ECE 456: Computer Networks

**Pre-requisites:**
- ECE 251; ECE 303/STAT 303; CS 160 or (CS 155; CS 156; CS 157).
- Able to write programs in a computer language such as C, C++, Java, Perl or Python.
- Understands concepts in probability, distributions such as uniform and exponential distributions.
- Can compute moment generating functions.
- Can calculate probability of events.

**Frequency Spectrum**

**Digital Frequency representation**

**Probability**

**Computer Programming**

**Concepts:**
- Circuit switching and packet switching
  - Sonet/SDH
- Layered Architecture – ISO-OSI, TCP/IP
- Physical layer – Link Technologies, Encoding
- Data link layer
  - Logical link control
  - Framing
  - Error detection and correction
  - Cyclic Redundancy Codes
- Medium Access Control (MAC)
  - Local-Area Networks, IEEE 802.X Standards
- Internet Protocol (IP)
  - Addressing, Service Model
  - Routing
- Transport Protocols
  - TCP and UDP
  - Flow control, Congestion Control

**Network Programming**

**Applications:**
- Remote command execution
- Ethernet, WiFi

**Distributed Systems**

**Internet Protocols**

**Network Technologies**

**Link Techniques**

**As of 03/11/12**