

# Internet Protocols ECSE-6600

<http://www.pde.rpi.edu/>

Or

<http://www.ecse.rpi.edu/Homepages/shivkuma/>

GOOGLE: “Shiv RPI”

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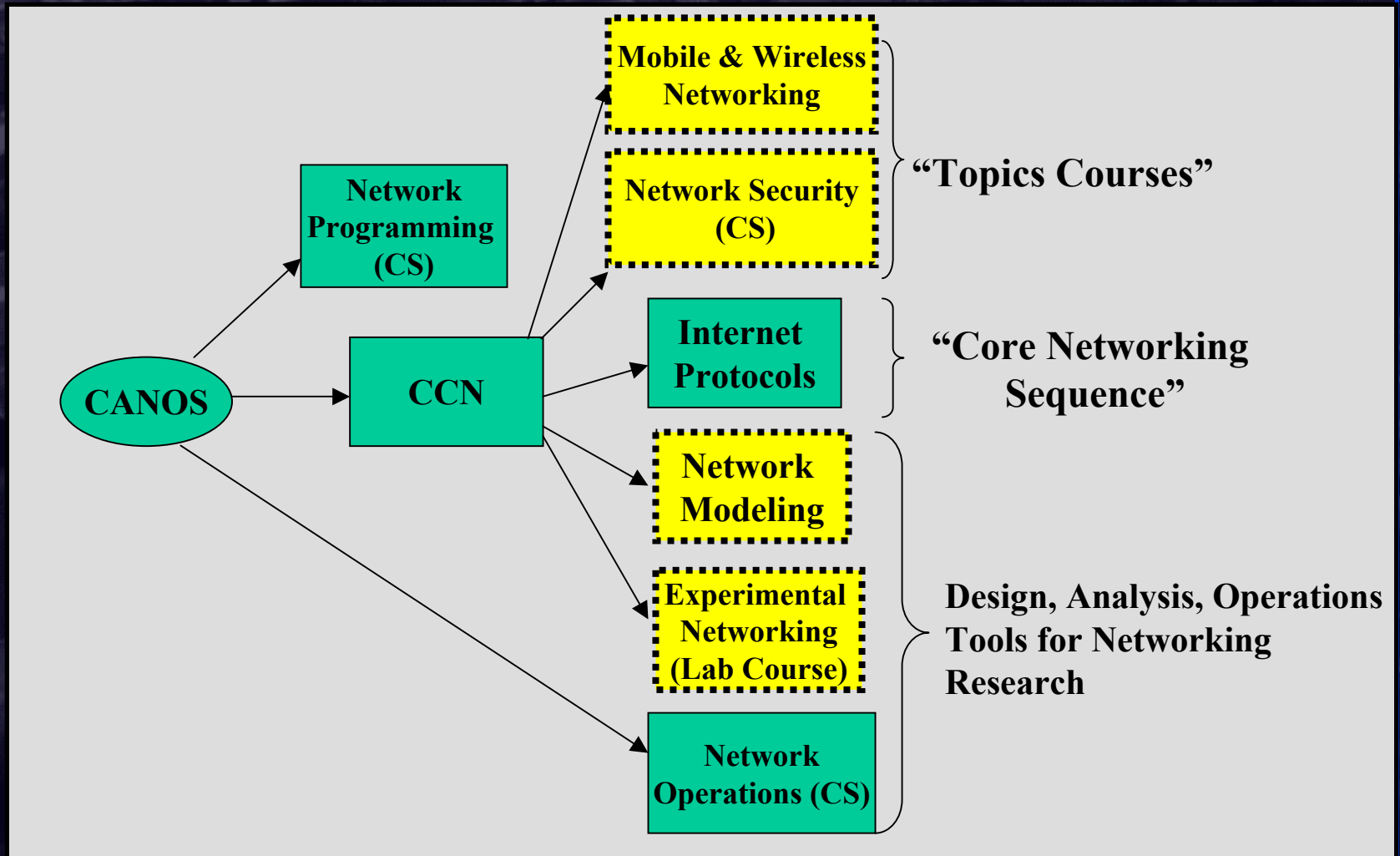


- ❑ Introductions: course description & calendar
- ❑ Answers to frequently asked questions
- ❑ Prerequisites
- ❑ Informal Quiz

# Who's Who

- ❑ **Instructor:** Shiv Kalyanaraman; [kalyas@rpi.edu](mailto:kalyas@rpi.edu),
  - ❑ Room: JEC 6042, Phone: x8979
- ❑ **Course secretary:** (on-campus)
  - ❑ Melissa Reardon; [reardm@rpi.edu](mailto:reardm@rpi.edu)
  - ❑ Room: JEC 6049 ; Phone: x6313
- ❑ **PDE Production/Videostream Point-of-contact:**
  - ❑ John Hughes: [hughej@rpi.edu](mailto:hughej@rpi.edu), x6947
- ❑ **TA:**
  - ❑ Omesh Tickoo, [tickoo@networks.ecse.rpi.edu](mailto:tickoo@networks.ecse.rpi.edu), x8289
  - ❑ (or by posting a note on the WebCT bulletin board)

# Networking Courses @RPI



# Course Description Highlights

## □ Syllabus:

- Core protocols: Transport (TCP, UDP), IP, Routing, Addressing/Naming ...
- Advanced topics: Multicasting, Security, Next-generation IP, Better-than-best-effort Internet, High-Speed Routers, IP Telephony ...

## □ Goals:

- Breadth of topics
- Depth in core areas, and key advanced topics
- Insights into design and implementation
- Preparation for possible research/advanced development in networking
- Mix of online videos and in-class interactive work

# Course Description Highlights (Continued)

- ❑ Lectures
- ❑ Informal quizzes: Every class
- ❑ Students should pre-view the videos from the Spring 2002 offering
- ❑ Class will cover a digest of the material, followed by informal quizzes and class discussion
  - ❑ I will randomly call on students to ask you to explain your answer.
- ❑ Remote students: download latest class material from WebCT or class web page for each class
- ❑ WebCT bulletin board: Post your questions!
- ❑ WebCT: Grades, papers, RFCs, Internet drafts...
- ❑ **Informal Quizzes:** {10 pts}
- ❑ **2 Labs: Hands-on TCP and IP** {20 pts}
- ❑ **2 Homeworks:** {10 pts}
- ❑ **1 Research Case Study:** {10 pts}
- ❑ **3 exams: 15 pts, 15 pts, 20 pts:** {50 pts}

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# Prerequisites

- ❑ Required (*no exceptions*):
  - ❑ ESCE-4670 Computer Communication Networks or equivalent
  - ❑ VERY GOOD 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
- ❑ Transport layer: multiplexing, reliability, congestion control, introduction to TCP and UDP
- ❑ Basics of probability and queuing theory

# Still trying to get into the course ?

- ❑ Do you have the pre-requisites ?
- ❑ Please submit course add form to course secretary: Melissa, JEC 6049 by tomorrow noon
- ❑ 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.
  - ❑ Make sure you mention your email address

# Answers to FAQ's

- ❑ Lot of paper readings in the class (due every homework) + research case study (writing skills)
- ❑ Labs require advanced C programming skills
- ❑ Informal quizzes given in every class
- ❑ 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.