Sockets programming in Java (client-server and web server programs). **+ assignment**
Week 05	Transport layer: Reliable data transfer. Stop-and-Go evaluation.
Week 06	TCP and UDP semantics and syntax. TCP RTT estimation. Principles of congestion control. [First Exam]
Week 07	IP semantics and syntax. IP Subnetting. + **Mid-term exam**
Week 08	Link layer: Error detection. Multiple access protocols.
Week 09	IEEE 802.3 Ethernet. Switching and bridging.
Week 10	Wireless and mobile networks: IEEE 802.11 WiFi, Bluetooth, and cellular networks [Second Exam]
Week 11	Security in networks: Threats and attacks. Symmetric and public key cryptography. Authentication. Firewalls. VPNs.
Week 12	Network management including SNMP. + **Mid-term exam**
Week 13	Network troubleshooting
Week 14	
Week 15	
Week 16	**[Final Exam]**

Textbook and Resources:
Main Textbook:

Computer Networking: A Top-Down Approach Featuring the Internet, Ross and Kurose, 6th Edition, Addison-Wesley, 2012.

Computer Networks, Andrew S. Tanenbaum, 5th edition, Prentice Hall, 2010.

Computer Networks: Principles, Technologies, and protocols for Network Design, Olifer and Olifer, John Wiley & Sons, 2006.

Other Resources

Computer Networks and Internets with Internet Applications, Comer, Pearson Prentice Hall, 2008.

Project and Assignments

At least one project will be assigned to the students. This project will involve the usage of decision support software for solving some real-life commercial/business task.

Grade Distribution

Quizzes	10 %
Midterm Exam1	20 %
Assignments	10 %
Midterm Exam2	20 %
Final Exam	40 %