



الجامعة الافتراضية السورية
SYRIAN VIRTUAL UNIVERSITY

Course Definition File

Computer Networks (1)

Information

Technology

Engineering



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1. Basic Information:

Course Name	Computer Networks (1)
Course Code	BNT501
Number of Presentational Sessions*	20
Number of Synchronous Sessions**	12
Number of Shorter Tests***	2
Number of Exams***	1
Theoretical Sessions Work Load (hrs.)	60
Practical Sessions Work Load (hrs.)	30
Credit Hours	6

*Each presentational session comprises both recorded lecture (1.5 hrs.) and interactive learning content (1.5 hrs.).

**Each synchronous session comprises the interactive lecture carried out in real time in a virtual class (1.5 hrs.).

***Each shorter test is 0.5 hr. long. The final exam is 2 hrs. long.

N.B.

Generally, each chapter requires two presentational sessions: one for the recorded content and one for the interactive content (unless the chapter is too long, in which case it may require more sessions (This note applies to synchronous sessions as well, where each chapter requires one synchronous session generally.

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2. Prerequisites courses:

Course	Code
Communication systems	BTS501

3. Course Objectives:

Computer Networks course aims to acquaint the student with the basic and practical concepts of data communication networks and how to deal with them. In addition, it aims to understand the computer reference models and the important protocols used to transfer data, also, it gives the student a complete comprehension of how to design and connect local networks and how to troubleshoot them. Thus, at the end of this course, students will be able to do the following:

1. Design local networks and connect its components.
2. Implement logical addressing and choose the most suitable network addresses.
3. Find the best routing protocol and perform static routing.
4. Troubleshoot local computer networks.

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4. Learning Outcomes (LO):

By the end of this course the learner is expected to:

- Categorizing different transmission media and find the best solution according to the network needs.
- Understand different ways to connect networks together and suggest suitable network nodes according to the situation.
- Design and implement local networks and perform the required testing processes.
- Define network nodes addresses and routing protocols.
- Troubleshoot the network.

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5. Assessment Results:

Chapter Number	Chapter Title	General Objectives	Assessment Type				
			Interactive Content & Recorded Sessions	Applied Activities (Synch. Sessions)	Final Exam*/ Shorter Tests**	Presentations and Interviews***	Reports** *
CH1	Introduction to computer networks	Comprehension – Analytical	√	√	√		
CH2	Reference Models	Comprehension – Analytical Thinking – Tools And Application Hands – On	√	√	√	√	√
CH3	Addressing	Comprehension – Analytical Thinking – Tools And Application Hands – On	√	√	√	√	√
CH4	Subnetting	Comprehension – Analytical Thinking – Tools And Application	√	√	√	√	√

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		Hands – On					
CH5	WAN and Routing	Comprehension – Analytical Thinking – Tools And Application Hands – On	√	√	√	√	√

***The final exam is two hours long and is given at the end of the course.**

****Shorter tests are about 30 minutes long and are given after three or four lectures throughout the semester during synchronous sessions.**

*****Presentations, interviews, and reports are submitted once after each three or four lectures throughout the semester during synchronous sessions.**

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6. Course Syllabus:

Chapter	Subject	Content	Number of Learning Objects	Number of synchronous Learning Objects
CH1	Introduction to computer networks	<ol style="list-style-type: none"> 1. Communication types 2. Network Types 3. Network categories 4. Network nodes 	4	2
CH2	Reference models	<ol style="list-style-type: none"> 1. Standardization importance 2. OSI reference model 3. Physical layer 4. TCP/IP model 5. Encapsulation 	5	2
CH3	Addressing	<ol style="list-style-type: none"> 1. Addressing types and reasons behind them 2. Physical addressing – MAC 3. Logical Addressing – IP 4. Port addressing – Port numbers 	4	2
CH4	Subnetting	<ol style="list-style-type: none"> 1. Classful addressing 2. Traditional subnetting 3. VLSM subnetting 4. Summarization 	4	2

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CH5	WAN and Routing	<ol style="list-style-type: none"> 1. WAN data link protocols 2. Routing protocols 3. ARP 4. ICMP 	4	2
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7. Practical Activity:

- **Tools and Labs:**

Tool Name	Description
Packet Tracer	Simulation tool for different computer networks

- **Practical Activities per Chapters:**

Chapter	Activities Type	Remarks
CH1	<input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Homework <input type="checkbox"/> Webinars <input type="checkbox"/> Project <input type="checkbox"/> Experiment <input type="checkbox"/> Other	Collection of exercises that aim to understand network operation
CH2	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input checked="" type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH3	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input checked="" type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment	

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	<input type="checkbox"/> Other	
CH4	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input checked="" type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	
CH5	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Homework <input checked="" type="checkbox"/> Webinars <input type="checkbox"/> Project <input checked="" type="checkbox"/> Experiment <input type="checkbox"/> Other	

8. References:

1. W. Stallings, "Data and computer communications – third edition," Pearson, 2014
2. T. Lammle, "CCNA Routing and Switching study guide," John Wiley & Sons, 2013
3. B. Sosinsky, "Networking Bible," Wiley Publishing, Inc., 2009
4. Peterson, Larry L., and Bruce S. Davie. Computer networks: a systems approach. Elsevier, 2007.