

# Internet Protocols

## ECSE:6961

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- 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.