Menoufiya University

Faculty of Computers and Information

Department of Computer Science

جامعة المنوفية

كلية الحاسبات والمعلومات

قسم علوم الحاسب

COURSE SPECIFICATION

(COMPUTER NETWORKS-1)

Programme(s) on which the course is given   CS and IT

Major or Minor element of programs   Major

Department offering the program   Computer Science

Department offering the course   Computer Science

Academic year / Level   3rd Year / 1st Semester

A- Basic Information

Title	Computer Networks-1			Code	CS361	
Credit Hours	Lecture	3	Tutorial	1	Practical	2
	Total				6	

B- Professional Information

1- Overall aims of course

- Understand Internet architecture and its layers
- Understand the fundamental concepts of computer network
- Understand the OSI and TCP/IP models

2- Intended learning outcomes of course (ILOs)

a- Knowledge and understanding

a3 Demonstrate a grasp of the principles of computer systems, including architecture, networks and communication

a4 Know and understand the fundamental concepts, principles and theories of computing and computer science covering topics such as algorithms, operating system, programming languages and artificial intelligence.

b- Intellectual skills

b1 Solve a wide range of problems related to the analysis, design and construction of computer systems

b4 Solve computer science problems with pressing commercial or industrial constraints.

b5 Integrate and evaluate information and data from a variety of

sources.

b7 Work with and model computer systems at different and appropriate levels of abstraction.

c- Professional and practical skills

c1 Plan and undertake a major individual project.

c3 Give technical presentations suitable for the time, place and audience.

c6 Use appropriate computer-based design support tools

c7 Apply computer science skills in a commercial or industrial environment.

d- General and transferable skills

d3 Work effectively with and for others.

d4 Strike the balance between self-reliance and seeking help when necessary in new situations.

3- Contents

Topic	No. of Hours	Lecture	Tutorial /Practical
1 Computer Network Basics • Basics of Computer Hardware • Basics of Computer Software • Basic Networking Terminology	3	3	3
2 The OSI Model • General Model of Communication • The OSI Reference Model • Comparison of the OSI Model and the TCP/IP Model	6	6	12
3 Local Area Networks • Introduction • Topology • Network Devices	3	3	6
4 Layer 1 • Electricity Basics • Media • Cable Specification and Termination • Making and Testing Cable • Collisions and Collision Domains	6	6	12
5 Layer 2 • LANs and the Data Link Layer • MAC Addressing • Token Ring Basics • Layer 2 Devices	6	6	12
6 Data Transmission • Concepts and Terminology • Analog and Digital Data Transmission • Transmission Impairments • Channel Capacity	6	6	12
7 Data Encoding Techniques • Digital Data, Digital Signals • Encoding Schemes • Digital Data, Analog Signals • Modulation Techniques	6	6	12

• Analog Data, Digital Signals • Analog Data, Analog Signals			
8 Data Link Control • Flow Control • Error Detection • Error Control • Frame Structure • HDLC Operation	6	6	12
Total number of Hours for the course	**84**	**42**	**42**

4- Teaching and learning methods

4.1 Information collection
4.2 Research assignment
4.3 Lecture
4.4 Class activities
4.5 Practical training / lab
4.6 Case study

5- Student assessment methods

5-a Methods

5.a.1 Reports, assignments, and exercises to assess knowledge and understanding.
5.a.2 Regular oral, practical and written quizzes to assess intellectual skills.
5.a.3 Practical projects, final practical and oral exams to assess professional skills.
5.a.4 Reports, assignments, and discussions to assess general and transferable skills.
5.a.5 Final written exam to assess knowledge and understanding.

5-b Assessment schedule

Assessment 1	5th week.	Mid term exam
Assessment 2	8th week.	
Assessment 3	10th week.	
Assessment 4	16th week (Oral and practical)	
Assessment 5	17th -18th weeks (final written exam)	

5-c Weighting of assessments

Semester work	10%
Mid-term examination	10%
Oral / Practical examination.	20%
Final-term examination	60%
Total	100%

6- List of references

6-a Course notes

There are lectures notes prepared in the form of a book authorized by the department

6-b Essential books (text books)

None

6-c Recommended books

[1] Gallo Michael A, Computer Communications and
   Networking Technologies, 2002
[2] Heap Gary, CCNA Practical Studies, 2002
[3] A book prepared and edited by the lecturer, and approved by
   the department council

6-d Periodicals, Web sites, … etc

IEEE transactions on Networks

7- Facilities required for teaching and learning

- Networks laboratory.
- Datashow, screen, and laptop computer.

Course coordinator:

Dr. Waiel Shawkey

Head of Department:

Prof. Nabil Abd El-Wahed Ismail

Date: / /