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

Course Definition:

1- Basic Information:

Course Name	Introduction to networks
Course ID	INT101
Contact Hours (Registered Sessions)	18
Contact Hours (Synchronized Sessions)	18
Mid Term Exam	-
Exam	75 min
Registered Sessions Work Load	36
Synchronized Session Work Load	18
Credit Hours	6

2- Pre-Requisites:
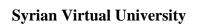
Course	ID
ICDL	GBS101

3- Course General Objectives:

This course covers the computer networks topics including the OSI reference model, services and standardization. In addition, the TCP / IP model including the layers associated with these two models.

This course aims to:
• Introducing students to computer networks.
• Enable students to classify networks of different types and to know the advantages and disadvantages of each of them.
• Enabling students to become familiar with the network structures, standards and standard models.
• Introducing students to the physical and logical techniques, the structure of local networks and its services and devices.
• Define of protocols and services provided by standard network modeling layers
• Provide students with basic skills in logical addressing and network subnetting.
• Introduce students to network routing mechanisms
• Developeing the student's ability to acquire self-knowledge in the field of networking.
• Contribute to prepare the student for entry into the labor market in relation to network applications.

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4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	**Acquire theoretical knowledge of the basics related to computer networks and understand related techniques** a: Theoretical knowledge of systems related to computer networks and their uses. b: Knowledge of networks' structures, classifications and assimilation of related concepts. c: Acquire knowledge to problem solving associated with computer networks.
ILO2	**Gain the ability to analyze technical problems related to networking** a: Ability to identify, define and propose solutions to various technical problems related to networks. b: Ability to analyze a problem, identify it, and define the solution requirements associated with solving this problem. c: Ability to test and evaluate the performance of the equipment on which networks depend and the ability to measure the relevant parameters.
ILO3	**Acquire practical skills related to the application of computer network** a: Acquire practical skills related to the application of computer network technologies and services in specific areas b: Make decisions on appropriate measures to design and improve the effectiveness of networks through the optimal use of their various technologies and components available in the workplace. c: The ability to design and implement projects directly related to the use of computer networks in specific areas.
ILO4	**The ability of continuous learning, self-development and to work effectively within the team** a: The ability to systematically analyze a problem and implement individual and group-based effective solutions b: Effective communication with peers, managers and the ability to participate in a team. c: Manage resources and time effectively. d: The ability to continuously learn and develop skills and knowledge through self-learning.

5- Course Syllabus (18 hours of total synchronized sessions)

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

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1(a,b) ILO4(a)	**An introduction** • Introduction to computer networks and the concept of class reference model, what are the OSI model networks, TCP / IP	1.5	1.5	assignments	Exercises

	model. • Network benefits. • Basic blocks of computer networks. • Computer network types and classifications. • Network operating systems.				
ILO1(b,c) ILO2(a) ILO3(a,b) ILO4(a,b)	**Physical layer** • General classification of the transmission media • STP,UTP, coaxial cables and fiber optic cables, •Terrestrial micro-waves, satellites, infrared, Bluetooth. • Ethernet networks and protocols • Equipment working within the local network and how to connect them.	3	3	assignments	Exercises
ILO1(a,b) ILO4(a)	**The basics of data transmission** • Signals and their types • Representation of signals in the time and frequency domains. • Signal conversion. • Transmission impairments • Channel concept • Transmission modes • Transmission rate, channel capacity and error rate.	1.5	1.5	assignments	Exercises
ILO1(b,c) ILO2(b,c) ILO3(a,b)	**Network hardware** • Repeater, amplifier, distributor • Bridges, switches • Router, Layer 3 Switches	3	3	assignments	Exercises
ILO1(a) ILO2(a,b) ILO3(b) ILO4(d)	**WAN access technologies** • Telephone modems and cable modems • ATM • xDSL • ISDN	1.5	1.5	assignments	Exercises
ILO1(a,c) ILO2(a,b,c) ILO3(a,b) ILO4(a)	**TCP / IP Suite Protocols** • TCP / IP layers • Features and operation of IP protocol • ICMP, ARP, RARP protocols • Features and operation of TCP and UDP protocol • Port & Sockets concept • Application layer	3	3	assignments	Exercises

ILO1(a,b) ILO4(a)	**IP Addressing:** • Concept and use of the logical addressing. • Classless and classfull addressing. • Network mask. • Subnetting.	3	3	assignments	Exercises
ILO1(b,c) ILO2(a) ILO3(a,b) ILO4(a,b)	**Introduction to routing** • Importance of routing protocols • Types of routing protocols • Routers implementations	1.5	1.5	assignments	Exercises

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	Acquire theoretical knowledge of the basics related to computer networks and understand related techniques.		✓		✓		
ILO2	Gain the ability to analyze technical problems related to networking.		✓	✓	✓		✓
ILO3	Acquire practical skills related to the application of computer network		✓	✓	✓		✓
ILO4	The ability of continuous learning, self-development and to work effectively within the team.		✓	✓	✓		✓

7- Practice Tools:

Tool Name	Description

8- Main References

1- Forouzan, Behrouz A. Data communications and networking - 5th ed - McGraw-HilI, 2013
2- William Stallings, Data and Computer Communications, 10th ed. Pearson, 2014.

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9- Additional References

1- James F. Kurose and Keith W. Ross, Computer Networking; A Top-Down Approach Featuring the Internet, Fifth Edition. Pearson Education, 2010.
2- Larry L. Peterson & Bruce S. Davi, Computer networks : a systems approach– 4th ed. Morgan Kaufmann, 2007.
3- Krzysztof Iniewski, Internet Networks: Wired, Wireless, and Optical Technologies, CRC Press, 2010.