



University: *Fayoum University*
 Faculty: *Computers and Information*
 Department: *Information Systems*



Course Specification

1- Basic Information			
Code: CSC 363	Course Title: Fundamentals of Computer Networks	Year/Level: Third year – Second term	
Programme: B.Sc degree in Information Systems	Number of units:	Lecture:	3 hrs/ week
		Tutorial:	0 hrs/ week
		Practical:	2 hrs/ week

2- Aims of Course:	<ol style="list-style-type: none"> The student should be able to specify different network types, protocols, routing strategies. Also, the student should be able to understand congestion control. Developing an understanding of the routing concepts themselves is more difficult, yet is critical for implementing, verifying, and troubleshooting routing operations.
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3- Intended Learning Outcomes	
A- Knowledge and Understanding:	<p>A1. Identify quality criteria that enable future development of computer-based systems.</p> <p>A2. List the Fundamental topics in Computer Science and Information systems related to software engineering principles, computer organization and architecture.</p> <p>A12. Selects advanced topics to provide a deeper understanding of some aspects of the subject such as Unified Process, object-oriented analysis and design, e-commerce technologies, and Decision support systems</p> <p>Justified through the following:</p> <ol style="list-style-type: none"> Understanding of OSI model Knowledge of Network Protocols Different Switching Techniques Principles of Internetworking
B- Intellectual Skills:	B2. Determine different computer- system application attributes, components, relationships, patterns, architecture, and source of errors

	<p>B6. Analyze the extent to which a computer-based system meets the criteria defined for its current use and future development Justified through the following: b1) Define traditional and nontraditional routing strategies b2) Perform comparisons between Congestion control mechanisms b3) Identify Flow Control problems on network</p>
<p>C- Professional and Practical Skills:</p>	<p>C3. Investigate the professional, economic, social, environmental, moral and ethical issues involved in the sustainable exploitation of computer technology and be guided by the adoption of appropriate professional, ethical and legal practices C7. Plan, schedule, control, and lead ICT projects C9. Deploy different modeling techniques to model and analyze real life computing problems. C10. Evaluate computer-based systems from various perspectives.</p> <p>Justified through the following: c1) Specify and design router configurations c2) Apply troubleshooting steps to verify network connectivity c3) Apply data compression and security over networks</p>
<p>D- General and transferable Skills</p>	<p>D3. Work as a member of a development team, recognizing the different roles within a team and different ways of organizing teams D6. Demonstrate skills in team work, team management, time management and organizational skills</p> <p>Justified through the following: d1) perform presentations in seminars d2) 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 d3) Discussion of various types of various LANs/WANs standards (Ethernet, Token Ring, FDDI, Wireless LANs)</p>

<p>4-Course Content:</p>	<ol style="list-style-type: none"> 1. Introduction to computer networks, Applications of computer networks, Network architecture, SO-OSI reference model, 2. Networks topologies, Connectivity analysis, Latency analysis, Backbone design, Local area networks design, 3. Physical layer: Theoretical basis for data communication networks, Telephone system, transportation and multiplexing of information, Error handling, 4. Data link layer: Basic communication protocols, protocols analysis,
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	<ol style="list-style-type: none"> 5. Network layer: Virtual circuits, Routing algorithms, satellites packet broadcasting, 6. carrier sense networks, Ring networks, shared memory systems, 7. Transport layer. session layer: Network security and privacy, 8. Text compression, virtual terminal protocols, File transfer protocol. 9. Distributed database systems, Distributed computing.
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5- Teaching and Learning Methods:	<ol style="list-style-type: none"> 1. Lectures 2. Tutorials 3. Computer-lab Sessions 4. Practical lab work (Network lab) 5. Class discussions 6. Internet searches 7. Independent Work 8. Group projects 9. Problem-based Learning
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6- Teaching and Learning Methods for handicapped students :	-
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7- Student Assessment	
A- Assessment Methods:	<ol style="list-style-type: none"> 1. Assignments and Quizzes 2. Midterm written exam 3. Oral exam 4. Project 5. Practical exam 6. Final written exam
B- Assessment schedule:	Midterm Examination: Week 7 Practical examination: Week 13 Project & Oral Examination: Week 14 Final Examination: Week 15
C- Weighting of assessments:	Assignments and Quizzes: 0% Mid-Term Examination: 10% Project & Oral Examination: 10% Practical Examination: 15% Final-term Examination: 65%

8- Books and References	
A- Notes:	-
B- Essential Books (Text Books):	<ul style="list-style-type: none"> ▪ Data and Computer Communications, by William Stallings 10th edition (2014)
C- Recommended Books:	-

D- Periodicals, Web sites, ... etc	-
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Course Professor: Dr. Hussain Okasha Department Head: Dr. Amira Edress

Course Content Intended Learning Outcomes Matrix

Course Title: Fundamentals of Computer Networks

Course Code: CSC 363

Course Content	Week	Knowledge & Understanding				Intellectual Skills			Professional & Practical Skills			General & Transferable Skills		
		a1	a2	a3	a4	b1	b2	b3	c1	c2	c3	d1	d2	d3
1. Introduction to computer networks, Applications of computer networks, Network architecture, ISO-OSI reference model,	1	x										x	x	
2. Networks topologies, Connectivity analysis, Latency analysis, Backbone design, Local area networks design,	2			x	x					x		x	x	x
3. Physical layer: Theoretical basis for data communication networks, Telephone system, transportation and multiplexing of information, Error handling,	3				x		x					x	x	
4. Data link layer: Basic communication protocols, protocols analysis,	4		x		x			x				x	x	
5. Network layer: Virtual circuits, Routing algorithms, satellites packet broadcasting,	5			x	x	x	x	x	x			x	x	x
6. carrier sense networks, Ring networks, shared memory systems,	6				x	x	x		x			x	x	x
7. Transport layer. session layer: Network security and privacy,	7		x								x	x	x	
8. Text compression, virtual terminal protocols, File transfer protocol.	8:9		x								x	x	x	
9. Distributed database systems, Distributed computing.	10:11				x	x	x	x				x	x	

Course coordinator: Dr. Hussain Okasha

Head of Department: Dr. Amira Edress