Internet Protocols
ECSE:6961

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Overview

- Introductions: course description & calendar
- Answers to frequently asked questions
- Prerequisites
- Informal Quiz
Course Description Highlights

- **Syllabus:**
  - **Core protocols:** Transport (TCP, UDP), IP, Routing, Addressing/Naming ...
  - **Advanced topics:** Multicasting, Mobile IP, Security, Next-generation IP, Better-than-best-effort Internet, Applications …

- **Delivery:**
  - Interactive lectures, labs, informal quizzes, email discussion list, best-2-out-of-3 exams, web-based resources …

Answers to FAQs

- All homeworks due at the beginning of the class indicated on the course calendar.
- All quizzes are open-book and extremely time limited.
- Quizzes consist of numerical, multiple-choice (true-false), and short answer questions. Backtests on homepage.
- There will be informal quizzes at the beginning of classes once in two-three weeks to test recently covered material and reading assignments.
- Do not take me for granted. **Ask questions! If we always agree, then there is a non-trivial probability that we are all wrong!**
  - We may come up with a great idea and start a company!
- **Online Anonymous Feedback Form !!!**
  - The worst thing for me is to not know what I do not know!!
Prerequisites

- Protocol Layers: ISO/OSI reference model
- Physical Layer: Coding, Manchester
- Transmission Media: UTP, Cat 5
- Data Communication: Asynchronous vs synchronous, Baud, bit, and Hz, Half-Duplex vs Full-duplex, Modulation/Demodulation
- Packet Transmissions: Framing, Bit stuffing, byte stuffing
- Flow Control: On-Off, Window
- Error Detection: Parity, Checksum, Cyclic Redundancy Check

Prerequisites (Cont)

- Error Recovery: Start and Stop, Go back $n$, Selective Reject
- LANs: Aloha, CSMA/CD, Ethernet, IEEE 802.3, Token Ring/IEEE 802.5, FDDI
- Addressing: Unicast/multicast, Local/Global
- LAN wiring: 10Base5, 10Base2, 10Base-T, 100Base-T4, 100Base-TX, 100Base-FX
- E-LANs: Hubs, Bridges, Routers, Switches
- Routing: Distance Vector vs Link State, Spanning tree, source routing
- Network Layer: Connectionless vs connection oriented
Informal Quiz: Prerequisites

T  F (True or False)

- Datalink refers to the 2nd layer in the ISO/OSI reference model
- Category 5 unshielded twisted pair cable is better than category 3 cable.
- Finding path from one node to another in a large network is a transport layer function.
- It is impossible to send 3000 bits/second through a wire which has a bandwidth of 1000 Hz.
- Bit stuffing is used so that characters used for framing do not occur in the data part of the frame.
- For long delay paths, on-off flow control is better than window flow control.

Informal quiz (contd)

- Ethernet uses a CSMA/CD access method.
- 10Base2 runs at 2 Mbps.
- The packets sent in a connection-oriented network are called datagrams.
- Spanning tree algorithm is used to find a loop free path in a network.
Informal Quiz 0: Solutions

T  F
√  Datalink refers to the 2nd layer in the ISO/OSI reference model.
√  Category 5 unshielded twisted pair cable is better than category 3 cable.
✓  Finding path from one node to another in a large network is a transport layer function.
✓  It is impossible to send 3000 bits/second through a wire which has a bandwidth of 1000 Hz.
✓  Bit stuffing is used so that characters used for framing do not occur in the data part of the frame.
✓  For long delay paths, on-off flow control is better than window flow control.

Informal Quiz 0: Solns (contd)

✓  Ethernet uses a CSMA/CD access method.
✓  10Base2 runs at 2 Mbps.
✓  The packets sent in a connection-oriented network are called datagrams.
✓  Spanning tree algorithm is used to find a loop free path in a network.