Outline for a CS123

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1 PHILOSOPHY

• *Give students a complete understanding of 1 network system.*

• *Extract the Unifying Systems Ideas:* Multiplexing, resource allocation, naming and addressing, security.

• *Give students insight into designing a Protocol:*

• *Give Students Insight into Real World Constraints:*

• *Give Relevant Homework:*

• Understand what’s going on currently in the networking world.

2 ROUGH COURSE OUTLINE

• INTRO: Philosophy, Course Outline. Hat Transfer Metaphor. Layering. (2 lectures)

• PHYSICAL LAYER: Nyqvist and Shannon Theorems, Sampling and Clock Recovery and Eye Patterns. Types of media. (3 lectures).

• DATA LINK PROTOCOLS: Data Link intro, framing. (1) Error Detection and CRCs (1). Error recovery, flow control, and initialization (1). Ethernets (1)). Data link bridges (1). (5 lectures).

• Midterm, 1 lecture
• ROUTING PROTOCOLS (IP): Addressing, Endnode protocols and ARP, Routing Protocols, Fragmentation & Formats & Virtual Circuit Protocols, IP Multicast (if time) (5 lectures)

• TRANSPORT PROTOCOLS: Connection Management, TCP/IP and OSI Transport Solution. TCP Congestion Control. (2 lectures)

• CONCLUSION: What the course was all about. (1 lecture).