First Principles: Process Isolation, Domain Separation
1. Time: 1-4
2. Virtualization and Building a lab
   a. Time
   b. Lecture: Basic concepts of virtualization
      i. Explanation of CPU hardware
      ii. Basic concept of a hypervisor
         1. Mapping a hard drive to a file
         2. Mapping virtual machine RAM to physical memory
         3. Translating virtual CPU instructions to physical CPU instructions
      iii. Small-level virtualization:
         1. AV sandboxes
   c. Activity: Boot up a local Windows 7 VM and access the Internet
   d. Activity: Boot up a local Windows XP VM and access the Internet
   e. Activity: Boot up a Kali Linux
   f. Activity: Run a basic exploit from Kali Linux onto the XP VM
      i. https://www.youtube.com/watch?v=cAYAeDKwN1c
3. Virtual Network Types
   a. Time
   b. Lecture: Home networking and virtual networking
      i. Basic home networking concepts
         1. Client
         2. Server
         3. Router
         4. Switch
         5. Network address translation
      ii. Basic home networking tools
         1. ip/ifconfig
         2. tracert/traceroute
         3. netcat
         4. Whois
         5. nslookup
         6. netstat
   c. Activities
      i. Use the VM to:
         1. Perform a traceroute to Google IP (8.8.8.8)
         2. Perform a traceroute www.google.com
         3. Perform a whois on each IP between RIT and Google
         4. Use netcat to communicate with the other members of your team.
         5. Use netcat to manually make an HTTP request
      ii. Overflow:
         1. Map the traceroute to other websites