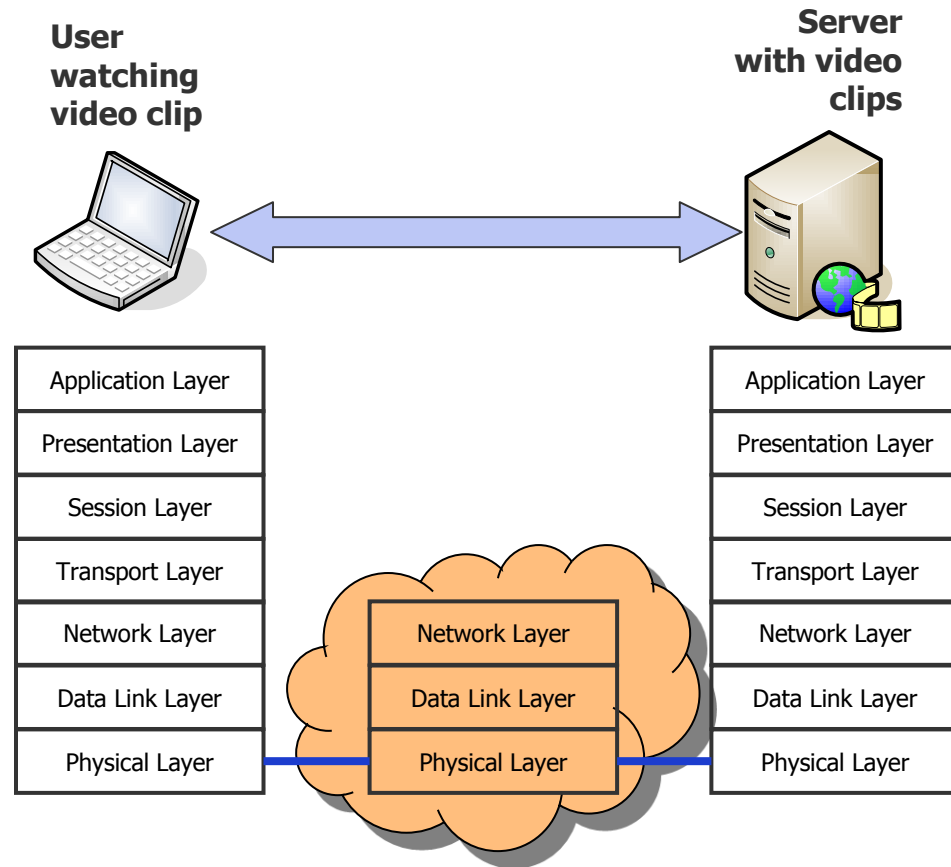


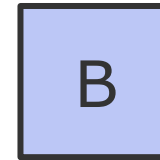
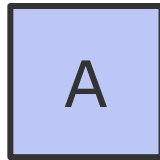
Telematics

Chapter 0: Organizational

Univ.-Prof. Dr.-Ing. Jochen H. Schiller
 Computer Systems and Telematics (CST)
 Institute of Computer Science
 Freie Universität Berlin
<http://cst.mi.fu-berlin.de>

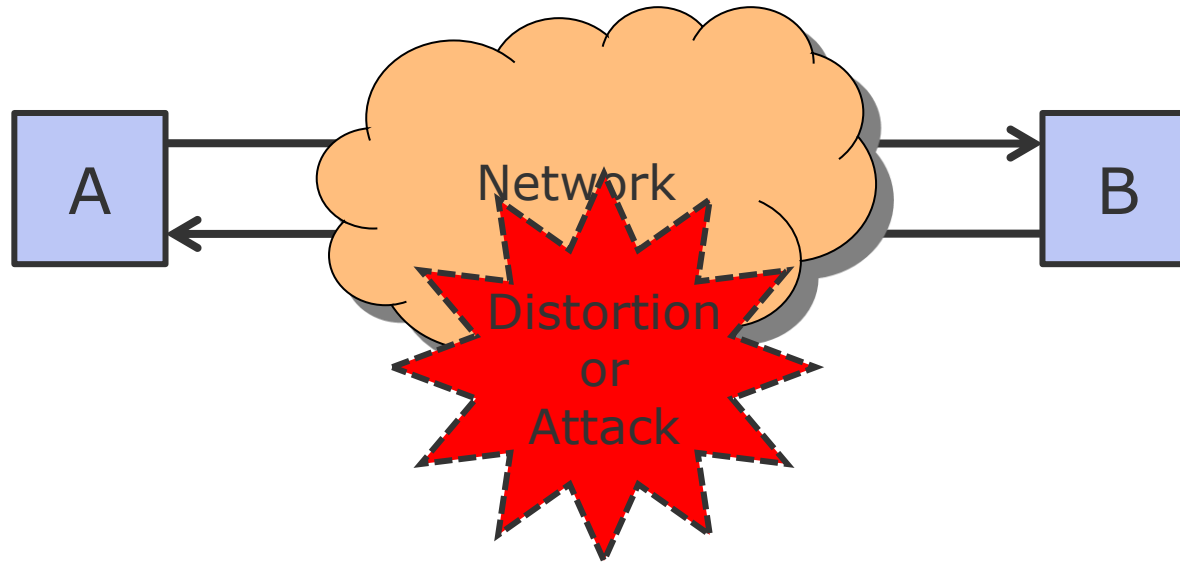


Topics of this Course



- Question 1
 - What are A and B?
- Question 2
 - What is the communication between A and B?
 - How is the communication between A and B realized?
- Question 3
 - What is the distortion/attack?

Topics of this Course



- Question 1
 - What are A and B?
- Question 2
 - What is the communication between A and B?
 - How is the communication between A and B realized?
- Question 3
 - What is the distortion/attack?

The Term “Telematics”

Telematics: Telecommunications + Informatics

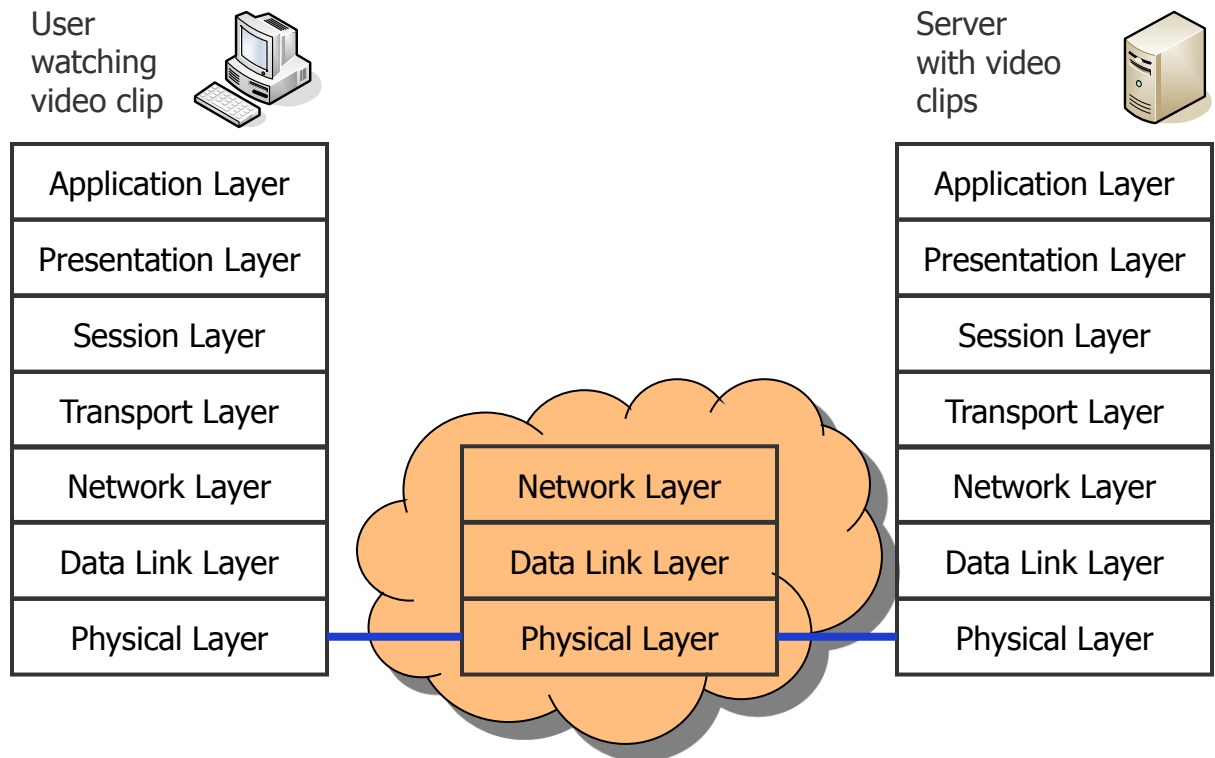
The integrated use of telecommunications and informatics. This is also known as Information and Communication Technology (ICT).

This course deals mainly with **data communication** and **computer networks**.

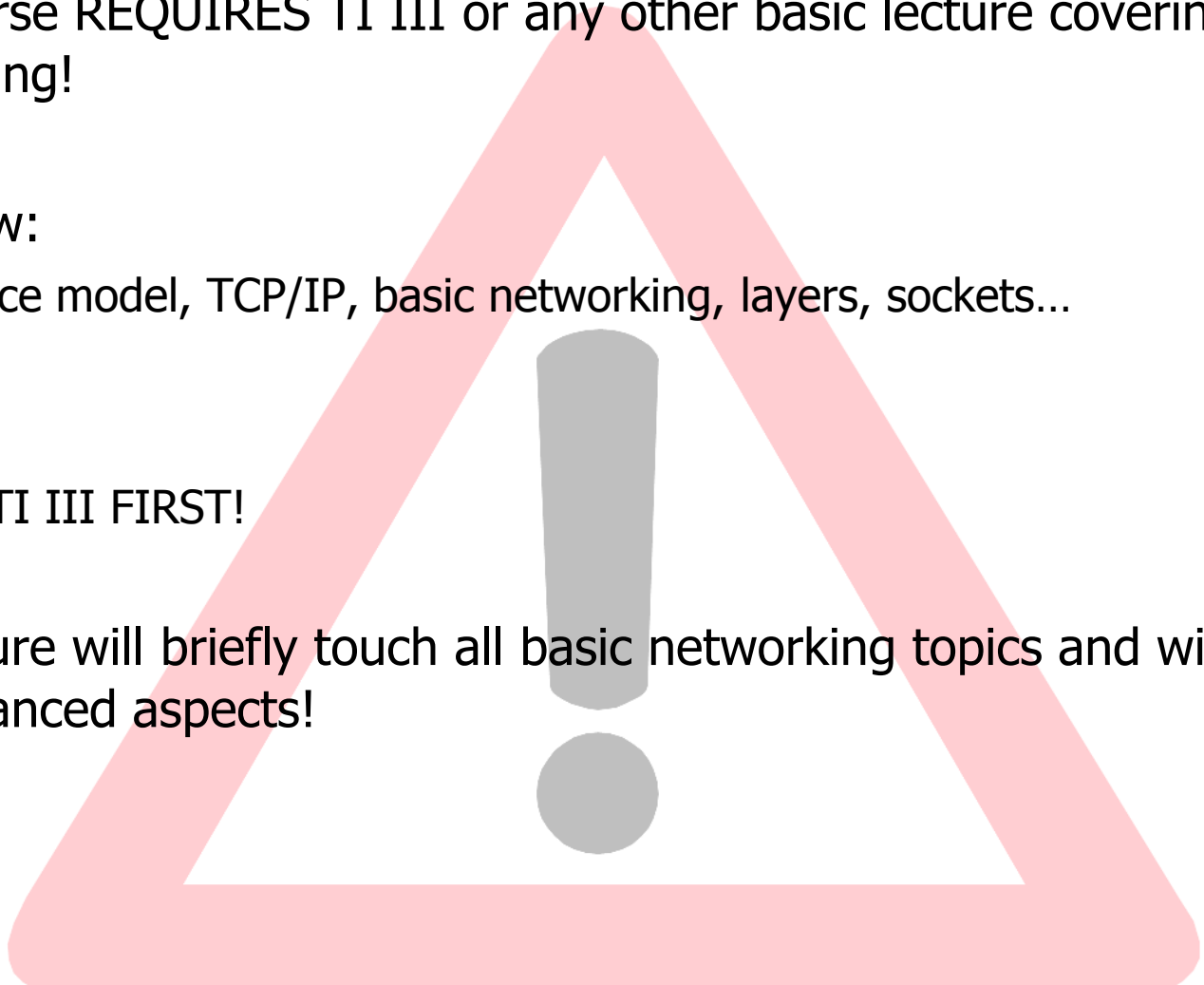
- Telematics in respect to applications
 - Telematics and Traffic ➔ Teletraffic
 - Computer aided traffic systems
 - Telematics and Medicine ➔ Telemedicine
 - Remote diagnosis, Patient observation
 - Telematics and Teaching ➔ Teleteaching
 - Computer aided learning and teaching?
 - Participating in remote classes

Topics of this Course

- Introduction
- Physical Layer
- Data Link Layer
- Medium Access Control
- Network Layer
- Transport Layer
- Application Layer
- Multimedia Comm.
- P2P Applications
- Security



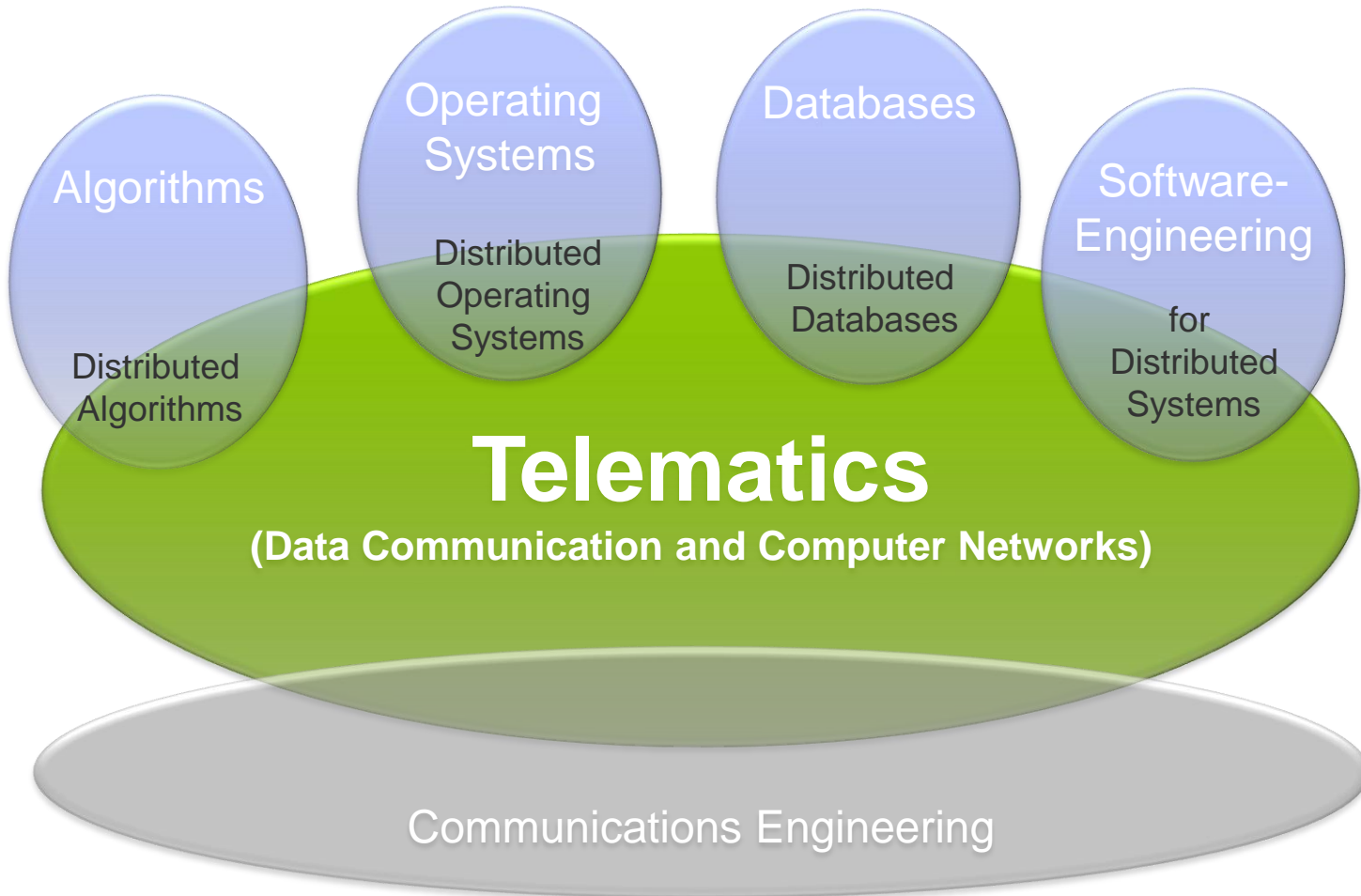
BE AWARE!!!

- This course **REQUIRES** TI III or any other basic lecture covering Networking!
 - You know:
 - Reference model, TCP/IP, basic networking, layers, sockets...
 - If not:
 - Attend TI III **FIRST!**
 - The lecture will briefly touch all basic networking topics and will then go into advanced aspects!
- 
- A large, light red warning sign in the shape of a triangle with a thick border. In the center of the triangle is a large, grey exclamation mark.

Topics of this Course

- At the end of this course, you should ...
 - know what is meant with Telematics and Computer Networking
 - know how networks in general are organized
 - know what the Internet could be or is
 - understand how wired (and wireless, cf. Mobile Communications) networks work
 - understand why ISO/OSI is used in theory and TCP/IP in real world
 - understand how e-mails, videos arrive you
 - understand how operators operate real, big networks
 - understand the cooperation of web browsers with web servers
 - think about security issues when you surf the web
 - be familiar with acronyms like: ALOHA, ARP, ATM, BGP, CDMA, CDN, CIDR, CSMA, DHCP, ETSI, FDM, FDMA, FTP, HDLC, HTTP, ICMP, IEEE, IETF, IP, IMAP, ISP, ITU, ISO/OSI, LAN, LTE, MAC, MAN, MPLS, MTU, NAT, NTP, PCM, POTS, PPP, PSTN, P2P, RARP, SCTP, SMTP, SNMP, TCP, TDM, TDMA, UDP, UMTS, VPN, WAN, ...

Telematics vs. other Computer Science Classes



Organizational

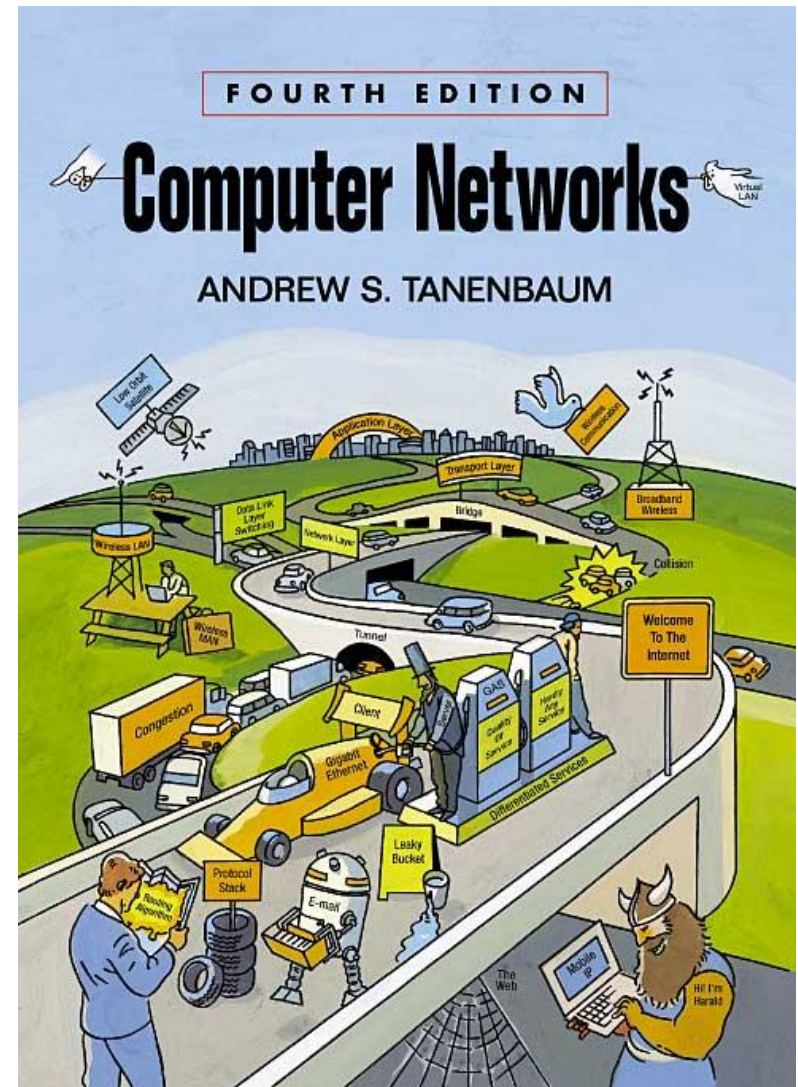
- Lecture
 - Tuesday, 10:00 – 12:00, Hörsaal, Start of class at 10:15
 - Thursday, 08:00 – 10:00, Hörsaal, Start of class at 08:30
- Exercise
 - Will be announced
- Written Exam (Klausur Telematik)
 - Last lecture, 14th February 2013, Hörsaal
 - TBA

Organizational

- Prof. Dr.-Ing. Jochen Schiller
 - Consulting hours: Tuesday, 14-15
 - Takustr. 9, Room 156
 - jochen.schiller@fu-berlin.de
- Literature and Materials
 - Website of the class – follow <http://cst.mi.fu-berlin.de/>, then teaching, WS 12/13, Telematics
 - Literature and References
 - Exercise sheets
 - Slides as PDF documents ➔ Only accessible within FUB network

Literature

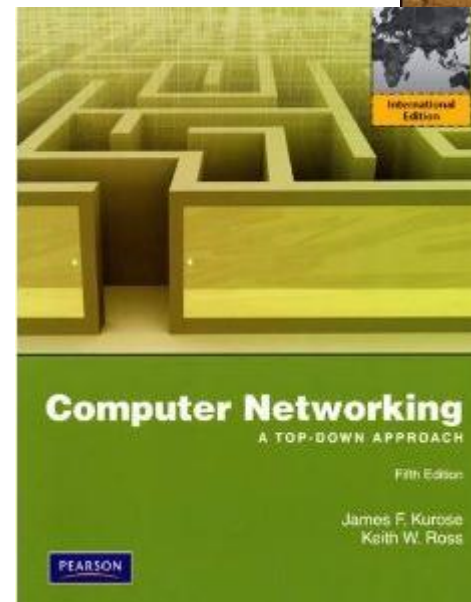
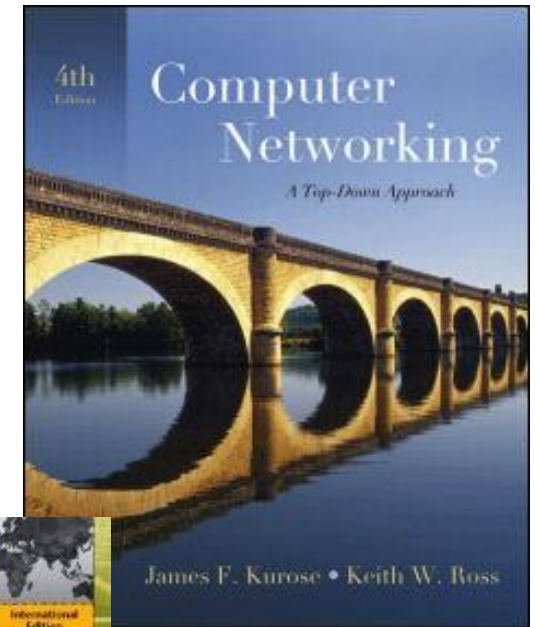
- Andrew S. Tanenbaum: *Computer Networks*, 4th Edition, Pearson Education International, 2002 ISBN 0130661023
 - General introduction to computer networks
 - Bottom-up approach
 - Discusses many aspects of data communication and networking in detail
 - The classic book for teaching computer networks
 - NOT enough for this course, does not go into more advanced details!



Literature

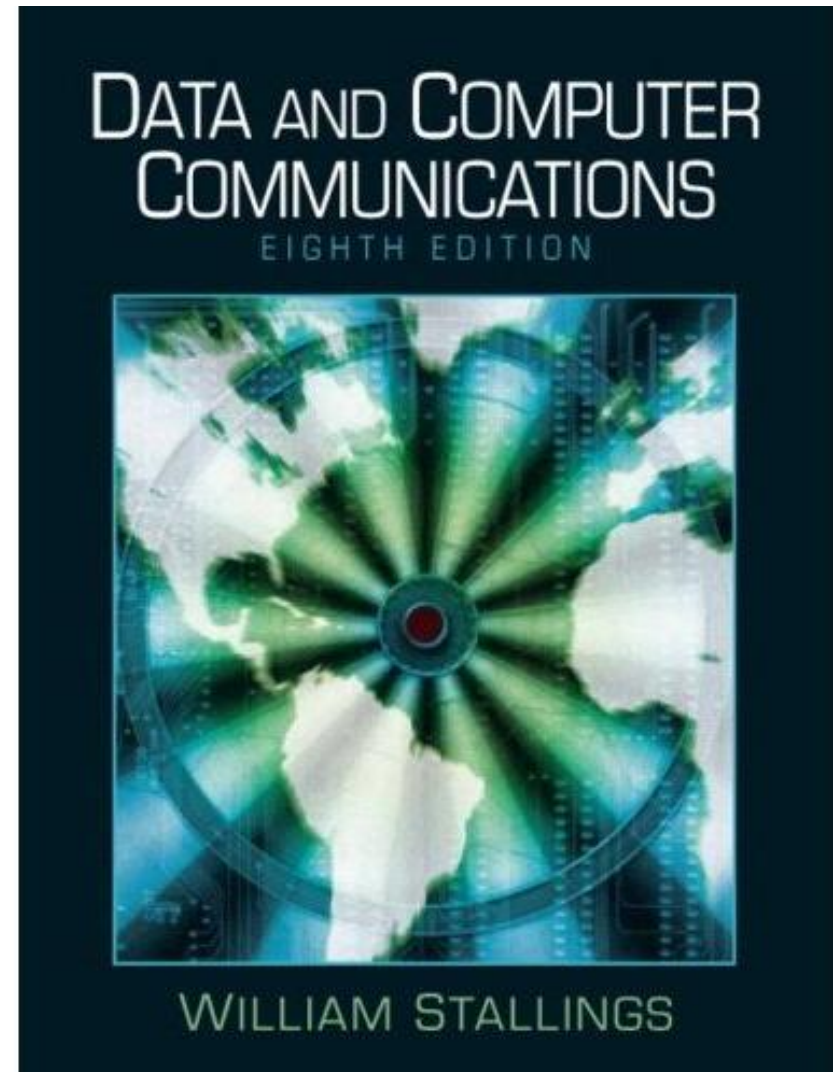
- James F. Kurose, Keith W. Ross:
Computer Networking – A Top-Down Approach, 4th Edition,
2007, Addison Wesley,
ISBN 0321497708
 - General introduction to computer networks
 - Top-down approach
 - Currently one of the most popular teaching books

- New Edition
 - *Computer Networking*, 5/e, 2009
ISBN: 0-13-607967-9



Literature

- William Stallings: *Data and Computer Communications*, Prentice Hall, 8th Edition, 2006, ISBN 0132433109
 - General introduction to computer networks
 - Discusses many communication issues in detail



Literature

- Goralski Walter J.: *The Illustrated Network, How TCP/IP Works in a Modern Network*, Elsevier Science & Technology, 2008, ISBN 0123745411
 - Focus is on Internet protocols
 - All protocols are discussed based on one network configuration

