SYLLABUS

1) **Course Name** : Computers Networks and Telecommunications
   Course Code :
   Lecture and Credit : 2 hours , 2 Credit
   Department : Computer Engineering, Industrial Engineering

2) **Instructors**
   Name-Surname : Sanjar Erdolatov
   Email Address :sanjar.erdolatov@iaau.edu.kg
   Office Address and Office Tel. No : A B. 2th library –157

3) **Consultation appointments**

The instructor is pleased to provide consultation appointments to all students considering all course issues. Students are asked to plan their consultation appointments on set office hours.

4) **Course Description:**

The primary goal of the course lies in understanding the fundamental networking concepts and their applications. Computer networks is a rapidly evolving field, with new networking technology and standards occurring as we speak. This makes the field exciting. However, without a firm grounding in its fundamentals, it can also be a confusing and overwhelming subject matter. This course is a modern introduction to computer networks, stressing the logical organization of the three networking features—architecture, algorithms, and implementations. Emphasis will be placed on software and implementation issues and, to some extent, performance issues.

The course will cover historical background/current issues facing modern communication networks, network architecture (hardware/software),fundamentals of data transmission (digital/analog, coding), LAN technology and data link protocols (Ethernet CSMA/CD, switched Ethernet, wireless LANs and TMDA/CDMA), packet/circuit switching and wide-area networks, internetworking using TCP/IP (socket programming in UNIX), routing (shortest path,IP, hierarchical), congestion control and quality of service (TCP, leaky bucket, RSVP), high-level network services (DNS, E-mail, HTTP, SNMP, network security), and multimedia communication.

5) **Course Objectives:**

• An understanding of the principles of computer networking, including protocol design, protocol layering, performance, and security implications.

• An understanding of computer networking theory, including principles embodied in the protocols designed for the application layer, transport layer, network layer, and link layer of a networking stack.

• An understanding of specific implemented protocols covering the application layer, transport layer, network layer, and link layer of the Internet (TCP/IP) stack

• An empirical understanding of network performance using both simulation environments and experiments running programs and utilities on real networks.

• Pre-requisite knowledge to enable students to study more advanced topics in computer networking.

6) Required Textbook:

Computer Networks By Andrew S. Tanenbaum,2003

(Note: Almost half of the course material will be covered using some of the following references and papers in the literature)

Reference Books:

Computer Communication Networks—Lecture Notes ,D.B. Hoang and K.J. Pye

Computer Networks and Internets. Douglas Comer. Prentice Hall, latest edition

Internetworking with TCP/IP, Vol. II . Comer & Stevens, Prentice Hall, 1994 (2nded.)

Computer Networking: A Top-Down Approach Featuring the Internet, by James F. Kurose and Keith W. Ross; Addision Wesley, 2007

Communication Networks, by Leon-Garcia and Widjaja (McGraw Hill), Copyright 2004.

7) Grading Policy:

Grades are based on the following weights.

Midterm Exam: 40%

Final Exam: 60%

8) Exams:

The midterm exam and the final exam will be given in class and tentative dates for these are shown below. The final exam will be comprehensive, but with the emphasis on material covered since the midterm exam.

9) Homework Policy:

Several written homework assignments will be given throughout the semester. These assignments will cover the reading and the class material. To be eligible for credit, each assignment solution must fulfill the published requirements and must be completed by the due date. Homeworks will be collected at the start of the class on the due date. Late homework will be accepted only in exceptional circumstances which need to be discussed with the instructor for approval. In case of extenuating circumstances, students are advised to contact the instructor as soon as possible. Use regular-size paper, staple the sheets together, put your name and homework number at the top or on the cover page.

10) Attendance

The attendance policy of this class will follow the policy of the school. Students are expected to read and comply with this policy.

11) Extension policy

To get the extension of the due date for assignment or postpone final exam student should do the following:

1. Communicate to the instructor in 2 days after illness or personal emergency arise.

2. Hand-in at first class after the illness:

   A) In case of illness – doctors note

   B) In case of personal emergency – brief report signed and attached to the piece of work for which the extension should be granted.

12) Cheating policy

The cheating policy of this class will follow the policy of the school. Students are expected to know and comply with this policy. Cheating in this class includes, among the obvious:

1. False illness evidence
2. Partly or fully copying work from the Internet/classmates/others.
3. Communicating with anybody or looking at a classmate's work during exam.
   The same grade reduction will be also applied to the students who assisted in cheating.

13) Textbook Web site

- http://authors.phptr.com/tanenbaumcn4/

14) Network Simulator (ns-7)

- http://nsnam.isi.edu/nsnam/index.php/User_Information

15) Course Outline:

NO	Subjects	Details
1	Introduction	View the Computer Networks
2	Topologies	Star ,Ring, Bus, Mesh Topologies
3	OSI Modeling	View the all modeling
4	Data Link Layer	Framing , Error Control, Flow Control
5	Physical Layer	The Theoretical Basis for Data Communication
6	Cables and Connectors	Fiber Optic, Coaxial, UDP
7	TCP/IP	TCP/IP Reference Model , IP Types
8	Frame Relay	5-4-3 Rule
9	High Level Network Services	DNS, HTTP,SMTP
10	FDDI Technologies	
11	Active Directory	Installation
12	ATM,ISDN	
13	VPN	
14	ADSL,LMDS	