# *Internet Protocols ECSE:6600*

***http://www.pde.rpi.edu/courses/01s/courses_by_number.shtml***

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## Overview

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



## Who's Who

- Instructor: Shiv Kalyanaraman; kalyas ; x8979
- Course secretary: (on-campus)
  - Jeanne Denue-Grady: JEC 6049 ; x6313
- PDE/RSVP Point-of-contact:
  - Kari Lewick; CII 4011; x2347
- TAs:
  - Adnan El-Nasan [PDE TA]; elnasa@rpi.edu
  - Hua Qin, [PDE TA]; qinh@rpi.edu
  - Karthikeya Chandrayena, chandk@rpi.edu
  - Jye-Young Song, songj@rpi.edu



## 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, Optical Networking, IP Telephony …
- Goals:
  - Breadth of topics
  - Insights into design and implementation
  - Preparation for possible research/advanced development in networking



## Course Description Highlights (Continued)

- Lectures: problem-solution approach
- Informal quizzes: Every two weeks
- WebCT bulletin board: Post your questions!
- WebCT: Grades, papers, RFCs, Internet drafts…

- 2 Labs: Hands-on TCP and IP {20 pts}
- 3 Homeworks: {15 pts}
- 1 Research Case Study: {15 pts}
- 3 exams: 15 pts, 15 pts, 20 pts: {50pts}



## Prerequisites

- Required ***(no exceptions):***
  - ESCE-4670 Computer Communication Networks or equivalent
  - C programming knowledge
- Desirable:
  - Operating Systems
  - Computer Architecture (ECSE-4730 or equivalent)
- If you **do not have the required prerequisites**, you **must drop the course** and take it later (next year).

## 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 (Continued)

- 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-TX,
- E-LANs: Hubs, Bridges, Routers, Switches
- Routing: Distance Vector vs Link State, Spanning tree, source routing
- Network Layer: Connectionless vs connection oriented



## Still trying to get into the course ?

- Do you have the pre-requisites ?
- Please submit course add form to course secretary: Jeanne, JEC 6049 by tomorrow (Tue, Jan 9th), noon time (12 pm).
- Depending upon the number of people who drop the class, space available, TA resources available, we will add more students.
  - Decisions to be emailed to you by Jeanne.
  - Make sure you mention your email address to her.



## Answers to FAQ's

- All homeworks/labs etc due at the beginning of the class indicated on the course calendar
  - Up to one late submission: no penalty
  - Beyond that 10% penalty: only if submitted before solutions are posted.
- All quizzes are open-book and extremely time limited.
  - Quizzes consist of design qns, numerical, multiple-choice (true-false), and short answer questions.



## 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.



## Informal Quiz (Continued)

- ☐ ☐ Bit stuffing is used so that framing characters do not occur in the frame payload.
- ☐ ☐ For long delay paths, on-off flow control is better than window flow control.
- ☐ ☐ 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.



## Informal Quiz 0: Solutions (Continued)

√ ☐ 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.

√ ☐ Ethernet uses a CSMA/CD access method.



## Informal Quiz 0: Solutions (Continued)

☐ √ 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.