Syrian Arab Republic		الجمهورية العربية السورية
Ministry of Higher Education		وزارة التعليــم العالـــــي
Syrian Virtual University		الجامعة الافتراضية السورية

Course Description: Computer Networks

1- Basic Information:

Course Name	**Computer networks**
Course ID	**CN**
Contact Hours (Registered Sessions)	**16**
Contact Hours (Synchronized Sessions)	**16**
Mid Term Exam	**-**
Exam	**75 min**
Registered Sessions Work Load	**16**
Synchronized Session Work Load	**16**
Credit Hours	**4**

2- Pre-Requisites:

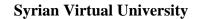| Course	ID
Data Communication	TS

3- Course General Objectives:

The course targets data communication networks. To attend this objective, we analyze the essential components of networks, study how this components are built together, discuss the classification and characteristics of networks. TCP/IP and OSI models are then discussed so that the student will have a reference and basic understanding of the building blocks of any network. We will study and discuss also Local Area Networks (LANs) with emphasis on Ethernet flavors and protocols. The last section of the course is devoted to the interconnection of networks, IP addressing and routing protocols. If time permits, TCP/IP protocols could be briefly introduced and worked on.

4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	Define the principles of data communication networks and classify the different kinds of networks and topolgies
ILO2	Understand TCP/IP and OSI models and notion of layering
ILO3	Discuss error detection and correction methods
ILO4	Understand sliding window protocols and analyze their performance and reliability
ILO5	Study and practice LANs, VLANs, and Ethernet and understand medium access control
ILO6	Identify network connection and interconnection devices
ILO7	Explain and apply IP addressing schemes
ILO8	Summarize and list the common routing protocols
IL09	Describe TCP/IP protocols

5- **Course Syllabus** (18 hours of total synchronized sessions;18 hours of total Recorded Sessions)

- **RS:** Recorded Sessions; **SS:** Synchronized Sessions;

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1	General introduction of computer networks	2	2	√ Exercises ☐ Assignments ☐ Seminars ☐ Projects ☐ Practices ☐ Others	
ILO2	The OSI reference model	2	2	√ Exercises ☐ Assignments ☐ Seminars ☐ Projects ☐ Practices ☐ Others	

ILO3	Error detection and correction in data-link layer2	2		√ Exercises √ Assignments ☐ Seminars ☐ Projects ☐ Practices ☐ Others	
ILO4	Data-l2ink control	2		√ Exercises ☐ Assignments ☐ Seminars ☐ Projects ☐ Practices ☐ Others	
ILO5	Local Area networks (LANs)	2		☐ Exercises √ Assignments ☐ Seminars ☐ Projects √ Practices ☐ Others	
ILO6	Network interconnection	2	2	√ Exercises ☐ Assignments ☐ Seminars ☐ Projects √ Practices ☐ Others	
ILO7	IP version 4 addressing	2		√ Exercises √ Assignments ☐ Seminars ☐ Projects √ Practices ☐ Others	
ILO8	Forwarding and Routing	2		☐ Exercises √ Assignments ☐ Seminars ☐ Projects √ Practices ☐ Others	
IL09	TCP/IP basics	2		√ Exercises ☐ Assignments	

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			☐ Seminars	
			☐ Projects	
			√ Practices	
			☐ Others	

6- Assessment Criteria (Related to ILOs)

ISC	Interactive Synchronized Collaboration	Ex	Exams		Rpt	Reports
PF2F	Presentations and Face-to-Face Assessments	PW	Practice Work			

ILO Code	ILO	Intended Results	Assessment Type				
			ISC	PW	Ex	PF2F	Rpt
ILO1	Define the principles of data communication networks and classify the different kinds of networks and topolgies		√		√		
ILO2	Understand TCP/IP and OSI models and notion of layering		√	√	√		
ILO3	Discuss error detection and correction methods		√		√		
ILO4	Understand sliding window protocols and analyze their performance and reliability		√		√		
ILO5	Study and practice LANs, VLANs, and Ethernet and understand medium access control		√	√	√		
ILO6	Identify network connection and interconnection devices		√	√	√		
ILO7	Explain and apply IP addressing schemes		√	√	√		
ILO8	Summarize and list the common		√	√	√		

	routing protocols						
IL09	Describe TCP/IP protocols		√		√		

7-Practice Tools:

Tool Name	Description
Command Line instructions	Tools available in operating systems for testing and diagnosis such as ping, ipconfig and netstat
Wireshark	Protocol analyzer for capturing packets and conducting analysis per protocol or per layer
Packet Tracer	Network simulation program developed by Cisco. It helps student designing LAN and WAN and adding terminals such as servers, printers, or PCs and then defining IP addresses so that the network can be tested

8-Main References

1. Andrew S. Tanenbaum – Computer Networks, ISBN: 0-13066102-3 (Reference)
2. William Stallings – Data and Computer Communications, 8th edition, Mc-Graw-Hill, 2007
3. Behrouz A. Forouzan – Data Communications and Networking, ISBN: 0-07-118160-1

9-Additional References

1. Jerry FitzGerald and Alan Dennis – Business data communication and networking, Tenth Edition, Wiley publisher, 2009 (reference).