Fall Syllabus

The following is the syllabus for Fall 2014

September

5 - Lecture 1: Introduction to Course and Cyberspace
- Introducing the instructors.
- What this course will and will not cover.
- Introducing the players & the impact of the cyberworld.

12 - Lecture 2: Internet History, Concepts and Protocols
- Internet history and architectural principles.
- The Internet Protocols (IPv4 & IPv6).
- Flow & congestion control protocols.

19 - Lecture 3: Overview of Digital Technology and Computing Devices
- Digital basics, wired logic, computing devices.

26 - Lecture 4: Security Fundamentals – part I
- Confidentiality, Integrity, Availability
- Risk management, attack trees, threat modeling
- Physical security

October

3 - Lecture 5: Security Fundamentals – part II
- Hash and encryption algorithms.
- Digital signatures and public key infrastructures.
- Software security management. (patching, virus checkers, etc.)

10 - Lecture 6: Network Technology
- Legacy and current telecommunications technology & architectures.
- Current enterprise layer 2 and layer 3 network technology & architectures.
- Current Internet service provider technology & architectures.
- Cloud technology and services.

17 - Lecture 7: Software - Simple Software
- Operating system and software building basics, open source software.

Midterm Exam posted

24 - Lecture 8: Internet and Enterprise Middleware
- DNS, DHCP, Authentication Authorization Accounting (AAA) and directory services.

Midterm Exam due 11:59 PM ET

31 - Lecture 9: Software - Distributed Software Systems
- Application architectures, distributed systems, databases.

November

7 - Lecture 10: Enterprise and ISP Routing
- Routing concepts.
- Enterprise routing including OSPF & IS-IS.
- Internet service provider routing including BGPv4 & MPLS.

14 - Lecture 11: Security Tools
- Types and uses of security tools.

21 - Lecture 12: Designing and Building the Infrastructure
- From the end point to the ISP
- Service architecture
- The cloud
- Business continuity and disaster recovery.
28 - Thanksgiving Holiday, no class

December

5 - **Lecture 13**: Managing the Infrastructure
   - Enterprise and Internet service provider network and service management.

12 - **Lecture 14**: Internet Regulation, Technology Standards, and Course Lessons
   - History of telecommunications regulations.
   - Current Internet-related laws & regulations.
   - Internet-related technology standards development.
   - Course review.

**Final Exam posted & all projects due (11:59 PM ET)**

19 - **Final Exam Due: 11:59PM ET**