DEPARTMENT OF COMPUTER SCIENCE
## UNIVERSITY of HOUSTON

Introduction to Computer Networks

Course Highlights

- Covers the concepts, protocols and technologies driving today's computer networks and the internet.
- Networking layers studied in a top-down fashion, starting with applications like email and Web, down to data transmission in wired and wireless networks.
- Equal emphasis on concepts and lab work.

(a)   (b)
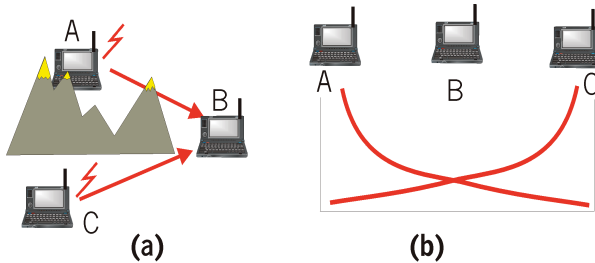
Learning technologies

- The course is taught in a multimedia classroom and lectures are supplemented by on-line demos and exercises.
- The course management is done with WebCT, including submission of assignments and posting scores, use of discussion boards and making lecture overheads and reference material available.

Is this course for you ?

- The course is a comprehensive introduction to networking technologies. It should benefit all IT personnel, specifically in Networking industry and in Systems Administration.
- Requires a strong background in programming and familiarity with Operating Systems concepts.

Reference Material
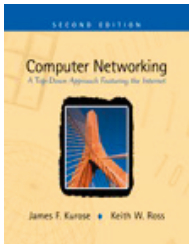
"Computer Networking: A Top-Down Approach Featuring the Internet, 2/E"
James F. Kurose and Keith W. Ross, Addison Wesley, 2003.
www.awl.com/kurose-ross

About the Instructor

Dr. Jaspal Subhlok is an Associate Professor of Computer Science and Electrical and Computer Engineering at the University of Houston. His research investigates the use of high speed networks and the internet to solve challenging commercial and scientific problems.

Labwork

- Programming assignments Involving C/C++ with Sockets on Linux network.
- A Final project such as a card trading game, peer-peer data network, or loss tolerant distributed matrix multiplier.

And students say...

It is really interesting because we learn about networking which has become a mandatory part of any company, school or home. Internet is everywhere and we use it regularly, so it's fun to learn about how it works. It is not too difficult to understand, either. I would recommend this course to every computer science student, however, other students will also get a lot out of it, too.

-Deepti Vyas, Center for Technology Literacy,

Topics

- ***Introduction:*** Circuit and packet switching, physical media – DSL and Cable systems, internet protocol stack.
- ***Application Layer:*** The Web, FTP (File Transfer Protocol), Electronic mail, and DNS (Domain Name Service).
- ***Transport layer:*** UDP (User Datagram Protocol), reliable data transport, TCP (Transmission Control Protocol), flow control, congestion control.
- ***Network Layer:*** Datagram and virtual circuits, routing, IP addressing and transport, ICMP (Internet Control Message Protocol), RIP (Routing Information Protocol) and OSPF (Open Shortest Path First).
- ***Link Layer:*** Multiple access protocols, LAN addressing and ARP (Address Resolution Protocol), CSMA/CD and CSMA/CA protocols, Ethernet, Hubs, Bridges, and Switches, Wireless LANs, Wide Area Protocols - PPP, ATM and Frame Relay.
- ***Selected topics*** from multimedia networking, network security, and real-life networks.
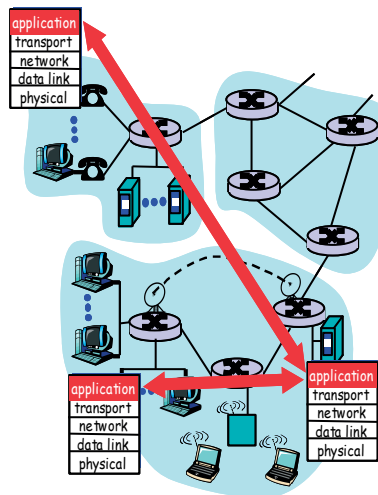
Related Coursework

- Operating Systems
- Internet Computing
- Grid Computing
- Parallel Computing
- Distributed Systems

For more information, visit: www.cs.uh.edu/courses/cosc4377

Department of Computer Science ● 501 PGH Hall Houston, TX 77204 ● (713) 743-3350 ● www.cs.uh.edu