2nd Term of Computer Networks

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Outline

* Subject Presentation

Subject Assessment

* Today's Lecture

2nd Term Course Goals

The aim of the 2nd term of the course is to learn how Network, Link, and Physical layers work and the service that they can provide.

The main goal is that you understand functions and protocols within a layer, understand how layers fit together and finally understand how the Internet works.

Topics

* T6: Network Layer

- Forwarding versus routing
- Virtual Circuit and Datagram Networks
- Internet Protocol
- Routing Algorithms

* T7: Link Layer

- Error-Detection and -Correction Techniques
- Multiple Access Protocols
- Internetworking devices: Hubs, Switches and Routers
- Local Area Networks (LANs): Ethernet & WiFi

* T8: Physical Layer

- Data and Signals
- Digital and Analog Data
- Encoding
- Bandwidth Utilization
- Transmission Media

Lectures Schedule

Lecture	Date	Topic	Lecture Topic /Exercises	Reading before class (Kurose and Ross)
1	29-ene.		Routing vs Forwarding, Services Provided to the Transport Layer	4.1,4.2
2	31-ene.		IPv4 Protocol, Dadtagram Format, IPv4 Addressing	4.4.1,4.4.2
3	07-feb.	Т6	Subnets and Supernets	
4	14-feb.	Network Layer	r Subnets and Supernets Exercises, Forwarding Tables	
5	21-feb.	·	Forwarding Tables Exercises, Routing Algorithms.	4.5
	28-feb.			1.0
6			Routing Algorithms Exercises, Routing Protocols.	
7	07-mar.		IPv6 Protocol. Exam -T6: Subnets, Supernets, Forwarding Tables, Routing Algorithms.	4.5,4.6,4.4.4
8	14-mar.		Services Provided by Link Layer. Error-Detection and Correction Techniques. Multiple Access Protocols	5.1,5.2
9	21-mar.		Interconnection Devices: Hubs, Switches, and Routers	5.3 CSMA i CSMA/CD only
10	28-mar.	Т7	Wireless Networks: WI-FI 802.11.	5.5
11	18-abr.	Link Layer	Local Area Networks: Ethernet	5.6
		·		
12	25-abr.		Interconnection Devices Exercises. Frame transmission Exercises.	6.1,6.2,6.3
13	02-may.		Exam - T7: Interconnection, Local Area Networks, Frame Transmission	
14	09-may.	Т8	Transmission Signal Properties. Filters. Data rate and Bandwidth. Transmission Media	[Stallings04] 5.1, 5.2

3.2,3.3

Physical Layer Transmission Impairments. Signal Modulation and Encoding. Exercises

15

16-may.

Labs Schedule

Date	Time	Place	Topic	Lab Topic
07-feb.	09:30 - 11:00h	LAB. REDES DE COMPUTADORES (2S-16) (DISCA - Edif: 1G)		Lab#1 - Windows and Linux TCP/IP configuration
14-feb.	08:00 - 09:30h	LAB ARQUITECTURA DE COMPUTADORES (2N-16) (DISCA - Edif: 1G)	T6	Lab#2 - IP Fragmentation
21-feb.		LAB ARQUITECTURA DE COMPUTADORES (2N-16) (DISCA - Edif: 1G)	Network Layer	Lab#3 - DHCP
28-feb.	08:00 - 09:30h	LAB ARQUITECTURA DE COMPUTADORES (2N-16) (DISCA - Edif: 1G)	·	Lab#4 - ICMP Protocol
07-mar.	08:00 - 09:30h	LAB ARQUITECTURA DE COMPUTADORES (2N-16) (DISCA - Edif: 1G)		Resit failed lab exams of Labs# 1 to 4
14-mar.	09:30 - 11:00h	LAB. ESTRUCTURA DE COMPUTADORES (2N-17) (DISCA - Edif: 1G)		Lab#5 - Network Address and Port Translation
21-mar.	08:00 - 09:30h	LAB ARQUITECTURA DE COMPUTADORES (2N-16) (DISCA - Edif: 1G)	T7	Lab#6 - Address Resolution Protocol
28-mar.	08:00 - 09:30h	LAB ARQUITECTURA DE COMPUTADORES (2N-16) (DISCA - Edif: 1G)	Link Layer	Lab#7 - Security with iptables
18-abr.	09:30 - 11:00h	LAB. ESTRUCTURA DE COMPUTADORES (2N-17) (DISCA - Edif: 16)	·	Lab#8 - WIFI traffic Analisys
02-may.	09:30 - 11:00h	LAB. ESTRUCTURA DE COMPUTADORES (2N-17) (DISCA - Edif: 16)		Resit failed lab exams of Labs# 5 to 8

Assessment

- ❖ Your grade will be based on your performance in the lecture exams, laboratory sessions exams and 2nd term exam, according to the following distribution:
 - Lecture exams:
 - at the end of units 6 and 7, you will have an exam based on material from the unit lectures
 - lecture exams count for 20% of the final 2nd term grade

Assessment

- Lab session exams:
 - at the end of each lab you will have an exam based on material from that lab session.
 - · Lab exams count for 20% of the final 2nd term grade

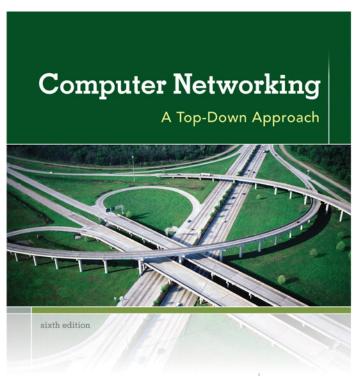
Assessment

- Final 2nd Term Exam :
 - The final 2nd term exam will be based on material from the lectures and Lab sessions
 - 60% of course grading is based on a written exam (open question exam)
 - No documents allowed
 - No electronic equipment (including calculators) is allowed
 - You should achieve a minimum grade of 3,5 out of 10 (= 2,1 out of
 6)
 - Dates:
 - Tuesday 5th June (16h): Theoretical and Labs contents
 - Monday 18th June (16h): You can resit the 2nd term exam
- Final 2nd term grade= Lectures grade + Labs grade + 2nd
 Term Final Exam grade

Textbook

Computer Networking: A Top Down Approach

6th edition Jim Kurose, Keith Ross Addison-Wesley March 2012



KUROSE ROSS