BILKENT UNIVERSITY
Department of Computer Technology and Information Systems
2012-2013 Spring Semester
Syllabus

Course Code	**CTIS 261**
Course Name	**Computer Networks I**
Course Credit	**4 (4 hrs. lecture in the lab)**
Instructor	**Hamdi Murat Yıldırım (Sections 1 and 2)** Office: C E118, Tel: x5072 Office Hours: Monday, Wednesday and Thursday 10:40-11:30 e-mail: **hmurat at bilkent.edu.tr**
Textbook and Tools	No required textbook. Students are responsible for all of the CCNA Exploration Network Fundamentals online material at Cisco Networking Academy Web Site. (http://www.cisco.com/web/learning/netacad/index.html) Local Server: http://139.179.33.220 (To access course material) Cisco Learning Network: https://learningnetwork.cisco.com Graphical Network Simulator: http://www.gns3.net/
Other References	-Cisco IOS in a Nutshell: Jame Boney. O'Reilly 2005. ISBN 0-596-00869-4 -Network Routing Basics: James Macfarlane. Wiley 2006. ISBN 0-471-77273-9 -Mastering Cisco Routers: Chris Brenton & BobAbuhoff. Sybex 2002. ISBN 0-7821-4107-2
Assessments	Attendance and Class Participation ………………… 5% Quizzes (online assessments)................................... 5% Assignments……….....………………………………….. 5% Midterm I ………………………………………………. 20% Midterm II ………………………………………………….. 20% Project ……………………………………………….. 5% Cisco Online Final (in class)…………………………. 10% Final (ALL Chapters)….. ……………………………. 30%

Course Objectives:

This is the first course in the Cisco Netacad CCNA Exploration track. The course introduces students to the fundamental and essential topics in networking. Students are introduced to OSI and TCP/IP layered models and a detailed introduction about the structure and the role of each layer is studied. Common application layer protocols, the importance of port numbers to identify different applications, the structure of IPv4 address, subnetting, Ethernet technology and a brief introduction to Cisco IOS and router configuration are covered in this course as well. A successful student is expected to fully realize the importance of using a layered model in networking and should be able to understand the essential role that is played by various protocols working at different layers and the intermediary devices in enabling successful data transmission between the sender and the receiver.

Makeup Policy:

Makeups may ONLY be given to the students with a Bilkent University Health Center approved medical report, for the assessments with equal or more than 20% weight on the letter grade. All makeups will be given till the end of the semester before the final exams.

Minimum Requirements to Qualify for the Final Exam

A student must get at least 30/100 from a weighted average of midterm exam plus homework assignments plus attendance and class participation (this counts for 50 points of the final grade and 30% is 15 points)

AND should not miss more than 21 lecture hours.

If a student does not satisfy these minimum requirements, then s/he will take the FZ grade. This means that such a student will not be allowed to take the final or the retake exams.

Grading Scale:

The following grading scale will be used in this course. Passing grades range from A to D; F or FX is a fail.

<50	F
50-54	D
54-58	D+
58-62	C-
62-66	C
66-70	C+
70-74	B-
74-78	B
78-82	B+
82-86	A-
>86	A

Attendance Scale:

%71-75: 1pts / %76-80: 1.5pts / %81-85: 2.5 pts / %86-90: 3.5pts / %91-95: 4.5pts / %96-%100: 5 pts

One can increase his/her attendance grade below 5 pts by expressing his/her interest for the course in the class hour or outside the class, or posting messages to course's moodle forum discussions, etc.

Changes:

The Information contained in this course Syllabus is subject to change. Students will be informed about any changes either in the class and/or by e-mail and/or publishing at Moodle page. It is the responsibility of the student to regularly check Moodle page and their Bilkent e-mail accounts to learn about any course related updates.

COURSE OUTLINE

Week	Topics
1 4 Feb. – 8 Sep.	**Course Preview.** Cisco Networking Academy Web Site Demo. **Ch.1 - Living in a Network Centric World:** Where, when and how do we use networks. Elements of a network.
2 11 Feb. – 15 Sep.	**Ch.1 - Living in a Network Centric World:** The Architecture of the Internet. Trends in Networking. **Ch.2 - Communicating over the network:** The Platform for Communications. LANs. WANs, Internetworks. Protocols.

3 18 Feb. – 22 Sep.	**Ch.2 - Communicating over the network:** Layered Models (TCP/IP, OSI). Network Addressing. **Ch.3 - Application Layer Functionality and Protocols:** Application layer software and services. Client-Server model. P2P networking.
4 25 Feb. – 1 Mar.	**Ch.3 - Application Layer Functionality and Protocols:** DNS, WWW, e-mail, FTP, DHCP, Telnet. **Ch.4 - OSI Transport Layer:** TCP Protocol. Connection establishment and termination, 3-way handshake.
5 4 Mar. – 8 Mar.	**Ch.4 - OSI Transport Layer:** Managing TCP sessions, acknowledgements and windowing. UDP Protocol.
6 11 Mar. – 15 Mar.	**Ch.5 - OSI Network Layer:** IPv4 Protocol. IPv4 packet and header. Dividing hosts into groups.
7 18 Mar. – 22 Mar.	**Ch.5 - OSI Network Layer:** Hierarchical addressing. Routing (static, dynamic). Routing protocols. ***MIDTERM I EXAM***
8 25 Mar. – 29 Mar.	**Ch.6 - Addressing the network** IPv4: IPv4 Addresses. Binary to decimal, decimal to binary number conversions. Types of addresses, unicast, multicast, broadcast addresses. Special addresses. Public and private addresses. Assigning IP addresses.
9 1 Apr. - 5 Apr.	**Ch.6 - Addressing the network** Subnet masks, VLSM. **Ch.7 - Data-Link Layer:** Accessing the media. Creating a frame. Media Access Control for shared media, non-shared media. Logical vs. physical topology.
10 8 Apr. - 12 Apr.	**Ch.7 - Data-Link Layer:** MAC addressing and framing. **Ch.8 - OSI Physical Layer:** Physical layer purpose, operation and standards. Physical signaling and encoding, representing bits.
11 15 Apr. - 19 Apr.	**Ch.8 - OSI Physical Layer:** Physical media: copper, UTP, fiber, wireless. ***MIDTERM II EXAM***
12 24 Apr. - 26 Apr.	**Ch.9 - Ethernet:** Standards and implementation. LLC and MAC. Ethernet collision management. CSMA/CD. Ethernet frames.
13 29 Apr. - 3 May	**Ch.9 -** MAC addressing. Ethernet timing and inter-frame spacing. Hubs vs switches. ARP: Address Resolution Protocol. **Ch.10 - Planning and Cabling Networks:** Choosing the appropriate LAN device. Making LAN and WAN connections. Developing an addressing scheme. Device interconnections.
14 6 May - 10 May	**Ch.11 - Configuring and Testing Your Network:** Configuring Cisco devices. Basic configuration using Cisco IOS. Managing configuration files. Testing the connectivity. Monitoring and documenting networks.
15 13 May - 15 May	**Ch.11 -** Packet Tracer Practice. Online Final.
17 May - 27 May	***FINAL EXAM***