



University/Academy: Arab Academy for Science, Technology & Maritime Transport
Faculty/Institute: College of Engineering & Technology
Program: B.Sc Computer Engineering

Form no. (12): Course Specification

1- Course Data

Course Code: CC431	Course Title: Computer Networks	Academic Year/Level: year 4 / semester 8
Specialization: Computer Engineering	Credit Hours: 3 Lecture: 2 Tutorial: 2 Lab: 2	Prerequisite ----- CC331

2- Course Aim

To provide a unified view of the broad field of computer networks. Also to emphasize basic principles and topics of fundamental importance concerning the applications, architecture, design issues and standard of computer networks.

3- Intended Learning Outcomes

a- Knowledge and Understanding	<p>A2. Basics of information and communication technology (ICT). A3. Methodologies of solving engineering problems, data collection and interpretation. A6. Related research and current advances in the field of computer software and hardware and contemporary engineering topics.</p> <ul style="list-style-type: none"> • Define computer Networks and its uses. • Interpret the OSI reference Model (Theoretical Model) • Explain the protocols developed for each layer of The TCP/IP model • Estimate the performance of LANs.
b- Intellectual Skills	<p>B2. Think in a creative and innovative way in problem solving and design using the latest technologies and solve engineering problems, often on the basis of limited and possibly contradicting information while identifying symptoms in problematic situations. B7. Integrate computer objects running on different system configurations.</p> <ul style="list-style-type: none"> • Students will be able to develop new Networks Protocols. • Ability to analyze the performance of different type of Computer Networks. • Modeling and Simulation of Computer Networks.
c- Professional Skills	<p>C1. Professionally merge the engineering knowledge, understanding, and feedback to improve design, products and/or services. C2. Create and/or re-design a process, component or system, and carry out specialized engineering designs with neatness and aesthetics in design and approach. C3. Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment, wide range of analytical tools, techniques, and software packages pertaining to the computer engineering to design experiments, collect, analyze and interpret results and develop required computer programs. C8. Use appropriate specialized computer software, computational tools and design packages throughout the phases of the life cycle of system development.</p> <ul style="list-style-type: none"> • Design, establish and maintain Computer Networks. • Develop Network Applications. • Analyze Performance of Computer Networks.
d- General Skills	<p>D3. Demonstrate efficient IT capabilities.</p>

4- Course Content

Week No.1	Introduction
Week No.2	Introduction to Computer Networks (Part 1)
Week No.3	Introduction to Computer Networks (Part 2)
Week No.4	Transmission Media
Week No.5	Signal Encoding Techniques
Week No.6	Data Communication Techniques (Transmission & Error Detection and correction)
Week No.7	7th Week Exam+ Revision
Week No.8	Data Link Control (Part 1)
Week No.9	Data Link Control (Part 2)
Week No.10	Multiplexing
Week No.11	Switching Techniques
Week No.12	12th Week Exam.+ Revision
Week No.13	Network Layer (Part 1)
Week No.14	Network Layer (Part 2)
Week No.15	Introduction to LAN
Week No.16	Presentation of projects and Final Exam.

5- Teaching and Learning Methods

<ul style="list-style-type: none"> • Lectures • Tutorials • Reports & sheets • Laboratories • Seminars

6-Teaching and Learning Methods for Students with Special Needs

<ul style="list-style-type: none"> • Lectures • Tutorials • Reports & sheets • Laboratories • Seminars <p>The academic advisors of each student, as well as dedicated department TAs monitor the students' progress and solve any problem he/she may encounter.</p>
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7- Student Assessment

a-Procedures used	1-Written Examinations to assess The Intended Learning Outcomes.	
	2-Class Activities (Reports, Discussions, -----) to assess The Intellectual Skills.	
b- Schedule:	Assessment 1	7 th Week Written Exam
	Assessment 2	12 th Week Written Exam
	Assessment 3	Continuous Assessments
	Assessment 4	16 th Week Final Written Exam
c- Weighing of Assessment	7 th Week Examination	30 %
	12 th Week Examination	20 %
	Final-term Examination	40 %
	Oral Examination	0 %
	Practical Examination	0 %
	Semester Work	10 %
	Total	100%

8- List of References:

a- Course Notes	Available on the moodle http://lms.aastmt.org
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b- Required Books (Textbooks)	Ross, Keith, "Computer Networking: A Top-Down Approach Featuring the Internet (2446)", Pearson Education 5ED
c- Recommended Books	
d- Periodicals, Web Sites, etc.	N/A

Course Instructor:
Prof. Dr. Mohamad Abou El-Nasr

Program Manager:
Prof. Dr. Mohamad AbouEl-Nasr

Dean of College of Engineering and Technology of AASTMT

Executive Manager of Quality Assurance Center of AASTMT

Name: **Prof. Moustafa Hussein Aly**

Name: **Prof. Aziz Ezzat**

Signature:

Signature: