



## Course Specification

**Course Name:**[Computer Networks-2 ]

**Course Code:**[IT322]

### I. Basic Course Information

Major or minor element of program:[Both Major& Minor]

Department offering the course:[Information Technology Department]

Academic level:[300 Level]

Semester in which course is offered:[Second (Spring) Semester]

Course pre-requisite(s): [Computer Networks-1 (IT 222) ]

Credit Hours:3

Contact Hours Through:

Lecture	Tutorial*	Practical*	Total
2.5	0.0	1.5	4.0

\* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: January 2015

### II. Overall Aims of Course

[The aim of the course is to provide the students with knowledge needed to understand LANs; characteristics, topologies, transmission media, IEEE most famous standards, internetworking. The students should also acquire knowledge & skills necessary to build & configure complex networks. ]

### III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K1,K6,K17,K20 ]	[I8,I11,I18,I19 ]	[P5,P9,P16,P18 ]	[G2,G4,G5 ]



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**IV. Intended Learning Outcomes of Course (ILOs)**

**a. Knowledge and Understanding**

On completing the course, students should be able to:

- K.1 Explain and list LANs/MANs definition, applications, architecture, topologies, & transmission media.
- K.2 List various LLC protocols & MAC protocols.
- K.3 List Wireless LAN requirement, application, & types.
- K.4 Describe features of IEEE LAN/MAN standard; Ethernet, Token ring, FDDI, IEEE 802.11.
- K.5 Recognize internetworking requirements and techniques in LANs/MANs. ]

**b. Intellectual/Cognitive Skills**

On completing the course, students should be able to:

- I.1 Compare between LANs, MANs, & WANs.
- I.2 Categorize LANs/MANs according to topologies, transmission media.
- I.3 Analyze LLC/MAC protocols.
- I.4 Compare between different types of Wireless LANs; IR, micro wave.
- I.5 Categorize IEEE LANs/MANs famous standards.
- I.6 Compare between different types of bridges.
- I.7 Resolve different problems concerning transmission media various LAN, topologies, LAN performance. ]

**c. Practical/Professional Skills**

On completing the course, students should be able to:

- P.1 Perform switch Configuration.
- P.2 Implement VLANs.
- P.3 Apply troubleshooting steps to Switch.
- P.4 Justify connectivity & configuration.
- P.5 Apply skills gained throughout the course to build & configure a complex network. ]

**d. General and Transferable Skills**

On completing the course, students should be able to:

- G.1 Show the ability to identify, understand, and present the quantitative dimensions of a problem in the context of computer networks.
- G.2 Work effectively as a part of a team to apply skills gained throughout the course to build & configure a complex network & to produce reports & presentations.
- G.3 Present their work in a technically written report. ]

**V. Course MatrixContents**

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	[(Lecture)LANs/MANs definition, application & architecture (Lab)Basic Switching Concepts ]	[ 1 ]	[ K1 ]	[ I1 ]	[ P1 ]	[ ]
2-	[(Lecture & Lab)LANs/MANs topologies & transmission media ]	[ 2 ]	[ K1 ]	[ I1, I2 ]	[ P1 ]	[ G3 ]



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3-	[(Lecture)LLC protocols &MAC protocols (Lab) VLAN ]	[ 1 ]	[K2 ]	[I3 ]	[P2 ]	[ ]
4-	[(Lecture)Traditional Ethernet, Fast Ethernet, Gigabit Ethernet (Lab) VTP ]	[ 2 ]	[K4 ]	[I5 ]	[P2 ]	[G1 ]
5-	[(Lecture)Token Ring (Lab) STP ]	[ 1 ]	[K4 ]	[I5 ]	[P2 ]	[G1 ]
6-	(Lecture)FDDI ]	[ 1 ]	[K4 ]	[ ]	[ ]	[ ]
7-	[Wireless LANs: Requirement LAN Performance ]	[ 1 ]	[ ]	[I3, I7 ]	[ ]	[G3 ]
8-	[(Lecture)Wireless LANs: Requirement, Application, types (Lab) Inter-VLAN Routing ]	[ 1 ]	[K3 ]	[I4 ]	[P2 ]	[G1 ]
9-	[(Lecture)IEEE 802.11 Network (Lab) Basic wireless Concepts and Configuration ]	[ 1 ]	[K4 ]	[I5 ]	[ ]	[G1 ]
10-	[(Lecture & Lab)LANs/MANs internetworking ]	[ 2 ]	[K5 ]	[I6 ]	[3,P4,P5 ]	[G2 ]
<b>Net Teaching Weeks</b>		<b>13</b>				

VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours*
1	[LANs/MANs definition, application & architecture ]	[2.5 ]	[2.5 ]	
2	[LANs topologies & transmission media ]	[4 ]	[2.5 ]	[1.5 ]
3	[MANs topologies & transmission media ]	[4 ]	[2.5 ]	[1.5 ]
4	[LLC protocols & MAC protocols ]	[4 ]	[2.5 ]	[1.5 ]
5	[Traditional Ethernet, Fast Ethernet ]	[4 ]	[2.5 ]	[1.5 ]
6	[Gigabit Ethernet ]	[4 ]	[2.5 ]	[1.5 ]
7	<b>Midterm Exam</b>			
8	[Token Ring ]	[4 ]	[2.5 ]	[1.5 ]
9	[FDDI ]	[4 ]	[2.5 ]	[1.5 ]
10	[LAN Performance, Wireless LANs: Requirement ]	[4 ]	[2.5 ]	[1.5 ]
11	[Wireless LANs: Application, types ]	[4 ]	[2.5 ]	[1.5 ]
12	[IEEE 802.11 Network ]	[4 ]	[2.5 ]	[1.5 ]
13	[LANs internetworking ]	[4 ]	[2.5 ]	[1.5 ]
14	[MANs internetworking ]	[4 ]	[2.5 ]	[1.5 ]
15	<b>Final Exam</b>			
<b>Total Teaching Hours</b>		<b>51</b>	<b>33</b>	<b>18</b>

\* No Practical/Tutorial during the first week of the semester



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VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	X	K1:K5	I1: I7		G1
Tutorials					
Computer lab Sessions	X			P1: P5	G1
Practical lab Work	X			P1: P5	G1
Reading Materials	X			P1: P6	G2
Web-site Searches	X				G1,G2
Research & Reporting					
Problem Solving / Problem-based Learning					
Projects					
Independent Work					
Group Work	X				G2
Case Studies					
Presentations	X				G1,G2
Simulation Analysis					
Others (Specify):					

VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	X	K1:K5	I1: I7		G1	20%	7
Final Exam	X	K1:K5	I1:I7		G1	60%	15
Quizzes	X			P1:P5	G1	10%	5,9
Course Work							
Report Writing							
Case Study Analysis							
Oral Presentations							
Practical	X			P1:P6	G2	10%	12
Group Project							
Individual Project							
Others (Specify):							



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### IX. List of References

<b>Essential Text Books</b>	<ul style="list-style-type: none"><li>William Stallings, "Local &amp; Metropolitan Area Networks," Prentice Hall PTR, New Jersey, USA, sixth edition, 2000. ]</li></ul>
<b>Course notes</b>	<ul style="list-style-type: none"><li>None ]</li></ul>
<b>Recommended books</b>	<ul style="list-style-type: none"><li>Behrouz A. Forouzan, "Local Area Networks", McGraw-Hill Professional, 2000.</li><li>Cisco Academy, Semester three, Online curriculum. ]</li></ul>
<b>Periodicals, Web sites, etc ...</b>	<ul style="list-style-type: none"><li>IEEE</li><li>ACM</li><li>Science Direct ]</li></ul>

### X. Facilities required for teaching and learning

<p>List the facilities required</p> <ul style="list-style-type: none"><li>Data Show.</li><li>White Board.</li><li>Network Simulation tool.</li><li>Computer Lab ]</li></ul>
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**Course coordinator:**Dr. Amr Saad

**Head of Department:**Prof Hesham El Mahdy

**Date:** January 2015